SINGLE-USE PLASTICS

A country-wide analysis of the status of regulation and implementation in India

Norwegian Embassy
New Delhi

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CONTENTS

LIST OF FIGURES

LIST OF TABLES

ABBREVIATIONS

BMW	Biomedical Waste
BoPET	Biaxially-oriented polyethylene terephthalate
BOPP	Biaxially-oriented polypropylene
CBWTF	Common Biomedical Waste Treatment Facilities
CIPET	Central Institute of Petrochemicals Engineering & Technology
CKC	Clean Kerala Company
cm	centimeter
CM	Chief Minister
COVID-19	CoronaVirus Disease 2019
CPCB	Central Pollution Control Board
CPVC	Chlorinated polyvinyl chloride
DC	District Collector
DFO	Divisional Forest Officer
DPCC	Delhi Pollution Control Committee
EC	Environmental Compensation
EOU	Export Oriented Units
EP	Environment Protection
EPS	Expandable polystyrene
EPR	Extended Producer Responsibility
EU	European Union
EVA	Ethylene-vinyl acetate
FGD	Focus Group Discussion
g	grams
gsm	grams per square meter
GPU	Gram Panchayat Units
HDPE	High-density polyethylene
INMPI	India-Norway Marine Pollution Initiative
ISO	International Organization for Standardization
KCC	Khangchendzonga Conservation Committee
kg	kilograms
KSPCB	Kerala State Pollution Control Board
KTA	Kilo Tonnes per Annum
L	Litres
LDPE	Low density polyethylene
LLDPE	Linear low-density polyethylene
LSG	Local Self Government
MCD	Municipal Corporation of Delhi
mL	Milliliter
MLP	Multi-layered Plastic
MoH&UA	Ministry of Housing and Urban Affairs
MoEF&CC	Ministry of Environment, Forest and Climate Change
MPCB	Maharashtra Pollution Control Board
MT	Million Tonnes
NCT	National Capital Territory
NDMC	New Delhi Municipal Corporation
NGT	National Green Tribunal
OSPCB	Odisha State Pollution Control Board
PCC	Pollution Control Committee
PET	Polyethylene terephthalate
PP	Polypropylene
PRO	Producers Responsibility Organisation
PS	Polystyrene
PWM	Plastic Waste Management
PVC	Polyvinyl chlorine
R&D	Research and Development
RDF	Refuse Derived Fuel
SDM	Sub-divisional Magistrate
SEZ	Special Economic Zones
SPCB	State Pollution Control Board
SUP	Single-Use Plastics
SWM	Solid Waste Management
TPA	Tonnes per Annum
TSG	Technical Support Group
TV	Television
ULB	Urban Local Bodies
USD	United States Dollars
USA	United States of America
UT	Union Territories

EXECUTIVE SUMMARY

Plastic pollution is one of the major environmental issues that the world and India are trying to grapple with. Each year at least 8 million tonnes of plastic waste enters the oceans, of which 80% comes from land-based sources.[1] Plastic debris has severe impacts on marine life and the broken-down debris known as microplastics enter our food chain. Despite this, globally plastic production and consumption are on a steady rise and single-use plastics (SUP) have a significant share of this.

For India, while per capita plastic consumption (13.6 kg/year) is still less than half of the world average, under a business-as-usual scenario, this is expected to increase by 8-10% annually.[2] The share of SUP in this will be significant as such plastic products have become an inextricable part of the modern lifestyle. While this certainly remains a major concern, the good news is that the problem is now widely recognized and the policy momentum around it is growing.

In the past five years, the Government of India and various State Governments and Union Territories (UT) administrations have issued regulations and regulatory guidelines to deal with plastic pollution, especially targeting SUPs. The Plastic Waste Management (PWM) Rules of 2016, as developed by the Ministry of Environment, Forest and Climate Change (MoEF&CC), remains a key legislation in this direction. The Ministry also issued specific guidelines (in January 2019) on the SUP ban. These actions can be traced back to a pledge by Prime Minister Narendra Modi in June 2018 to eliminate all SUPs by 2022. In October 2019, this pledge to phase-out SUPs by the year 2022 was emphasised. Consequently, many state governments/UTs issued notifications and executive orders to ban various SUP products. In the backdrop of such regulatory measures and policy pledges, this report evaluates the status of regulations on SUPs and their implementation across the 36 states and UTs of India.

The state/UT imposed bans on SUP products offer an opportunity to examine regulation of SUP and opportunities to improve plastic legislation in India. To this end, this report focuses on state/UT imposed SUP bans between 2016 and 2019 to understand gaps and challenges in their design and implementation. Further, an in-depth examination of five states/UT, namely, Maharashtra, Kerala, Odisha, Sikkim, and Delhi was undertaken through stakeholder consultations and a detailed review of all the bans introduced in the state/UT history. It is important to note that these consultations and associated analyses were conducted between September 2020 and January 2021, well before the current SUP ban was announced. Thus, while some of the lessons in the report may be used to design any future plastic legislation, it is not a commentary on the SUP ban of 1 July 2022.

KEY OBSERVATIONS

This evaluation of SUP ban status across 36 states/UTs of India indicates that, except for few states, such as Kerala, Sikkim, and Himachal Pradesh, the ban on SUP has not been successful and has suffered from several challenges with respect to regulations, as well as strategies adopted for the implementation of the bans.

1. First, a number of major plastics producing and consuming states, such as Gujarat,[3] West Bengal,[4] Andhra Pradesh, and Telangana, have still not issued a notification or executive order to ban SUPs. For states/UTs which have issued SUP ban notifications or executive orders, in most cases, there are significant approach and design problems which have a clear implication on their enforcement.

   A major issue with ban notifications or orders is the very short timeframe given for transitioning away from SUPs. None of the states/UTs gave sufficient time for implementing the bans. The maximum time given for the ban implementation was six months (by Tamil Nadu), while in the majority of states/ UTs the bans were put into effect anywhere between immediately to a month. This is an unrealistic time period for any transition of such scale. As global best practices suggest, without providing adequate time for the market and users to adapt, the SUP ban is likely to fail.

2. A second problem is with respect to comprehensiveness and clarity regarding banned items. For example:
   - Only 14 states/UTs have followed the MoEF&CC Guidelines for Single-Use Plastics (2019) in their list of banned products (which included all plastic carry bags irrespective of thickness and size, and with or without handles; all plastic cutlery; and all styrofoam cutlery and decorative items).
   - There is also a lack of clarity in defining some of the banned products, such as cutlery or decorative items.

3. Third, there is a problem with exemptions. In fact, this came in two ways, viz., concerning items exempted and jurisdictions that have been exempted from the purview of the bans. With respect to exempted items, there are two major issues that in all likelihood weakened the implementation:
   - In some states/ UTs (such as Uttar Pradesh, Madhya Pradesh, Haryana, Uttarakhand), no exemption has been given. This is completely unrealistic for implementation in the absence of alternatives for several SUP items, which also include essentials.

- There is also a lack of clarity in items exempted, the most common one being branded products. Considering branded items can range from small local brands to major international ones, such vagueness can leave a significant proportion of SUP products outside the ban purview and create scope for exploiting the loophole.

  Another problem under the exemptions is that some states exempted certain jurisdictions. For example, in Odisha, the ban is limited to six cities/municipal corporations. In states such as Uttar Pradesh, rural areas have been exempted from the ban purview. Considering the growing periphery of our city limits, the fluid nature/jurisdiction of peri-urban areas, and the rapidly changing consumption patterns in rural areas, such exemption clearly undermine the effectiveness of restricting SUPs.

4. The fourth major challenge is with the enforcement mechanisms. There is a lack of clarity regarding the responsibilities and power of various authorities at the state, district, and local levels. In most states/UTs, multiple agencies are involved in enforcing the ban, which has been found to create issues of coordination and accountability.
5. Finally, there is no consideration for consumption reduction in the ban orders/notifications. This is essentially for SUP products that immediately do not have any alternatives or realistically cannot be phased out overnight given their essential use. A well structured extended producer responsibility (EPR) can be crucial in this regard. However, only three states have specified EPR measures. In fact, most states/UTs did not mention or promote any alternatives while implementing the ban.

Inevitably, this has resulted in poor implementation of the ban on-ground, as captured through discussion with various stakeholders in the five states/UTs - Maharashtra, Odisha, Kerala, Sikkim, and Delhi. The infirmities in the regulations and execution strategies have further been compounded by the COVID-19 crisis, which has increased the usage of SUPs and has simultaneously weakened the implementation of the SUP ban across states/UTs.

RECOMMENDATIONS

The assessment clearly shows that there is a lack of a deliberative and strategic approach with respect to the SUP ban. States/UTs have developed regulations or have issued notifications and orders as a mere response to the central directions, without a clear intention of achieving effective outcomes.

As India approaches the 2022 deadline of phasing out all SUP products, pressure will mount both at the Central, State (and UT) levels to address plastic pollution. While urgency is crucial, the Government in all instances must avoid any hasty measure. Any new legislative effort or practice should be built on carefully examining past successes and failures and future prognosis.

In this regard, the following are some of the key aspects the Government should consider for effectively phasing out SUP within a defined timeframe:

1. National Plastic Strategy: India should develop a National Plastic Strategy over 20 years time horizon to support an environmentally responsible plastic industry, reduce SUPs, improve waste management, and reduce plastic pollution, including marine pollution. The strategy should integrate the concept of circular economy in the life-cycle of plastic, develop alternative sustainable feedstock for plastics, and promote the reduction of SUPs. A ban on SUPs must be complemented by economic and market instruments.
2. Comprehensive legislation based on ground-level studies and assessment: Based on available data and understanding, a comprehensive legislation, combining multiple regulatory instruments, should be designed and implemented to reduce SUP consumption effectively. These could include bans and restrictions; taxes, subsidies, other fiscal mechanisms; standards, certifications, labeling; EPR provisions; and waste management strategies.
3. Develop state and city action plans: State and city action plans will act as critical extensions to the existing PWM Amendment Rules 2021. Under these, local authorities could be involved in gathering evidence on the level of success and existing gaps in the implementation of the SUP ban legislation. This could be through monitoring and reporting on the state of the ban while simultaneously identifying additional SUPs that could be brought under the purview of the ban.
4. Communication and awareness among consumers: The first phase of the IEC strategy could focus on widely disseminating the list of banned SUPs and their respective phaseout dates. In the second phase, authorities could focus on educating and raising awareness on the need for a nation-wide SUP ban. It is important that these announcements are periodic and consistent to ensure stakeholders are well-prepared for the ban.

5. Re-design EPR: A more comprehensive EPR scheme, including both upstream and downstream EPR, needs to be designed:
    - Upstream EPR: To include mandatory targets for reusability and recyclability of packaging or products. Mandatory requirements to facilitate higher rates of recycling of packaging like MLPs is an important part of EPR. Reduced plastic packaging or 'lightweighting' is also an important strategy to reduce waste quantity and plastic pollution.
    - Downstream EPR: EPR schemes rely on producers paying fees to cover the cost of the collection, processing and disposal of single-use plastic products and packaging (already being done by the latest guidelines under the PWM (Amendment) Rules 2022). In many countries, like Japan, producers are required to directly pay to the local authorities the collection, processing and disposal/recycling costs. The German EPR system requires plastic packaging manufacturers to pay a fee to a national waste management company. The size of the fee depends on the number of packaging units and the weight of the materials.
6. Promote alternatives: Alternatives to SUP that are locally available and affordable should be promoted. This could include instruments like providing subsidies and government procurement. Plastic manufacturers, who are likely to lose due to the ban, should also be compensated and facilitated to move into alternative industries. Promotion of local micro, small and medium scale manufacturers of alternatives is also critical to phasing out SUP products.
7. Improve waste management ecosystem: A sound waste management ecosystem, including segregation, collection, and recycling, is crucial for managing SUPs. The SWM Rules need to be revisited, setting practical goals and targets for improving segregation, recycling, and municipal waste disposal.
8. Build capacity of stakeholders: Building capacity of various stakeholders in the plastics value chain is the need of the hour. These capacity building exercises must include policy instruments, EPR and its implementation, and strengthening infrastructure on PWM for better channelization of resources.
9. SUP management during pandemics and emergencies: A critical learning from the pandemic was the need for a seamless waste management system grounded in efficient source segregation of waste. In addition to this, coordination between government agencies such that any measure to safeguard the public does not contradict an existing plastic legislation is a necessity. To this end, there is scope for the SUP ban to incorporate exceptions valid under extraordinary circumstances (e.g., pandemic, natural disaster etc.). This can prevent indiscriminate use of SUPs.

INTRODUCTION

Recognising the deep linkages between land-based activities and ocean pollution, the UNEP India office signed an agreement with the Royal Norwegian Embassy to join the 'India-Norway Marine Pollution Initiative (INMPI)'. The objective of INMPI is to tackle and prevent pollution from both land-based and offshore activities in India, in line with SDG 14 and its target 14.1, which by 2025 seeks to "prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution".

The UNEP project, under INMPI, titled 'Coordinating and Providing a Common Platform for India-Norway Marine Pollution Initiative in India', aims to improve the management of marine pollution in India through appropriate policy and institutional frameworks as well as support India to engage globally on this issue actively. Specifically, the project aims to support the policy and technical capacity of the Marine Litter Cell that has been constituted in the Ministry of Environment, Forest & Climate Change (MoEF&CC) through research, analysis, and stakeholder engagement. To this end, UNEP has commissioned a study to assess the status of single-use plastics and mapping of marine litter capacities in India.

Land-based plastics are the primary sources of marine plastic litter, and single-use plastics (SUPs) have emerged as a significant source of this problem.[5,6] Reducing plastic waste, especially SUPs, is a key priority for India.[7] Currently, almost all States and Union Territories (UTs) have some form of rules to ban the use of SUPs. However, the status of implementation of these regulations varies widely within states; some states seem to have implemented their rules much more successfully than others. There are also significant differences in the regulations between states as these were enacted before the MoEF&CC had made an effort to develop a standard definition and categorise SUPs.[8] States' success with the SUP bans has been further challenged as a result of the COVID-19.[9]

The COVID-19 pandemic has increased the utilization of plastic-based products such as masks, small sanitizer bottles, food containers, polythene bags, and sachets and thus increased SUP waste generation.[10] Therefore, it is vital to assess the state of regulations and their effectiveness in reducing SUPs pre-COVID-19 as well as during the COVID-19 pandemic for devising effective policies in a post-pandemic world.

The primary objective of this study, therefore, is to examine national and sub-national regulations to assess SUP bans and their status across the 36 states and UTs of India.[11] To assess the impact of state-level bans and gaps in the implementation, an in-depth analysis of four states and one UT -- Maharashtra, Kerala, Odisha, Sikkim and Delhi -- located in different regions of the country was undertaken. The impact of COVID-19 and its implications on SUP bans across the states was also examined. The outcomes of this study can be used as an input to design and improve the national/ sub-national regulations on SUPs.

The report is structured as follows:

Chapter 1 details the plastic production and consumption data worldwide and in India. The chapter further discusses consumption patterns of SUPs based on the material and sectors of use. Finally, discrepancies in existing data on plastic waste generation and recycling have been discussed.

Chapter 2 lays out the timeline for various legislations for the management of plastic waste, thus setting the tone for this report.

Chapter 3 evaluates SUP bans across 36 states and UTs in terms of the type of regulations enforced, ban jurisdiction, scope of regulation (SUP items banned, exempted items, prohibited/ banned activities), implementation mechanisms (penalties and enforcement authorities) and regulatory instruments invoked for the bans (fiscal, standards and EPR).

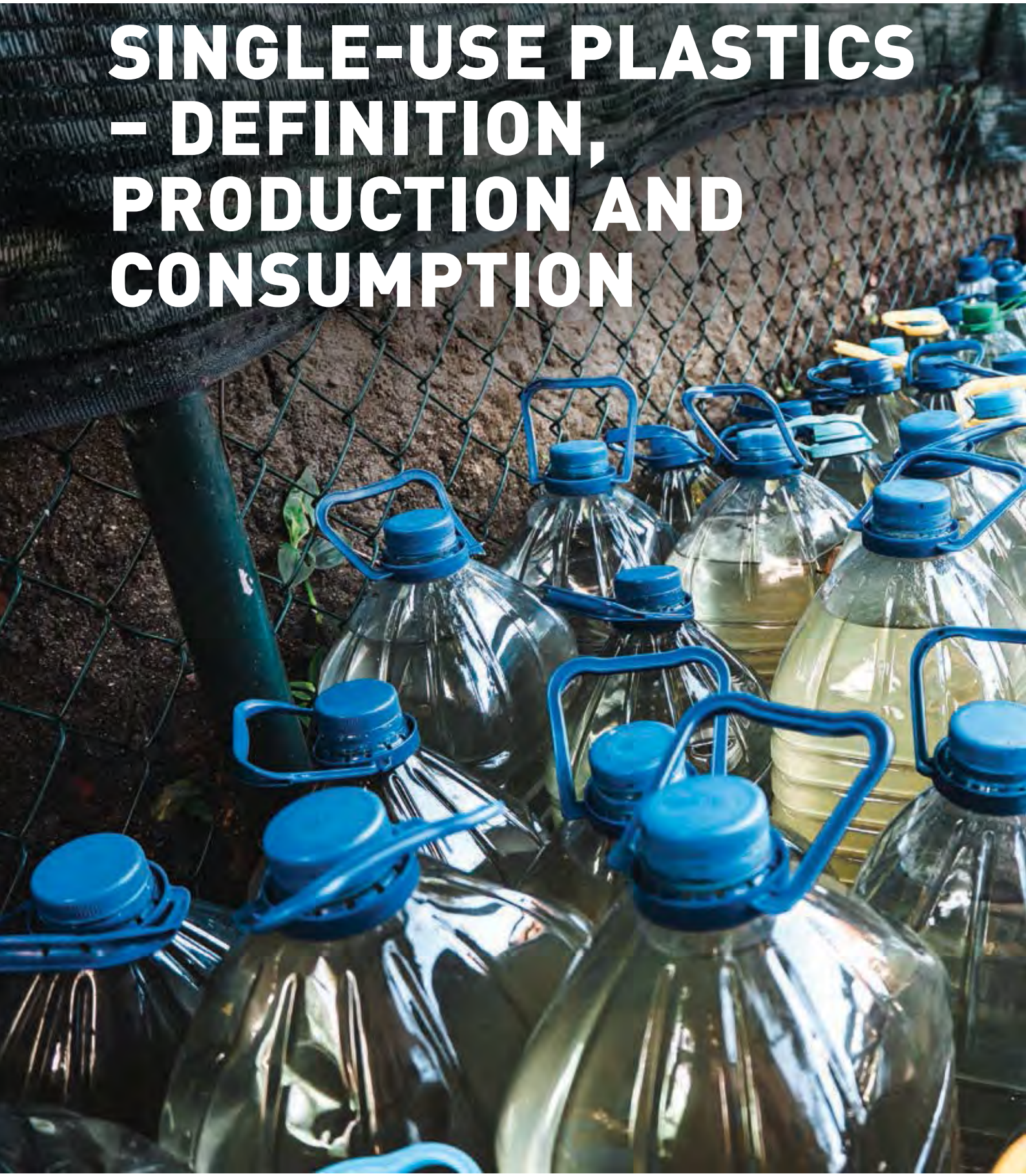
Chapter 4 deep-dives into the status of the SUP ban in four states and one UT, namely, Kerala, Odisha, Maharashtra, Sikkim and Delhi NCT, respectively. This chapter discusses challenges and interventions in relation to the SUP bans, recycling infrastructure, EPR and COVID-19, based on data collected from a series of state-wise FGDs.

Chapter 5 focuses specifically on the management of biomedical waste since COVID-19 pandemic, while simultaneously speculating on changes required in the waste management system as well as legislation to help create a robust waste management system resilient to any similar unforeseen shocks in the future. Data from the FGDs was used to examine state-specific challenges posed by COVID-19.

In the sixth and final chapter of the report, recommendations to help design a holistic plastic management framework, including SUP bans, have been provided.

CHAPTER 1

SINGLE-USE PLASTICS – DEFINITION, PRODUCTION AND CONSUMPTION



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- Single-use plastics are products made of plastics that are used only once before they are discarded.
- There is no universal list of SUP products; countries have come out with their list of most problematic SUPs and have used various instruments to eliminate or reduce their use.
- SUPs are primarily produced from five types of plastics – High and low-density Polyethylene, Polyethylene terephthalate/ Biaxially-oriented polyethylene terephthalate, Polypropylene, Polystyrene/ Expandable polystyrene.
- While there is no exact data on the amount of SUPs produced worldwide, it is estimated that about 50% of global annual plastic production is used for making SUPs.
- In India, the SUP consumption in 2018-19 was 7.7 MT or about 42% of total plastic consumption.

SUPs have grown to become an inextricable part of the modern lifestyle, complementing the high rates of mobility required in our personal and professional lives. Collins dictionary defines 'single-use' as products made to be used once only.[12] So, SUPs are products made of plastics that are used only once before they are discarded. But this definition is not used literally by countries for banning and phasing-out SUPs. Countries have come out with their own list of most problematic SUPs and have used various instruments to eliminate or reduce their use.

The European Union's (EU) Directive on single-use plastics, for example, has targeted the following 10 items:[13]

i. Cotton bud sticks
ii. Cutlery, plates, straws and stirrers
iii. Balloons and sticks for balloons
iv. Food containers
v. Cups for beverages
vi. Beverage containers
vii. Cigarette butts
viii. Plastic bags
ix. Packets and wrappers
x. Wet wipes and sanitary items

Of the above items, cotton bud sticks, cutlery, plates, straws, stirrers, and sticks for balloons will be banned in the EU from 3 July 2021, because sustainable alternatives are easily available and affordable for these items.[14] The People's Republic of China (hereafter China), on the other hand, has banned just plastic straws and non-degradable shopping bags from the end of 2020.[15] South Australia has banned single-use plastic straws, cutlery and stirrers from 1 March 2021 and will prohibit expanded polystyrene cups, bowls, plates and clamshell containers from 1 March 2022.[16]

In India, under the PWM Rules 2016, plastic carry bags (virgin or recycled) with thickness less than 50 microns and plastic sheet or like, which is not an integral part of multi-layered packaging (MLP) and cover made of plastic sheet used for packaging, wrapping commodities, with thickness less than 50 microns have been banned.[17] PWM Rules 2016 further prohibit the use of recycled plastic for packaging food stuff as well as use of plastic sachets for gutka, tobacco and pan masala.[18]

Pursuant to India's announcement to phase-out all SUPs by 2022, in January, 2019 the MoEF&CC came out with a 'Standard Guidelines for Single-Use Plastic', in which it recommended banning of the three categories SUPs, namely:[19]

- All plastic bags, with or without handles, irrespective of thickness and size;
- Plastic cutlery including plates, cups/glasses, straws, stirrers etc; and,
- Cutlery and decorative items made of styrofoam (Thermocol).

In addition to this, an Expert Committee constituted by the Department of Chemicals and Petrochemicals published a report 'Single Use Plastic' with a list of 12 SUP items to be phased out at the earliest:[20]

- Thin carry bags (less than 50 micron)
- Non-woven carry bags and covers (less than 80 gsm and 320 gsm)
- Small wrapping/ packing films
- Straws/ Stirrers
- Cutlery: Foamed cups, bowl, plates
- Cutlery: Laminated bowls and plates (non-foamed)
- Cutlery: Small plastic cups/ containers (less than 150 ml and 5 g)
- Earbuds with plastic sticks and plastic sticks for balloons, flags, candies etc.
- Cigarette filters (non-biodegradable)
- Expanded polystyrene used for decoration
- Small plastic bottles for drinking water (<or= 200 mL)
- Plastic banners (less than 100 microns thickness)

Most recently, PWM Amendment Rules 2021 has been published, prohibiting the manufacture, import, stocking, distribution, sale and use of the following SUPs from 1st July 2022:

i. Ear buds with plastic sticks, plastic sticks for balloons, plastic flags, candy sticks, ice-cream sticks, polystyrene [Thermocol] for decoration.

ii. Plates, cups, glasses, cutlery such as forks, spoons, knives, straw, trays, wrapping or packing films around sweet boxes, invitation cards, and cigarette packets, plastic or PVC banners less than 100 micron, stirrers.

iii. The 2021 amendment tackles the issue of single-use plastic carry bags as follows: "...with effect from 30th September, 2021, the thickness of plastic carry bags has been increased from fifty microns to seventy five microns and to one hundred and twenty microns with effect from the 31st December, 2022. This will also allow reuse of plastic carry due to increase in thickness."[21]

Since the declaration of a country-wide ban of SUPs, many states and UTs have come out with their own list of SUP items with considerable variation observed in the types of SUPs and activities banned. It is important to note that MoEF&CC's guidelines were shared with the states and UTs in 2019 to create the SUP bans. However, most of them are not in line with the guidelines issued by the MoEF&CC *(see Chapter 3)*.

1.1 PRODUCTION AND CONSUMPTION

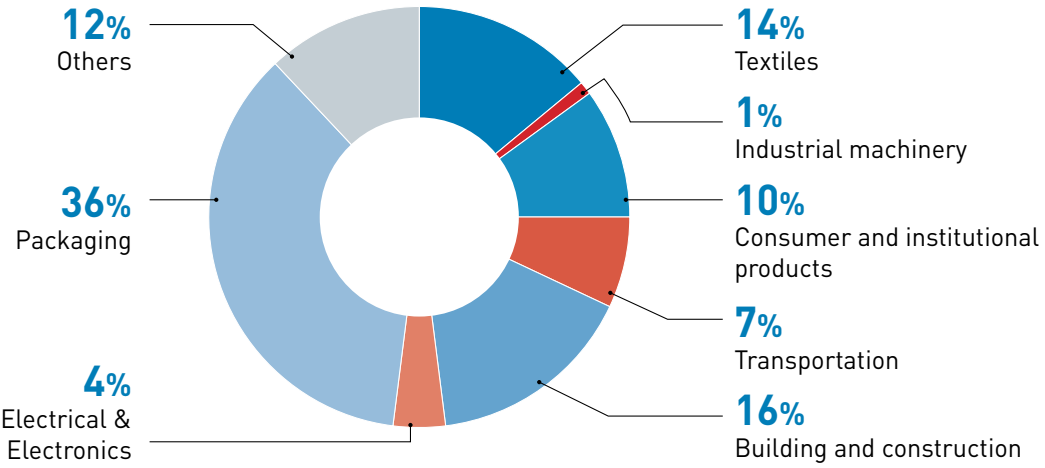
In 2019, worldwide plastic production reached 368 million tonnes (MT) - ~10 MT increase observed every year since 2017.[22,23] About 36% of plastics is used for packaging, 16% for building and construction, 14% for textiles, 10% on consumer and institutional products, 7% for transportation, 4% for electrical and electronics and the remaining 12% on other miscellaneous uses (*see Figure 1: Global sector-wise plastic consumption*).[24] While there is no exact data on the amount of SUPs produced worldwide, it is estimated that about 50% of global annual plastic production is used for producing SUPs, mostly packaging.[25]

As evident from the aforementioned data, plastic packaging constitutes a significant share of plastic use. It is estimated that plastic packaging accounted for 50% of all the plastic waste generated globally. While China is the largest worldwide generator of plastic packaging waste, the United States of America (USA) is the largest generator of plastic packaging waste on a per-capita basis, followed by Japan and the EU; India's generation was the least of all the major economies (*see Figure 2: Plastic packaging waste generation in major countries*).[26]

Plastic consumption in India has grown from 0.9 MT in 1990 to 18.45 MT in 2018 – a 20-fold growth in the last 28 years. In 2018-19, India produced 17 MT and consumed 18.45 MT plastics (*see Figure 3: Plastic consumption in India (1990-2018)*).[27] The plastic industry is growing at 10% annually and the per capita plastic consumption in India is estimated to grow from 13.6 kg in 2018-19 to 22 kg by 2022.[28] In India, PP, PVC and HDPE account for close to 60% of all the plastics consumed (*see Figure 4: Different types of plastics consumed in India (2018-19)*)

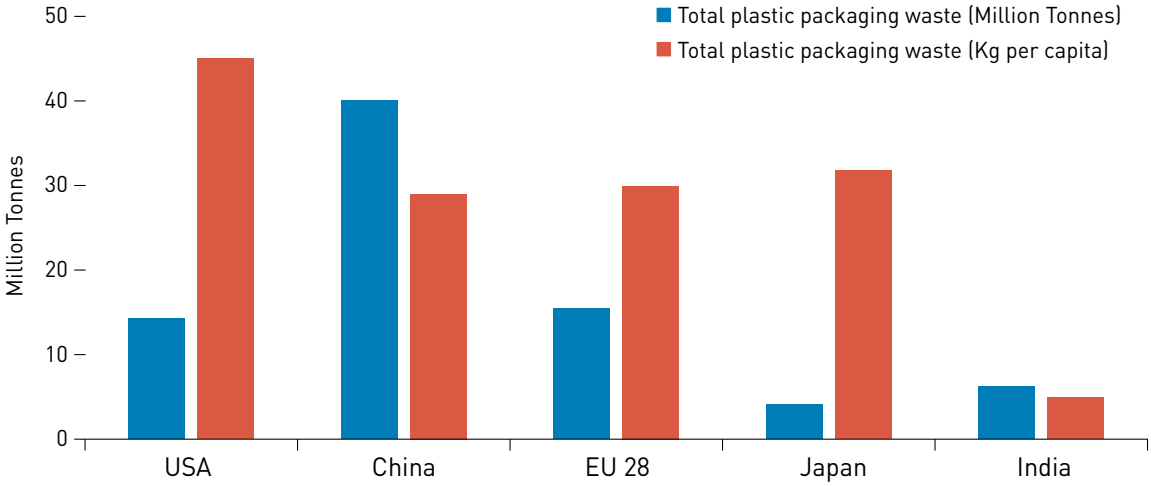
While there is no formal estimate of the amount of SUP consumed in India, in the following section an attempt has been made to make such an estimate.

Figure 1: Global sector-wise plastic consumption



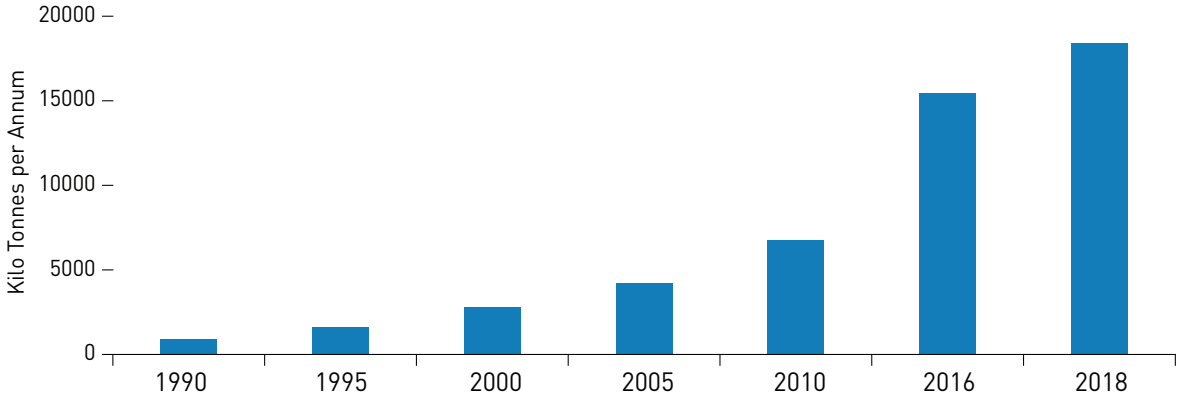
Source: Single-Use Plastics: A Roadmap for Sustainability, UNEP, 2018

Figure 2: Plastic packaging waste generation in major countries



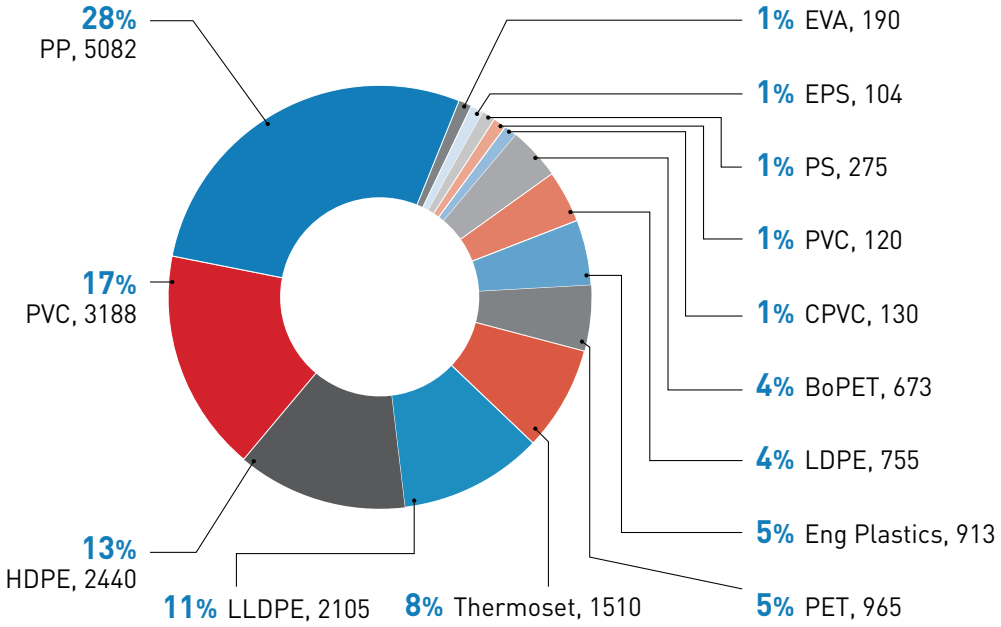
Source: Single-Use Plastics: A Roadmap for Sustainability, UNEP, 2018

Figure 3: Plastic consumption in India (1990-2018)



Source: Indian Plastic Industry Report, 2019, PLASTINDIA Foundation, 2019

Figure 4: Different types of plastics consumed in India (2018-19)



Source: Indian Plastic Industry Report, 2019, PLASTINDIA Foundation, 2019

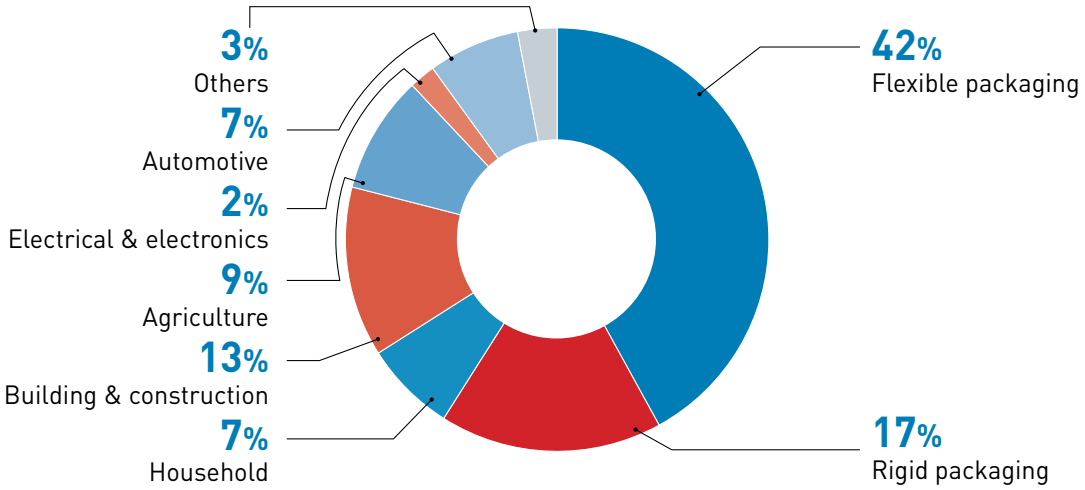
1.2 SUP CONSUMPTION IN INDIA

SUPs are largely produced from five types of plastics – Polyethylene (PE) (high density & low density), Polyethylene terephthalate (PET)/ Biaxially-oriented polyethylene terephthalate (BOPET), Polypropylene (PP), Polystyrene (PS)/ Expandable polystyrene (EPS) (*See Figure 4: Different types of plastics consumed in India (2018-19)*) . Some amount of SUP, especially those related to the medical industry, is also produced from Polyvinyl chloride (PVC). (*see Table 1: Types of plastics and corresponding SUP products*)

The consumption of these five types of plastics in India in 2018-19 was 15.5 MT. Of these, 59% (9.1 MT) was consumed as flexible and rigid packaging. This is far higher than in Europe, where just 40% of these five types of plastics are used as packaging.[29] While plastic packaging is a major component of plastic wastes, not all packaging are SUPs; some are used for long duration. So, we cannot consider all the flexible and rigid packaging as SUPs. In addition to packaging, SUPs find uses in other products like cutlery, cigarette butts and straws. (*Figure 5: Sector-wise consumption of PE, PP,PET, PS & PVC in India*)

The SUP consumption in India in 2018-19 was 7.7 MT or about 42% of total plastic consumption. However, if we exclude Raffia, which is used multiple times and for longer duration, then the SUP consumption reduces to 6.0 MT or about 32.75% of the total plastic consumption. So, the SUP consumption in India is at least one-third of the total plastic consumption. (*Table 2: Consumption of plastics and corresponding SUP products*)

Figure 5: Sector-wise consumption of PE, PP,PET, PS & PVC in India



Source: Indian Plastic Industry Report, 2019, PLASTINDIA Foundation, 2019

Table 1: Types of plastics and corresponding SUP products

Plastic Type	SUP products
HDPE	Milk pouches, bottles, carry bags, freezer bags, shampoo bottles, ice cream containers
LDPE	Plastic bags, various containers, dispensing bottles, wash bottles, food packaging film
PET/BOPET	Water bottles, soft drink bottles, food jars, plastic films, sheets, dispensing containers for cleaning fluids, biscuit trays
PP	Disposable cups, bottle caps, straws, microwave dishes, ice cream tubs, potato chip bags
PS	Disposable cups, glasses, plates, spoons, trays
EPS	Hot drink cups, insulated food packaging, protective packaging for fragile items
PVC	Tubes, IV fluids, dialysis solutions, as well as blood and blood products.

Source: Compiled from CPCB's Consolidated Guidelines for Disposal of Plastic Waste, September 2017 & Single-Use Plastics: A Roadmap for Sustainability, UNEP, 2018

Table 2: Consumption of plastics and corresponding SUP products

Plastics	Consumption (MT)	SUP products produced (MT)								
		Flexible packaging	Rigid packaging	Raffia	BOPP	F&F	TQ	Disposables	Others (medical)	Total
PP	5,082			1,677	595	440	255			2,967
PE	5,300	2,942	790							3,732
PVC	3,188								63.76	63.76
PS & EPS	275							125		125
PET & BoPET	1,638		832							831.74
Total	**15,483**	**2,942**	**1,622**	**1,677**	**595**	**440**	**255**	**125**	**63.76**	**7,719.50**

Source: Estimated from Indian Plastic Industry Report, 2019, PLASTINDIA Foundation, 2019

1.3 PLASTIC WASTE GENERATION AND RECYCLING

The data on plastic waste generation is highly varied. At one end of the spectrum is the estimation done by Central Institute of Petrochemicals Engineering & Technology (CIPET). As per CIPET's estimates, approximately 9.4 MT of plastic waste is generated in the country annually. Of this, about 60% is recycled and the remaining remains uncollected and littered.[30] Of the total plastic waste generated about 20% of plastic waste is non-recyclable.[31]

At the other end of the spectrum is the data put out by the Central Pollution Control Board (CPCB) as Annual Report on Implementation of Plastic Waste Management Rules, 2016. As per the 2018-19 annual report, about 3.36 MT of plastic waste were generated across 35 states and UTs. Eight states, with major towns and cities accounted for over 72% of total plastic waste generation, namely, Maharashtra (12%), Tamil Nadu (12%), Gujarat (11%), West Bengal (9%), Karnataka (8%), Uttar Pradesh (8%), Delhi (7%) and Telangana (5%) (*see Table 3: Plastic waste generation (2018-19), p18*).[32]

The industry estimates are in between the two extremes. According to the industry estimates, in 2018-19, 8.60 MT of plastic waste was generated and 6.02 MT (70%) was recycled.[33] There is an urgent need to reconcile these data to arrive at a correct figure on the plastic waste generation and recycling in the country.

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Table 3: Plastic waste generation (2018-19)

State	Estimated Plastic waste generation (TPA)	Percentage contribution (%)
Andhra Pradesh	66,314.0	2.0
Arunachal Pradesh	3,787.4	0.1
Assam	32,277.9	1.0
Bihar	68,903.3	2.1
Chhattisgarh	6,000.0	0.2
Delhi	224,810.0	6.7
Goa	32,580.5	1.0
Gujarat	356,873.0	10.6
Haryana	68,735.3	2.0
Himachal Pradesh	3,672.0	0.1
Jammu & Kashmir	34,367.4	1.0
Jharkhand	51,454.5	1.5
Karnataka	272,776.0	8.1
Kerala	133,316.0	4.0
Madhya Pradesh	72,327.4	2.2
Maharashtra	409,630.0	12.2
Manipur	12,453.8	0.4
Meghalaya	1,263.0	0.0
Mizoram	13.3	0.0
Nagaland	268.2	0.0
Odisha	90,139.0	2.7
Punjab	119,414.6	3.6
Rajasthan	104,704.4	3.1
Sikkim	5.7	0.0
Tamil Nadu	401,091.0	11.9
Telangana	183,014.7	5.4
Tripura	26.2	0.0
Uttar Pradesh	254,401.8	7.6
Uttarakhand	31,093.0	0.9
West Bengal	300,236.1	8.9
Andaman & Nicobar Islands	1,850.0	0.1
Chandigarh	11,715.4	0.3
Daman & Diu	1,947.7	0.1
Lakshadweep	1,48.0	0.0
Puducherry	8,433.0	0.3
Total	**3,360,043.5**	**100**

Source: Central Pollution Control Board, 2019. Annual Report 2018-19, Implementation of Plastic Waste Management Rules, 2016

CHAPTER 2

SINGLE-USE PLASTIC REGULATION AND MANAGEMENT IN INDIA

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- India is one of the first few countries to recognise the pollution menace of SUPs and enact laws to ban these products.
- The first major regulation was enacted in 1999 -- the Plastics Manufacture, Sale and Usage Rules, 1999 to eliminate carry bags of less than 20 microns in thickness.
- The most comprehensive law on SUPs was enacted in 2016 – Plastic Waste Management Rules, 2016 – which banned polythene bags of less than 50 microns in thickness and assigned responsibilities to stakeholders in the plastic supply chain.
- On June 5, 2018, Prime Minister Narendra Modi pledged to phase out all SUPs by 2022.
- The most recent effort was the release of the draft Plastic Waste Management Rules 2021, which includes a definition and phase-out strategy for SUPs.

India is one of the first few countries to recognize the pollution menace of SUPs and enact laws to ban these products. The first major regulation was enacted in 1999 -- the Plastics Manufacture, Sale and Usage Rules, 1999. This regulation was designed to eliminate carry bags by specifying the size and thickness of bags that could be sold in the market. It mandated that no carry bags made of virgin or recycled plastic which are less than 8 x 12 inches (20 cm x 30 cm) in size and less than 20 microns in thickness can be sold in the market.[34]

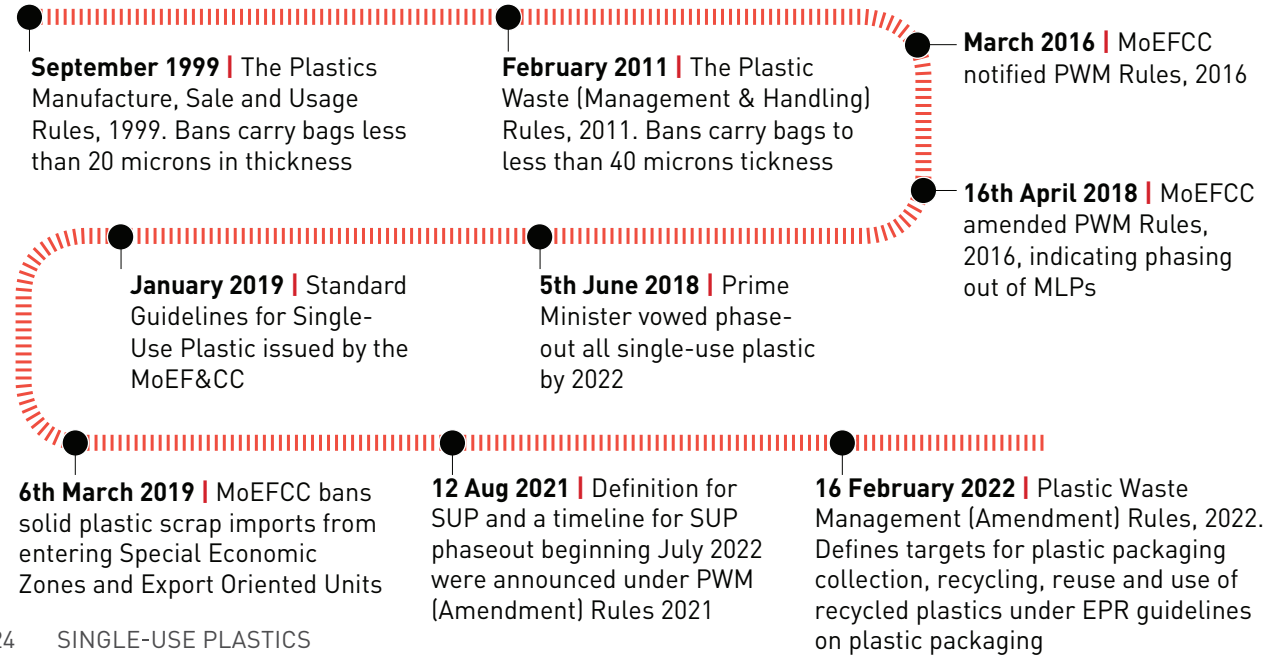
The Plastic Waste (Management & Handling) Rules, 2011, increased the minimum thickness of carry bags to 40 microns and municipal authorities were given the responsibility to set-up systems for plastic waste management, including setting up plastic waste collection centres with financial support from the manufacturers in line with the principle of Extended Producer Responsibility (EPR).[35]

The most comprehensive law came in 2016 - PWM Rules, 2016 - which was distinctive in that it assigned responsibilities to every stakeholder in the plastic supply chain.[36] The rules:

- Increased the minimum thickness of plastic carry bags from 40 to 50 microns;
- Expanded the jurisdiction of applicability from the municipal area to rural areas, and made gram panchayats responsible;
- Introduced plastic waste management fee through pre-registration of the producers, importers and vendors.[37]
- Introduced responsibility of waste generators. Individual and bulk generators like offices, commercial establishments, industries are to segregate the plastic waste at source, handover segregated waste, pay user fee as per bye-laws of the local bodies.
- Streamlined EPR by assigning the responsibility to producers and brand owners for collecting back waste generated from their products. They are now required to approach local bodies with a formulated plan/system for the plastic waste management within the prescribed time frame. This was different from what was followed earlier, wherein EPR was left to the discretion of the local bodies.
- Phased out MLP that are "non-recyclable, or non-energy recoverable, or with no alternate use."[38]

During 'World Environment Day-2018' (June 5, 2018) Prime Minister Narendra Modi pledged to phase-out all Single-Use Plastic by 2022. Pursuant to this announcement, in January 2019, the MoEF&CC came out with a 'Standard Guidelines for Single-Use Plastic', in which it recommended a multi-pronged strategy to deal with SUPs (*see Box 1*).[39] Under this strategy, the central government has allowed states/UTs autonomy to devise rules and regulations to ban SUPs. So far, 30 States/UTs have issued notifications/orders introducing regulations pertaining to complete or partial ban on plastic carry bags and/or other SUP products. But there are major differences in the regulations between states. To understand the status of regulations and its implementation, a detailed review of all states/UTs notifications/ orders was undertaken. The review maps the status of regulations and categorizes its various elements to come out with their salient features. The goal is to understand the impacts of these regulatory interventions on reducing the use of SUPs.

Figure 6: Initiatives taken by India to tackle SUPs



BOX 1: SALIENT FEATURES OF THE STANDARD GUIDELINES FOR SINGLE-USE PLASTIC ISSUED BY THE MOEF&CC

I. Definition

Single-use plastics, also often referred to as disposable plastics (use-and-throw items), are commonly used for plastic packaging and include items intended to be used only once, before they are thrown away or recycled. These include, among other items, carry bags, food packaging, bottles, straws, containers, cups and cutlery.

II. Waste management system improvements

- States/UTs may invest heavily in improving source segregation of waste. Waste collection and transportation systems should be standardized, and best practices should be inculcated.
- Manual on Municipal Solid Waste Management -2016, as prepared by the Ministry of Housing and Urban Affairs (MoH&UA), which provides a management framework for "Integrated Solid Waste Management" for Urban Local Bodies (ULBs) to prepare a Municipal Solid Waste Management Plan.
- States/UTs and ULBs may focus on improving last mile delivery of collection and transportation services.
- The States/ UTs shall endeavour to promote and encourage identification and use of plastic alternatives products.

III. Legal options for phasing out of Single-Use Plastic

State/ UT administrations intending to introduce a prohibitive action on single-use plastic products may identify a clear list of products that need to be targeted through this measure so that there is no ambiguity. The products may include:

1. All plastic carry bags, with or without handles, irrespective of thickness and size;
2. Plastic cutlery including plates, plastic cups/glass, straws, stirrers etc.; and
3. Cutlery and other decorative products made of Styrofoam (Thermocol).

IV. Promotion of eco-friendly alternatives

Projects which support upscaling or recycling of single- use plastic items and promote small scale or micro enterprises, should be encouraged.

V. Social Awareness and public education

- Awareness/ Sensitization campaigns should be organized throughout the State/ UT through TV, Radio etc. to discourage the use of single-use plastic.
- All events organized by or sponsored by the government shall be single- use plastic free.
- Governments should try to invite eminent public personalities to serve as brand ambassadors in the campaign to discourage the use of single use plastic.
- Attention should be focused on creating awareness/ sensitization in hotspots of plastic usage including tourist spots, religious spots, beaches, pilgrimage sites, schools colleges etc.
- Particular attention should also be focused on students and young adults to inculcate a behavioural change in plastic usage. Changes in school curriculum should be introduced to discourage use of single-use plastics, promote the use of plastic alternate materials and promote source segregation.

VI. Action by Government offices

All government offices/ subordinate offices etc., all other offices under the administrative control shall be declared single-use plastic free by banning single-use plastic items/ disposable plastic items including:

1. All types of Plastic carry bags; and
2. Plastic/ thermocol (polystyrene) disposable cutlery including cups/glass, bowls, glasses, forks, spoons, containers, straws etc. used for serving eatables/ drinks;
3. Further, all government offices/ subordinate offices etc. and all other offices under the administrative control shall discouraged to use plastic products including:
   a. Artificial flowers, banners, flags, flower pots;
   b. PET plastic water bottles;
   c. Plastic folders, trays etc.; and
   d. Any other plastic material for which an alternative exists.
4. All Government offices/ subordinate offices etc. shall promote and practice source segregation. Public sector enterprises should be encouraged to promote such phase-out of single-use plastics;
5. Private sector should also be encouraged to give up single-use plastic voluntarily.

VII. Extended Producer Responsibility

Certain single-use plastic products including PET bottles used for packaging beverages including water, may not require prohibitive action and will come under the ambit of recycling/processing channels under EPR.

With reference to MLP, it is observed that replacement technologies are still not available to the manufacturers of products which use such packaging. Hence it may not be suitable to phase-out or prohibit the use of MLPs at this stage. MLP which is nonrecyclable or non-energy recoverable and with no alternate use are required to be phased out (Plastic Waste Management (Amendment) Rules, 2018).

CHAPTER 3

STATE-LEVEL REGULATIONS ON SINGLE-USE PLASTICS

Rahul Kumar/iFOREST

- The primary regulatory approach for SUP management across the states/UTs have been 'bans and restrictions'.
- So far, 30 states/UTs have issued specific notifications, executive orders, or other subordinate legislation to ban SUPs -- 25 have issued gazette notifications, and five have issued executive orders.
- Twenty-three states/UTs have a complete ban on plastic carry bags irrespective of thickness, and 18 states/UTs have banned plastic cutlery.
- Timeframe for banning SUPs was very short across states/UTs, with a majority imposing an immediate ban, restricting the time available to industries and consumers to adapt to the ban.
- Promotion of alternatives to SUPs and support to SUP manufacturers to shift to alternatives has not been addressed by any states/UT.
- Most states/UT have used multiple agencies for enforcement, leading to poor coordination and accountability.

There are five principal regulatory approaches for SUP management, namely[40]:

- Bans and restrictions;
- Taxes, subsidies or other fiscal instruments;
- Standards, certifications and labelling;
- EPR; and,
- Waste management legislation.

India has enacted waste management legislations like the Solid Waste Management Rules, 2016 and the PWM (Amendment) Rules, 2022 that address plastic wastes, including SUPs.

The primary regulatory approach observed across the states/UTs has been 'bans and restrictions' aimed at prohibiting the production, import or export, distribution, sale and/or use of one or more SUP item. There are, however, some hybridisation of regulation observed, as some states opted for EPR and mandatory labelling for compostable plastics in addition to the ban. None of the states opted for economic instruments for the SUP bans.

To evaluate the state/UTs regulations on SUP, the following indicators and sub-indicators have been used:

1. Type of regulations
   a. Status of regulations
   b. Implementation timeframe
2. Ban jurisdictions
   a. Scope of the regulation
   b. Items banned
   c. Exempted items
   d. Prohibited or banned activities
3. Implementation mechanisms
   a. Responsible authorities
   b. Monitoring mechanism
   c. Provisions for non-compliance- Penalty
   d. Power for enforcement
4. Regulatory instruments
   a. Taxes, subsidies or other fiscal instruments
   b. Specified standards, certification, labelling
   c. EPR

Further in-depth review of five states/UTs, namely, Maharashtra, Kerala, Odisha, Sikkim and Delhi NCT, have been undertaken to review best practices and understand the challenges in enforcing the SUP ban among various stakeholder groups.

3.1 ASSESSMENT OF SUP BANS

Various State Governments and UTs have issued notifications or administrative orders in the past years to ban the manufacture, storage, transport, distribution, use and other such activities of various SUP products, to minimize the overall burden of plastic waste on the environment and simultaneously promote use of alternative (sustainable) materials. This section provides an assessment of the status of regulations for banning SUPs in various states/UTs.

3.1.1 Status of regulations

- So far, 30 states/UTs have issued specific notifications, executive orders or other subordinate legislations, to ban and/or prohibit SUPs (*see Table 4: Notification/ Executive order on SUPs in states/UTs*).
- 25 states/UTs have issued gazette notifications and five have issued executive orders on SUPs.
- In two states, Gujarat and Mizoram, ban on plastic carry bags was imposed; however, this was not a state-wide ban. In Gujarat, the Gandhinagar Municipal Corporation integrated such provision in its bye-laws[41]; in Mizoram similar action has been taken by Aizawl Municipal Corporation. Both these states do not have any state-level notifications.
- In West Bengal, an executive order to completely ban carry bags in religious and historical places has been issued. As per records of the CPCB, a draft notification regarding restriction on the use of SUP items has been finalized and is to be notified soon.[42]
- Out of the states which have final notifications in place, 25 states have issued such notifications/orders in the past five years (2016 onwards).[43]
- The notification/executive order for imposing the ban on SUPs in most cases have been issued by exercising the power as conferred under the provisions of Environment (Protection) (EP) Act, 1986, most commonly under Section 5 of the EP Act (that provides for the power to give directions).
- However, in eight states - Goa, Haryana, Himachal Pradesh, Jammu & Kashmir, Madhya Pradesh, Maharashtra, Punjab and Uttar Pradesh -- the notifications/ orders have been issued under the concerned state law concerning non-biodegradable waste management.
- The power and jurisdiction of authorities regarding implementation of directions on SUP ban and/or monitoring, levying penalty, cognizance of offence etc. has been accordingly specified (or in cases if not specified will be determined accordingly).
- Lastly, some of the major plastic producing states – Gujarat, Andhra Pradesh and Telangana – have not imposed any bans on SUPs, other than those under PWM Rules, 2016.

Table 4: Notification/Executive order on SUPs in states/UTs

State	Date of notification/ executive order	Principle Act for exercise of power
Andaman and Nicobar Islands	05/11/19 (Gazette)	Section 5 of EP Act
Andhra Pradesh		No state-level regulation
Arunachal Pradesh	Executive order	Executive Order for partial ban on plastic carry bags in East Siang, Tawang, Leparada Changlang, Kameng & Tirap districts.[37]
Assam	10/07/19 (Gazette)	Section 5 of EP Act
Bihar	15/10/18 (Gazette)	Section 5 of EP Act
Chandigarh	27/09/19 (Gazette)	Section 5 of EP Act
Chhattisgarh	27/09/17 (Gazette)	Section 5 of EP Act
Dadra & Nagar Haveli and Daman & Diu	24-01-2014/ 22-09-2017 (Gazette)	Section 5 of EP Act
Delhi	23/10/12 (Gazette)	Section 5 of EP Act
Goa	28/09/19 (Gazette)	Section 3(A) of Goa Non-Biodegradable Garbage (Control) (Amendment) Act, 2019
Gujarat		No state-level regulations
Haryana	20/08/13 (Gazette)	Section 3-A of Haryana Non-Biodegradable Garbage Control Act. 1988
Himachal Pradesh	7-07-2009/ 19-03-2011/ 6-07-2018 (Gazette)	Section 3-A of the HP Non- Biodegradable Garbage (Control) Act, 1995
Jammu & Kashmir	03/02/17 (Gazette)	Jammu & Kashmir State Non- Biodegradable Material (Management. Handling and disposal) Act 2007
Jharkhand	17/10/17 (Gazette)	Section 5 of EP Act
Karnataka	11/03/16 (Gazette)	Section 5 of EP Act
Kerala	27/11/19	Executive order
Ladakh	23/06/20	Executive Order
Lakshadweep	25/01/19 (Gazette)	EP Act; SWM Rules 2016; Section 82 of Lakshadweep Panchayats Regulation Act, 1994
Madhya Pradesh	24/05/17 (Gazette)	Section 3 of Madhya Pradesh Non-Biodegradable Waste Management Act, 2004
Maharashtra	23/03/18 (Gazette)	Section 4 of Maharashtra Non-Biodegradable Garbage (Control) Act, 2006
Manipur		No state-level regulations
Meghalaya		No state-level regulations
Mizoram		No state-level regulations
Nagaland	17/06/19 (Gazette)	State policy and cabinet decision
Odisha	29/09/18	Executive Order
Puducherry	02/08/19 (Gazette)	Sub-rule 3(a) of rule 4 of EP Rules, 1986
Punjab	18/02/16 (Gazette)	Punjab Plastic Carry Bags (Manufacture, Usage and Disposal) Control Act 2005
Rajasthan	21/07/10 (Gazette)	Section 5 of EP Act
Sikkim	19-05-2016/ 09-08-19 (Gazette)	State Policy on Solid Waste Management Strategy, 2019
Tamil Nadu	25/06/18 (Gazette)	Section 5 of EP Act
Telangana		No state-level regulation
Tripura	10/03/15 (Gazette)	Section 5 of EP Act
Uttar Pradesh	15/07/18 (Gazette)	Section 6A, 7,12,13 of UP Plastic and Other Non-Biodegradable Garbage (Regulation) Act 2000
Uttarakhand	01/11/17 (Gazette)	Not noted
West Bengal	11/01/18	Executive Order

Source: Various state/UT notifications and executive orders

3.1.2 Implementation timelines

- The timeframe for implementation of the ban varies from state to state, with a majority of states/UTs (20) imposing an immediate ban or an extremely short timeframe for implementation (*see Table 5: State-wise SUP ban implementation timeframe, & Figure 7: Trend in SUP ban implementation timeframe*). The most extensive timeframe has been provided by Tamil Nadu, which is 180 days.
- One UT and two states have specified a phased ban, viz., Chandigarh (immediate to three months depending on type of the product), Maharashtra (immediate to one month depending on stakeholder group and product type), and Uttar Pradesh (30-75 days depending on product type).

The time frame for implementation of bans or restrictions should also be carefully determined. An immediate enforcement of bans or enforcing bans at a short notice, as has been done in most states/UTs, does not give adequate time for businesses to move to alternatives. It also leads to significant economic losses and corruption.

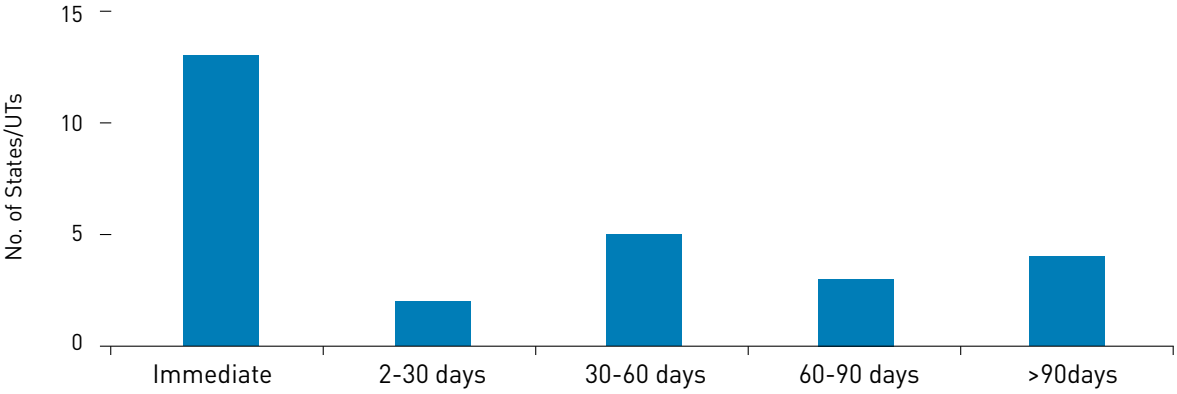
Experience worldwide indicates that a more ambitious legislative initiative, such as a total ban on certain products, may not be immediately feasible. A gradual or incremental approach may sometimes be preferable to allow for shifts in the economy or in public sentiment.[44]

Table 5: State-wise SUP ban implementation timeframe

State	Time frame given to implement ban
Andaman and Nicobar Islands	60 days
Arunachal Pradesh	Unspecified
Assam	Immediate
Bihar	60 days
Chandigarh	Phased implementation (Immediate to 90 days)
Chhattisgarh	Unspecified
Dadra and Nagar Haveli and Daman & Diu	35 days
Delhi	60 days
Goa	Immediate
Haryana	Immediate
Himachal Pradesh	90 days
Jammu & Kashmir	30 days
Jharkhand	Immediate
Karnataka	Immediate
Kerala	34 days
Ladakh	37 days
Lakshadweep	Immediate
Madhya Pradesh	Immediate
Maharashtra	Phased implementation (Immediate to 30 days)
Nagaland	90 days
Odisha	2 days
Puducherry	Immediate
Punjab	45 days
Rajasthan	10 days
Sikkim	Immediate
Tamil Nadu	180 days
Tripura	90 days
Uttar Pradesh	Phased implementation (30-75 days)
Uttarakhand	Immediate
West Bengal	Unspecified

Source: Various state/UT notifications and executive orders

Figure 7: Trend in SUP ban implementation timeframe*



Note: 'Immediate' also includes those states that did not specify any timeframe.
*Two states and one UT opted for phase-wise implementation of the ban and these are not included in the above plot.
Chandigarh - Phased implementation (Immediate to 90 days)
Maharashtra - Phased implementation (Immediate to 30 days)
Uttar Pradesh - Phased implementation (30-75 days)

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3.2 SCOPE OF BANS

3.2.1 Ban jurisdictions

While most states/UTs imposed a complete ban in their jurisdiction, some have imposed the ban in specific areas. Some states that imposed a partial ban in parts of the state/UTs were: Odisha, Uttar Pradesh, Punjab and Ladakh (*see Table 6: States/UTs with partial ban on SUP*).

While the partial ban imposed in these states/UTs covered major plastic waste generation areas, given the variety of plastic waste and changing lifestyles in peri-urban and rural areas, a comprehensive ban throughout the states/UTs is necessary for effective plastic waste management. Besides, enforcing a partial ban is extremely challenging.

3.2.2 Banned items

Various states/UTs imposed a ban/prohibition on different kinds of SUP products and activities through their respective laws/notifications/executive orders. While in most states (as reviewed), the bans included items and activities in addition to the scope of the PWM Rules (2016), in some states/UTs the provisions have been limited to the scope of the said Rules.

A detailed review of notifications/executive orders shows that the most common SUPs banned by states/UTs are plastic carry bags, plastic cutlery, thermocol cutlery and plastic straw (*see Figure 8: Most common SUPs banned by states/UTs*).

(a) Plastic carry bags

- 23 states/UTs have a complete ban on plastic carry bags irrespective of thickness (*see Figure 9: Status of plastic carry bags ban in India & Map 1: Status of ban on plastic carry bags*). These states/UTs account for 71.5% of India's population.
- The remaining 13 states/UTs have banned plastic carry bags below 50 microns.
- A total of 9 states/UTs have banned non- woven PP bags (considered as alternatives to plastic carry bags). These include, Tamil Nadu, Kerala, Goa, Maharashtra, Chhattisgarh, Tripura, Andaman and Nicobar, Chandigarh, and Delhi. Interestingly, Delhi banned these bags as early as 2011, based on a court order in 2009.[45]

(b) Cutlery

A total of 18 states/UTs banned plastic cutlery and 15 banned thermocol cutlery. Three states/UTs (Tamil Nadu, Kerala, and Lakshadweep) also banned plastic-lined cutlery.

Plastic and thermocol plates, cups, glass and spoon are the most common types of cutlery banned by states/UTs. A majority of these states/UTs mentioned the specific cutlery to be banned, the most common ones being plates and cups. A total of 15 states/UTs have specifically listed plastic plates and cups in the list of banned items. Eleven of these banned thermocol plates and ten thermocol cups (*see Figure 10: Number of states/UTs that have banned various types of single-use cutlery*).

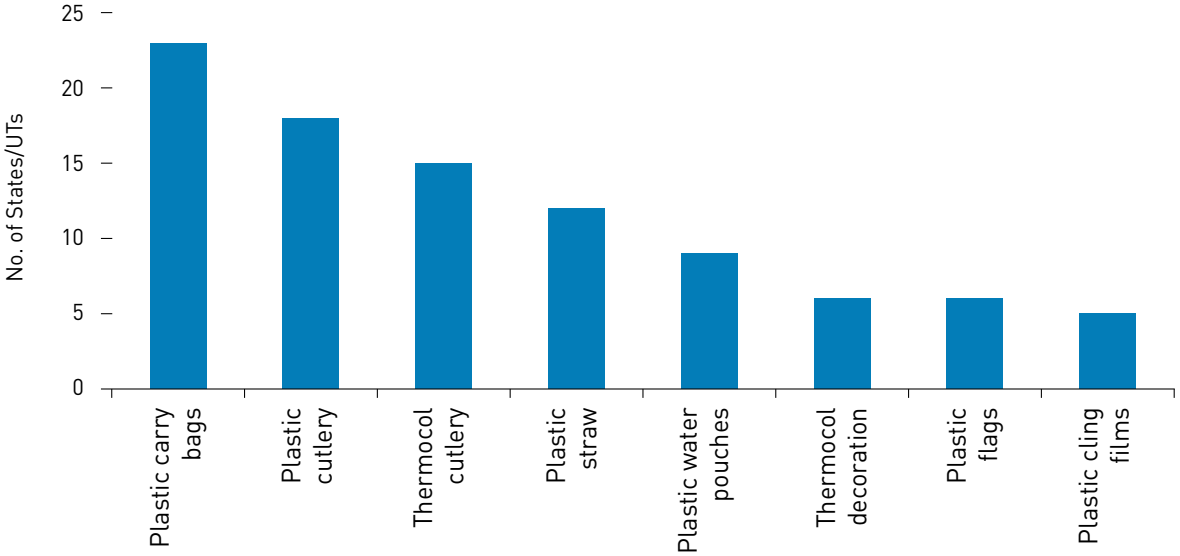
In the ban notifications, a few states have mentioned the term 'cutlery' interspersed among specific cutlery items, possibly to indicate a blanket ban on any form of tableware. Uttarakhand is the only state that did not list specific cutlery in its notification. There may be some merit to add definition of specific cutlery items due to the interchangeable usage 'cups', 'tea cups', 'tumblers', 'dish' and 'containers' across ban notification. This can also be observed in the Standard Guidelines for SUPs issued by the MoEF&CC where cups and glasses are considered as equivalents, whereas many ban notifications list cups and glasses or tumblers separately (for example Chandigarh and Andaman & Nicobar). A standard nomenclature and definition of different cutlery items would help states/UTs in enforcement.

Table 6: States/UTs with partial ban on SUP

States/UT	Jurisdiction of ban implementation
Bihar	Municipal corporations, municipal councils, nagar panchayats - Rural areas exempted
Gujarat	Gandhinagar, Sabarmati river front and Statue of Unity
Ladakh	Ban specified for Government offices and other institutions
Mizoram	Aizawl
Odisha	Applicable within six municipal corporation limits, namely, Bhubaneshwar, Cuttack, Berhampur, Rourkela, Sambalpur and Puri
Punjab	Municipal corporations, municipal councils, nagar panchayats - Rural areas exempted
Uttar Pradesh	Nagar panchayat, nagar palika, nagar nigam, industrial township – Rural areas exempted
West Bengal	Only religious places and historical sites

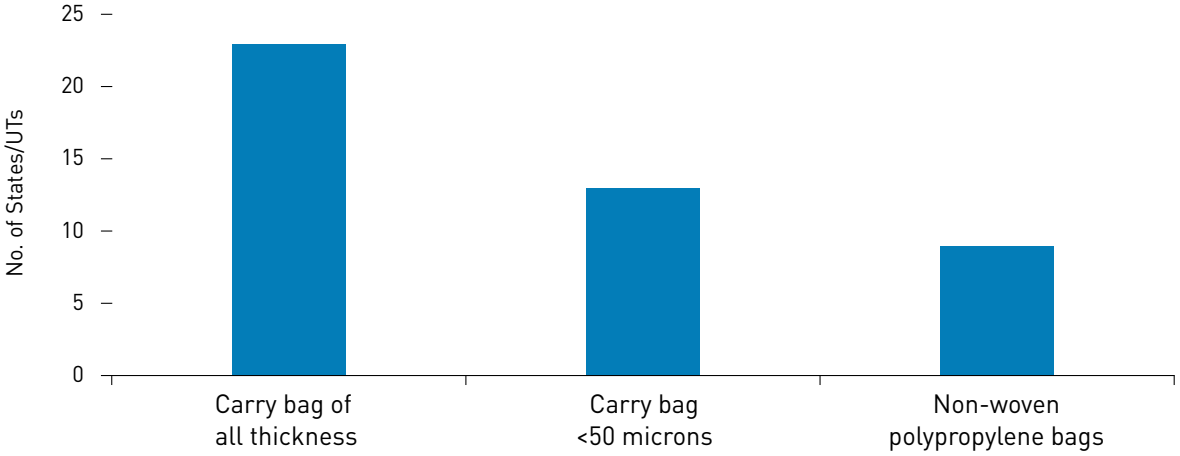
Source: Various state/UT notifications and executive orders

Figure 8: Most common SUPs banned by states/UTs



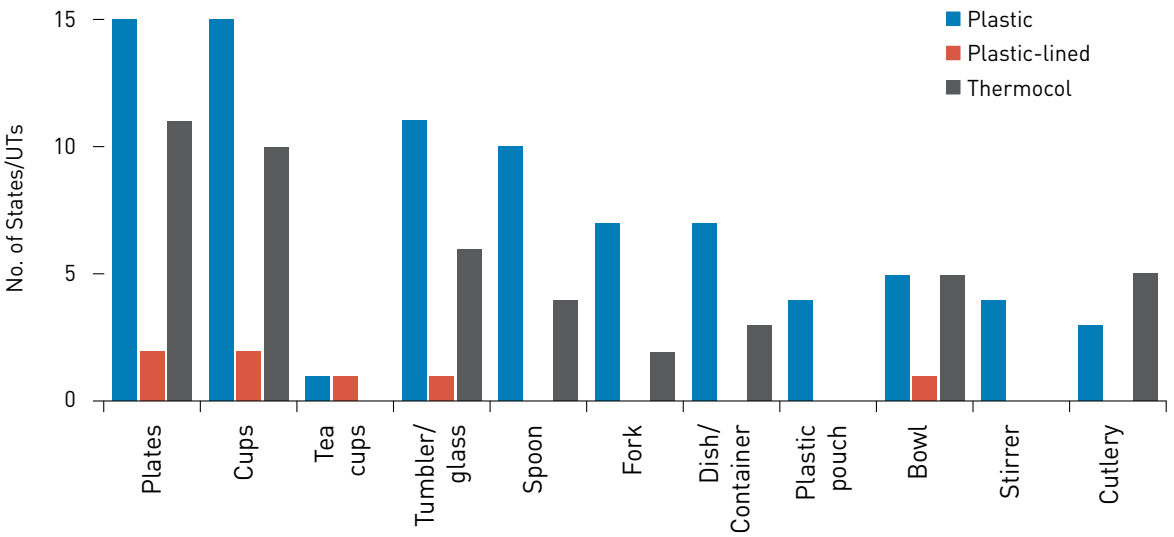
Source: Various state/UT notifications and executive orders

Figure 9: Status of plastic carry bags bans in India



Source: Various state/UT notifications and executive orders

Figure 10: Number of states/UTs that have banned various types of single-use cutlery



Source: Various state/UT notifications and executive orders

Map 1 : Status of bans on plastic carry bags

Complete ban refers to a ban of plastic carry bags of all thickness. Many states/ UTs imposed bans only on plastic carry bags of <50 microns thickness.

Source: iFOREST (2020)

(c) Other SUPs

- Plastic straw is banned by 12 states with the exception of straws that come with tetra pack boxes. Himachal Pradesh is the only state that has banned straws attached to tetra packs of beverages. The state allotted a period of six months to manufacturers to come up with biodegradable alternatives to plastic straws attached to tetra packs.[46] Kerala exempted straws attached to beverage packs and has instead placed them under the EPR scheme.
- Plastic water pouches have been banned by nine states/UTs.
- Few states banned PET bottles. Odisha banned packaged drinking bottles below 200mL, Kerala banned packaged drinking bottles below 500 mL, and Andaman banned PET bottles used for drinking water and beverages including alcohol below 2L. Some states like Maharashtra have introduced EPR to deal with PET bottles.
- Plastic flags and flex banners are banned by four and six states respectively (e.g. Tamil Nadu). Kerala is the only state to ban plastic lined paper/ cloth, plastic banners in addition to flex boards. Kerala further stipulated that any banner put up should carry logos 'recyclable, PVC free', expiry date (the banner will have to be removed by the installer immediately after the date of the programme or by 30 days after installation), name of the printing unit and printing number.
- In addition to these, some states banned several other widely used SUP items and some have banned products unique to the states:
  - » Chandigarh has the most exhaustive list of banned products - single time use (use and throw) razors, single time use (use and throw) pens, plastic packaging capacity of 50 mL/ 50g and less, plastic sticks for ear buds, balloons, flags and candies, plastic refill pouch of less than 500 mL, MLP packaging used for food/ snacks packing.
  - » Delhi and Tripura banned plastic cover/pouch to pack magazines, invitation cards, greeting cards etc.
  - » Himachal Pradesh banned polyethene material used for delivering non-food objects like magazines, books, readymade clothes, suitcases, handbags, utensils, gift items, mattresses, and other items.
  - » Andaman, Kerala, Karnataka and Tamil Nadu banned plastic tablecloth and cling films due to its rampant use during functions.

3.2.3 Exempted items

Some states/UTs have clearly specified SUP items exempted from the ban, while others have not. This has created vagueness for certain product categories. For example, food packaged in plastics during manufacture are exempt from bans in nine states/ UTs, while the rest don't mention them in their ban item list. Thus, a pertinent question at this point is: Should we assume that food packaged in plastics during manufacture is exempt across the country or only in states that have specifically mentioned it?

In general, none of the states have banned plastic milk pouches and plastics for other dairy products, oils etc.[47] Similarly, plastic used for medical purposes has not been banned by any state/UT. Specifically, 12 states/UTs have exempted plastic milk pouches and 7 states/UTs have exempted plastics being used for medical purposes such as for packaging medicines, medical equipment, etc, in their notifications.

MLP packaging is also exempt, as they are covered under EPR plan. However, some states have mentioned the requirement of thickness for MLPs used for packaging. Based on the ban notifications, Himachal Pradesh and Tamil Nadu are the only states (in 2020) to ban plastics used for packaged foods as well.

Certain types of plastic bags have been commonly exempted from the bans. Plastic bags for horticulture have been exempted by 12 states, and eight states have exempted compostable plastic bags and plastic bags for biomedical waste collection. Nine states have exempted plastic bags manufactured for exports (*see Figure 11: Types of plastic bags exempted from bans*). Kerala is the only state that banned non-woven PP bags, compostable bags[48] and sapling bags. The state also imposed a ban on the use of garbage bags made of non-compostable material, however, this was revoked.[49]

Lastly, many states have exempted SUPs being manufactured in Special Economic Zones (SEZ) for export.

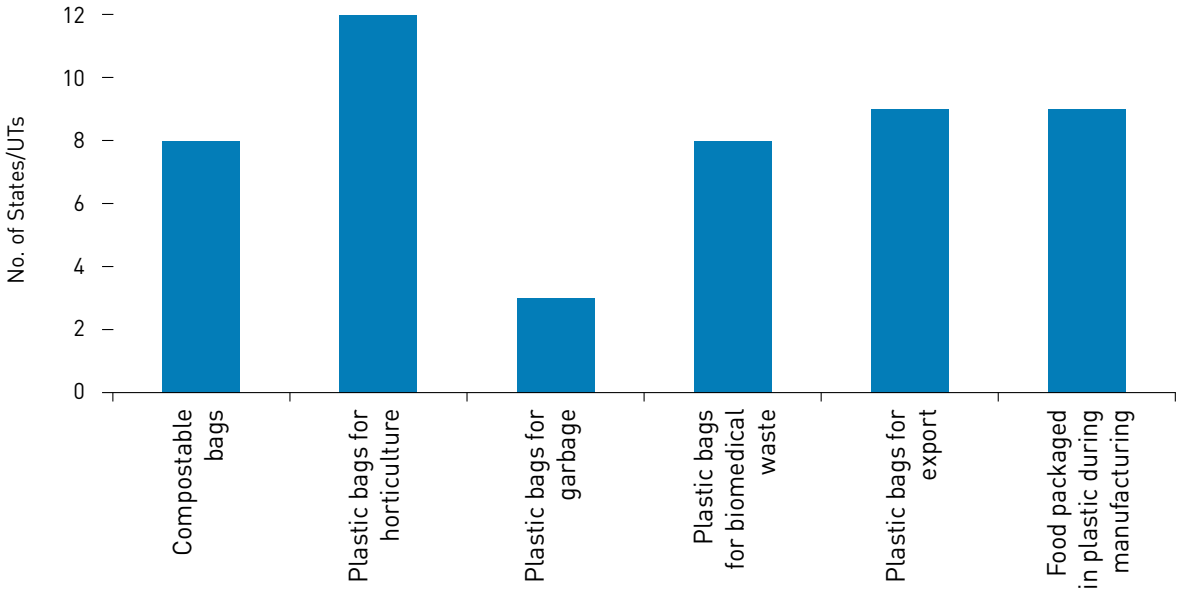
3.2.4 Banned or restricted activities

In addition to identifying SUP items to be banned, states/UTs across the country have identified specific activities associated with the production/consumption cycle of SUPs for the bans. From the ban notifications, the baseline used by states to ban various activities is unclear. However, it is evident that states have attempted to target the supply-side of SUPs as 29 states/ UTs banned 'sales' of SUPs while 27 states/UTs banned the 'manufacture' and 'storage' of SUPs. The 'use' of SUP items is the next most frequently banned activity, targeted by 25 states (*see Figure 12: Activities banned*).

The 'import' and 'transport' of SUPs is banned by 15 and 17 states respectively, while Uttar Pradesh is the only state to impose a ban on 'export' in addition to the aforementioned activities. States have generally placed 'export' orders to specific manufacturers in SEZ and Export Oriented Units (EOU) under exemption. A common issue that surfaced in the implementation of the ban was the transport of plastics illegally from other states (often Gujarat).[50] Thus, while import of plastics is banned as an activity, its implementation has been difficult. This brings to light the need for some kind of coordination between the states in order to enforce the SUP ban.

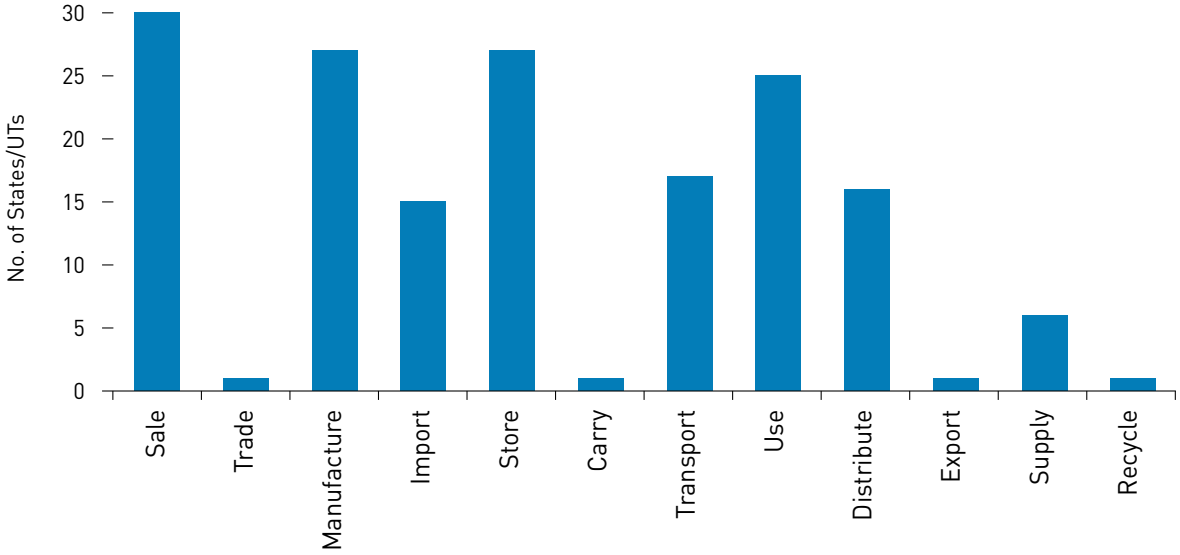
In terms of banning activities, Odisha, Assam and Uttar Pradesh have a comprehensive list of banned activities followed by Bihar, Chandigarh, Kerala and Maharashtra; where apart from the four major activities (sale, store, manufacture, use) other activities such as transport, import and distribution have been banned.

Figure 11: Types of plastic bags exempted from bans



Source: Various state/UT notifications and executive orders

Figure 12: Activities banned



Source: Various state/UT notifications and executive orders

3.3 IMPLEMENTATION MECHANISMS

The mechanisms of implementation of SUP bans, and the determining factors for its effectiveness was evaluated on the basis of three indicators. These included:

- Responsible authorities at various levels;
- Action by authorities in event of noncompliance; and,
- Penalty provisions.

3.3.1 Responsible authorities

The notifications/executive orders have entrusted authorities at various levels -- state, district and local levels (municipality, panchayat, ward), to implement the provisions of the orders and monitor implementation (*see Annexure 2: Authorities responsible for SUP ban implementation*).

- In all cases (either explicitly mentioned or implied), the State Pollution Control Board (SPCB) and the Pollution Control Committee (PCC) in case of UTs, remained are the nodal authority for giving authorization for manufacturing, recycling and disposal, and for monitoring the ban implementation. The SPCBs/PCCs have been tasked with overseeing the closure of plastic manufacturing units.
- The responsibility for implementation of the bans, however, has been given to a wide variety of agencies in states/UTs (*see Figure 13: Enforcement agencies*

for the SUP bans). Enforcement of the bans typically has been delegated to departments inspecting markets to seize banned SUPs, such as Urban Local Bodies (ULBs), Police, Revenue, Food and Civil Supplies etc.

- The authority to take 'legal action'[51] is restricted to senior officials in the SPCBs/PCCs, Environment Department, Revenue Department etc.
- Some states like Maharashtra have opted for a highly decentralised mechanism for both the enforcement as well as legal action aspects of the ban. As a result, almost all key departments – ULBs, Police, Revenue, Health, Sanitary, district and local administration, industry, tourism etc. – are involved in SUP ban enforcement.

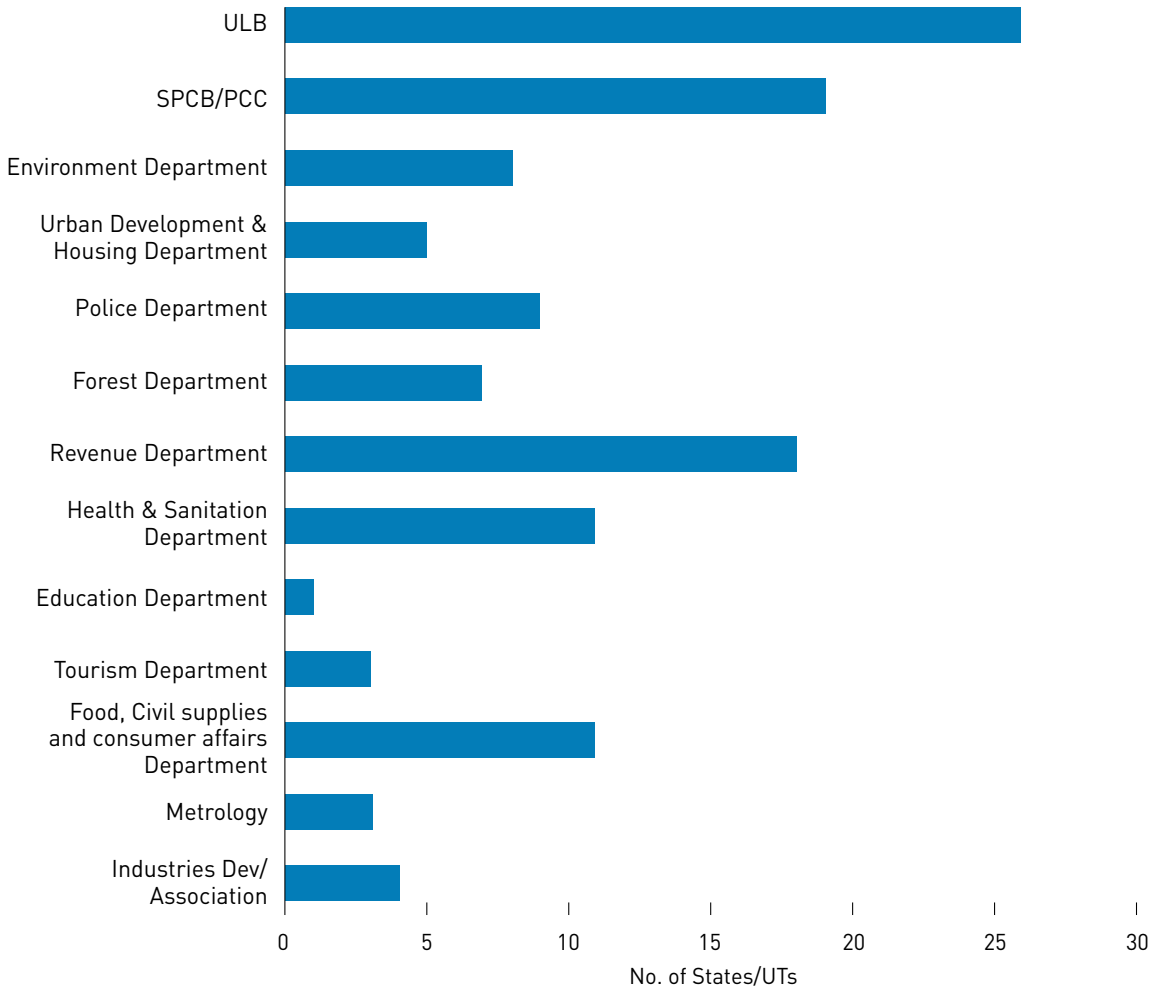
The term 'implementation' in most cases has been used with no specific details on who would be responsible for what, particularly for authorities/departments/officials besides the SPCB/PCC. The general prescription as per the notifications has been 'implement the notification in their respective jurisdiction'. The key challenge with respect to responsibility of authorities is the vagueness of respective charges. This undermines the scope of monitoring of the ban implementation, reporting on how the ban is being implemented, and also accountability of authorities. Overall, this creates the scope for ad-hoc enforcement.

3.3.2 Action in event of non-compliance

- Various authorities have been empowered to take action in event of non-compliance by individuals, bulk generators, producers, and other similar entities on the use, manufacturing, sell, storage, transport etc.
- While all notifications/executive orders did not specifically elaborate on such powers and action by authorities, in cases where it is mentioned, primarily two types of powers are given to authorities (*Annexure Table 3: Power of authorities to take action on non-compliance*). These included:
  1. File complaint and take cognizance of offence; and
  2. Impose penalty charges.

In a few cases, authorities have been given powers for closure of facilities/operations. In most cases , authorities have been given powers under the provisions of EP (Act), 1986. The two Sections that are invoked includes:

Figure 13: Enforcement agencies for the SUP bans



Source: Various state/UT notifications and executive orders

- Section 19 of the EP Act, that pertains to "Cognizance of offences".[52] This Section has also been invoked to give concerned authorities the power to file complaints.
- Section 15 of the EP Act, that pertains to "Penalty for contravention of the provisions of the Act and the rules, orders and direction".[53]

In few states, such as Odisha, the power of closure is mentioned as per provisions of Section 5 of the EP Act (N1986), and has been delegated to SPCB.

3.3.3 Penalty provisions

Punitive action is prescribed for individuals and businesses (such as bulk generators, producers and traders of SUPs) in state notifications/executive orders for violation of SUP ban. As noted above, in most of the states, punitive measures are prescribed as per Section 15 of the EP Act, 1986 (where notifications/orders on ban have been issued invoking the Act).[54] The quantum of penalty is prescribed accordingly (which can be up to one lakh rupees) and/or imprisonment (up to five years).

In states where the notification/executive order, or the law applicable for banning SUP was not framed invoking provisions of the EP Act, the provisions of the respective state laws are invoked. This includes the states of Maharashtra, Haryana, Uttar Pradesh, Meghalaya, and Punjab.

A review of the state-specific notifications/ orders where penalty provisions and amounts are mentioned shows the following:

- The general categories created for violators are individuals, bulk generators, producers, and traders. These categories are not uniformly used across all the states and UTs.
- The prescribed penalty amounts varies between states/ UTs, and ranges from a few hundred rupees up to one lakh (*see Table 7: Quantum of fine specified for SUP ban violators*).
- In terms of quantum of punishment, Delhi, Assam, Karnataka, Rajasthan, Bihar, Tamil Nadu and Chattisgarh[55]- have the steepest fines for bulk generators, traders and manufacturers running into a few lakh rupees and imprisonment. West Bengal has among the smallest punishments with a fine of ₹50 for individuals and ₹500 for bulk generators.
- While some states impose fines by 'kgs of plastic' (e.g. Haryana, Himachal Pradesh) others choose the 'number of offences' as the grounds for punishment.
- Mizoram is the only states with a comprehensive penalty scheme with fine amounts prescribed for a variety of offences (e.g. littering, open burning, non-segregation, sale, use etc) and fine amounts ranging from ₹200 to ₹1,000 for different categories of violators (individuals, bulk generators and producers). Tripura has created a slightly different classification for assigning fines:
  1. Individuals (₹100 blanket);
  2. Temporary/ mobile shops (₹500 to 1,500 for first and subsequent offences); and,
  3. Permanent shops (₹1,000 to 3,000 for and subsequent offences).
- Some states/UTs have also prescribed imprisonment for violation of ban order in addition to monetary penalty (*see Table 8: Imprisonment provisions*).

Table 7: Quantum of fine specified for SUP ban violators

Type of violators	<= ₹500	₹1,000 – ₹5,000	₹10,000 – ₹50,000	=> ₹1 Lakh
Individual	8	5	0	0
Bulk generators	4	9	5	1 (Bihar)
Producers	0	6	7	4

Note: Number in the table denote the number of states/UTs that have a fine falling in the range indicated
Source: Various state/UT notifications and executive orders

Table 8: Imprisonment provisions

States	Individual	Bulk generators	Producers
Bihar		Up to 5 years	Up to 5 years
Chhattisgarh		Up to 3 months	Up to 6 months
Goa	Up to 5 days	Up to 1 month	Up to 3 months
Himachal Pradesh		Up to 3 months	Up to 3 months
Madhya Pradesh		1 month for first offence, and 3 months for second offence	
Maharashtra		3 months for third offence	3 months for third offence
Odisha			Up to 5 years
Punjab			3 months to 1 year

Source: Various state/UT notifications and executive orders

- Besides monetary fines and imprisonment, states have also mentioned other forms of punitive measures, such as shutting down of electricity and water connections for manufacturers or traders violating the SUP ban (in Chandigarh); cancellation of licenses of repeating offenders in the cases of businesses and traders (Telangana and Kerala).

3.4 TYPES OF REGULATORY INSTRUMENTS

Governments have a variety of instruments for reducing/ eliminating the use of SUPs. These include:

- Bans/Restrictions;
- Taxes, subsidies or other fiscal instruments;
- Specified standards, certification, labelling; and,
- EPR.

As elaborated above, bans/restriction is the key regulatory instrument used by the states/UTs to manage SUPs. No state/UTs have used economic or fiscal instruments like taxes and subsidies to discourage SUP consumption and encourage alternatives. The standard, certification and labeling programs have also not been used. EPR has been used by only three states, other than those specified under the Plastic Waste Management Rules, 2016.

Maharashtra and Odisha have specifically prescribed buy-back schemes for PET bottles. Maharashtra also prescribed a buy-back scheme for milk pouches. Kerala did not specify any EPR scheme, instead mentioned the use of EPR for branded plastic juice packets, PET juice bottles (all sizes), drinking water bottles of 500 mL and above and branded items/products which come with plastic packaging (*see Table 9: Extended Producers Responsibility provisions*).

Overall, a very limited set of regulatory instruments have been deployed and hardly any instruments have been used to promote the alternatives of SUPs.

3.5 ASSESSING THE SUP REGULATIONS

The SUP notification of states/UTs can be assessed by using various indicators. This report has used two benchmarks assess them:

- Compliance with the MoEF&CC guidelines
- Enforceability of the laws

3.5.1 Compliance with MoEF&CC guidelines

The 'Standard Guidelines for Single-Use Plastic' issued by MoEF&CC in January 2019, recommended banning of the three categories SUPs, namely:

- All plastic bags, with or without handles, irrespective of thickness and size;
- Plastic cutlery including plates, cups/glasses, straws, stirrers etc; and,
- Cutlery and decorative items made of styrofoam (thermocol).

The guidelines also recommend banning of SUPs in government offices and the promotion of alternatives.

The recommended items for ban as well as banning of SUPs in government offices and the promotion of alternatives were used as indicators to judge the compliance of notification/ orders with MoEF&CC guidelines.

- 23 states/UTs banned plastic bags irrespective of thickness and size, while only five have mentioned the term 'with or without' handles.
- 18 states/UTs banned plastic cutlery, but only 12 states/ UTs have banned straws & stirrers.
- 15 states/UTs have banned styrofoam cutlery but only six state/UTs have banned styrofoam decorative items.

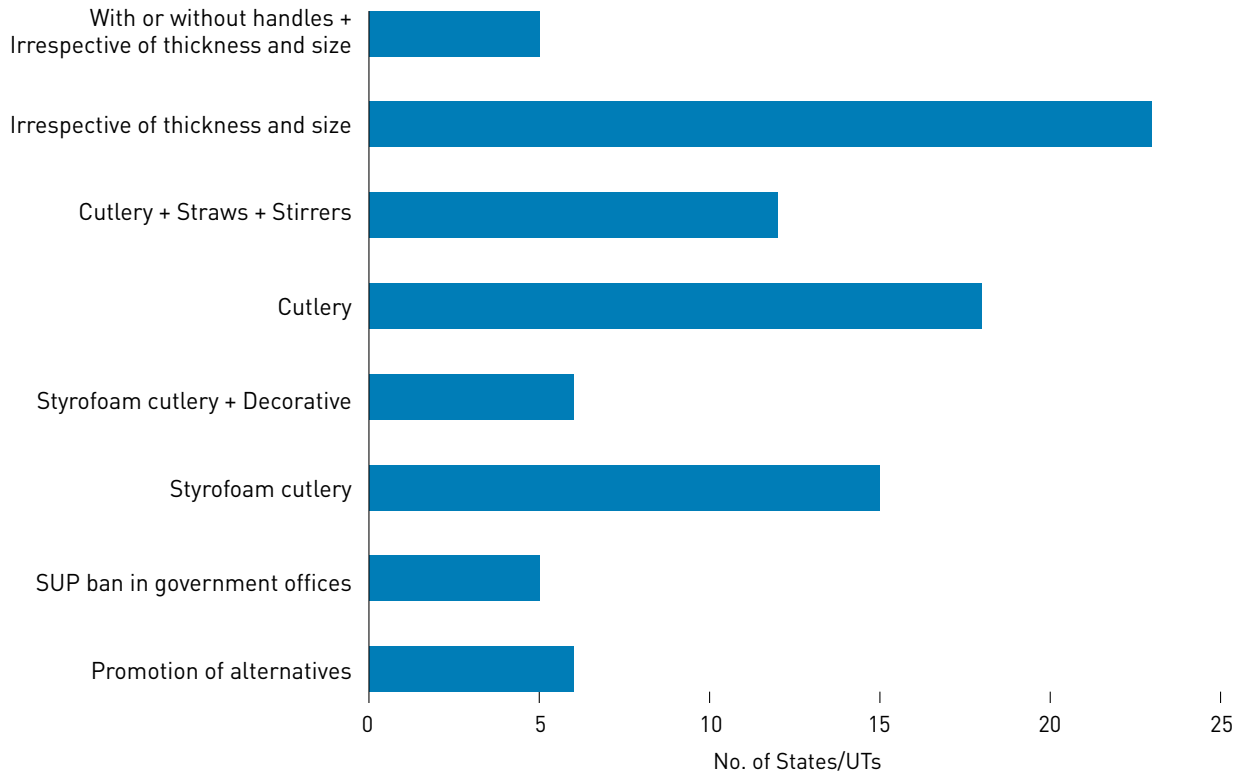
The banning of SUPs in government offices and the promotion of alternatives has been implemented by very few states (*see Figure 14: Compliance with MoEF&CC guidelines*).

Table 9: Extended Producers Responsibility provisions

Kerala	Branded plastic juice packets, PET juice bottles (all sizes) and drinking water bottles of 500 ml and above will be covered under EPR. Branded items/products which come with plastic packaging will be dealt with the EPR guidelines.
Maharashtra	PET bottles manufacturers to develop "Buy Back Depository Mechanism" with a predefined buy back price of ₹2/- and ₹1/- for bottles having liquid holding capacity of 1L or more and of 0.5L respectively. Milk dairies, retail sellers and traders to ensure buy back mechanism of milk plastic bags (not less than 50 microns), the bags should be printed with the buy back price and it should not be less than ₹0.50/-.
Odisha	Manufacturers and producers of PET bottles for drinking water and soft drinks shall take back the waste through the same retail sales network under mutually agreed terms and conditions based on EPR agreement.

Source: Various state/UT notifications and executive orders

Figure 14: Compliance with MoEF&CC guidelines



Source: Various state/UT notifications and executive orders

3.5.2 Enforceability of the law

A law is only as good as its enforceability. And, enforceability depends on factors such as the clarity of the law, the responsibilities assigned for enforcement, the penal provisions, the time given to the society to adjust, among other things.

To judge the enforceability of SUP notification/ orders of states and UTs, the following eleven indicators have been used:

- Comprehensiveness of the ban
- Clarity in the definition of products banned
- Comprehensiveness of the activities banned/restricted
- Time given for enforcement
- Exemptions given to jurisdiction
- Exemptions given to SUPs items
- Clarity in the role of enforcement authorities
- Adequacy of penalties imposed
- Promotion of alternatives
- Compensation/ support to SUP manufacturers to shift to alternatives
- Other regulatory instruments used to discourage use of SUPs and encourage use of alternatives.

The overall analysis of all notifications/orders indicated the following (*see Annexure 5: Assessment of enforceability of SUP notification/orders*):

- A total of 14 states banned SUP items as per the MoEF&CC guidelines.
- The SUP ban notifications of some major states like Uttar Pradesh, Tamil Nadu, Uttarakhand, Kerala lacked clarity in defining banned SUP products. For example, these notifications did not specify what SUP items under plastic/ thermocol cutlery/decorative are banned. There is also a lack of clarity between branded and unbranded products.
- Many states exempted jurisdictions which in turn created loopholes in the enforcement of the law. Odisha, Punjab, UP, Bihar, Gujarat, Mizoram, Ladakh and Daman & Diu have given jurisdictional exemptions. For example, Odisha's ban is only for six districts, UP and Bihar have exempt rural areas, Ladakh's ban is in offices only.
- A majority of states/UTs banned or restricted most activities in the life-cycle of SUPs.
- Time given for enforcement was very short across states/UTs. This often did not provide enough time to the industry and consumers to adapt. The maximum time for the ban was 6 months in Tamil Nadu.
- Some states/UTs did not incorporate exemptions although there are no alternatives for certain SUP applications e.g. plastic SUPs for medical use. Others gave exemptions that further weakened enforcement. Exemptions given to plastic bags for horticulture/forestry and garbage collection is leading to weak enforcement of plastic bag ban. Exemption of non-woven PP bags and compostable bags is also creating problems.

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- There are multiple agencies for enforcement. Further, there are issues of coordination and accountability among the enforcement agencies in many states. Also, key agencies like SPCB/PCC and ULBs lacked capacity in terms of dedicated workforce to enforce the SUP ban.
- Some states have imposed higher penalties for violation than others.
- Promotion of alternatives and support to SUP manufacturers to make a shift to alternatives is the weakest part of the existing bans.
- Lastly, most states/UTs did not use any other regulatory instruments other than bans/restrictions. Only three states specified EPR.

Overall, there are significant issues with design and approach of SUP bans which has clear implications on enforcement.

CHAPTER 4

THE STATE OF IMPLEMENTATION

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- An in-depth assessment of the SUP ban in four states and one UT shows the bans have been enforced in fits and starts, without any long-term strategy. While states like Kerala and Sikkim reported some success, the ban has not been successful in Maharashtra, Odisha, and Delhi.
- While states/UTs have given powers to many agencies to enforce the ban, there is no evidence that the broader distribution of power has led to better enforcement.
- The two key agencies – Urban Local Bodies and Pollution Control Boards – were not provided extra support for enforcement. In fact, they were asked to implement the bans with existing resources and workforce.
- The bans have been unsuccessful in states with poor waste management infrastructure; on the other hand, a comprehensive strategy on waste management seems to have aided states in implementing the ban.
- EPR has been unsuccessful across states/UTs.

SUP bans have been attempted by states in India since the early 90s. While each iteration of the ban has attempted to make it more stringent, the overall success remains low. Recent bans imposed by a large number of states/UTs have not achieved the desired results. Within a few months and in some cases within a year of the ban, reports on the failure of the ban were published by various news outlets.

To understand challenges in the enforcement of the SUP notifications/orders, four states and one UT, namely Maharashtra, Kerala, Odisha, Sikkim and Delhi National Capital Territory (NCT) respectively were selected for in-depth assessments. Representatives from each of these states were invited for a series of focus group discussions (FGD) on the SUP ban in the state and a survey questionnaire was shared with the SPCB of the respective states and Delhi Pollution Control Committee to collect information on implementation of the ban (See Box 2: Survey and FGD Methodology). The impact of COVID-19 and its implications on SUP bans across the states was also examined.

BOX 2: SURVEY AND FGD METHODOLOGY

Both primary and secondary research methods were used to assess the impact of state-level bans and gaps in the implementation capacity of regulatory bodies at state/ district-level.

a). Survey Questionnaire for SPCBs: The survey was designed to collect quantitative data on SUP management in the state. Five broad themes were touched upon in the questionnaires: (a). Agencies responsible for the SUP ban; (b). Status of manufacturing and recycling of SUPs in the state; (c). Status of implementation; (d). Extended Producer Responsibility; and, (e). Impact of COVID-19 on the SUP ban.

b). Focus group discussions: Online FGD was conducted for each of the selected states/UTs separately. The participants were from the SPCBs/PCC, ULBs, researchers, implementation agencies, recyclers and advocacy organisations.[56] Every discussion was attended by anywhere between nine to twelve participants in-line with the optimal size for an FGD.[57] Only those participants were invited who were either involved in the SUP ban enforcement or were working in the waste management sector.

The FGD was structured and employed a predetermined set of questions aimed to gain perspectives on the SUP ban based on the experience of the practitioners. Four aspects were discussed through a series of questions, namely: (a). Status of the SUP ban; (b). Status of manufacturing and recycling of SUPs in the state; (c). Lessons from extended producer responsibility; and, (d). Impact of COVID-19 on the SUP ban.

The questions under each of the four sections delved deeper into understanding nuances of implementing the SUP ban. A set of poll questions were designed to capture perspectives of the participants quantitatively as a part of FGDs.

A framework analysis method published by Gale et al. (2013) was adopted for analysing the qualitative data collected from the FGDs. The following five steps were employed:[58]

1. Data familiarisation by repeated reading of the transcripts and note making;
2. Identification of thematic framework based on emerging themes from the data. These can be obtained from key issues, concepts and themes expressed by participants. While apriori issues can be considered these should not form the basis of framework creation.
3. Indexing to identify portions or sections of the data that correspond to specific themes.
4. Charting by rearrangement of portions of data under the different themes identified based on the indexing exercise.
5. Mapping and interpretation.

4.1 MAHARASHTRA

Maharashtra's SUP ban notification of 2018

Banned items: *Plastic bags with and without handles, disposable cutlery made of plastics and thermocol, straws, non-woven propylene bags, plastic pouches for liquids, plastic wrapping or packaging. PET/ PETE bottles and milk pouches need to be labelled properly for EPR.*

Exemptions: *Plastics used for medical purposes, compostable plastics, plastics used for horticulture, plastic manufactured for export, food grade plastic of more than 50 micron thickness, plastics for packaging appropriately labelled.*

Activities banned: *Manufacture, usage, transport, distribution, wholesale and retail sale and storage, import*

Enforcement Agencies: *Highly decentralised approach to enforcing the plastic ban. The ban empowered a large number of state government departments beyond the pollution board and municipalities to take legal action under the ban.*

Penalty: *First time offender: ₹5,000, Second time offender: ₹10,000, Third time offender: ₹25,000 and three months of imprisonment.*

Amended three times since enactment.

On March 23, 2018, the Government of Maharashtra issued the Maharashtra Plastic and Thermocol Products (Manufacture, Usage, Sale, Transport, Handling and Storage) Notification (2018), banning the use of various SUP products and related activities.[59] The state notification was issued under provisions of the Maharashtra Non-Biodegradable Garbage (Control) Act, 2006.

The notification directed a complete ban on the usage, manufacture, import, sales, storage, transportation, distribution of plastic bags (with or without handle), and other disposable products made of plastic and/or thermocol (polystyrene), in the entire state. Products (other than plastic bag) that have been banned include, disposable cutleries (dishes/plates, spoons, cups, bowls, glasses, containers, forks), plastic straws, non-woven PP bags, other cups and pouches, and PET bottles having liquid holding capacity less than 0.5L. Plastic and styrofoam (thermocol) decorative items were also banned in the entire state.

However, the notification exempted certain items and activities. These included, use of plastic bags or plastics for packaging medicines; compostable plastic bags or materials for plant nurseries, horticulture, agriculture, handling of solid waste with a label (with proper label mentioning exclusively for this specific purpose only); food grade virgin plastic bags not less than 50 micron thickness used for packaging of milk, plastic cover / plastic to wrap articles at the manufacturing stage or which are an integral part of manufacturing (with clear instructions for recycling), and manufacture of plastic and plastic bags for export purposes (manufactured in the Special Economic Zone and export oriented units).

The Government also specified a 'Buy Back Depository Mechanism' under the 'Extended Producers and Sellers/ Traders Responsibility' for certain exempted products and those SUPs in regular use, such as milk packaging and PET bottles. For example, the notification stipulated that bottles should have a predefined buy back price printed on them, which was ₹1 for PET bottles having capacity of 1L or more, and ₹2 for bottles with 0.5L capacity. The businesses were also required to set up collection and recycling units of adequate capacity and number (within three months from the publication of the notification), to collect and recycle PET bottles.

For milk packaging, the minimum buy back price, that must be printed on these bags/ packets, was ₹0.50. While the traders and sellers of milk were required to ensure proper collection and recycling of such bags/packets, milk and dairy distributors have also been directed to make 'efforts' to develop alternative means for milk distribution, such as glass bottles.

For implementation of the ban, the Government entrusted a number of authorities at the state, district and local levels. At the state level, Maharashtra Pollution Control Board (MPCB) was the nodal authority. Implementation authority was given to almost all major departments including Environment Department, Health Services Department, Primary and Secondary Education Board, State Tax Department, Police, Tourism Department, Maharashtra Tourism Development Corporation, Forest Department etc. At the district and block level, the responsibility was given to the District Administration, Municipal Corporation, Tahsildars and Talathis, the Chief Executive Officer Zilla Parishad, Block Development Officers, Development Officer, District Education Officer, Block Education Officer, Deputy Commissioner (Supply), District Supply Officer, and any other officer nominated by the District Commissioner. Authorities were empowered to take cognizance of offence under Section 12 of the Maharashtra

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Non-Biodegradable (Control) Act, 2006. As specified in Section 12, the fine for compounding of first offence is ₹5,000, for second offence is ₹10,000, and for third offence it is ₹25,000 and three months of imprisonment.

The notification has so far been amended three times (on 11.04.2018, 30.06.2018 & 14.06.2019) to increase the timeframe of enforcement, to change the EPR mechanism and to modify the list of banned products, respectively.

In the first year of the ban (2018-19), MPCB issued closure directions to 312 plastic manufacturing units, collected fines of ₹4.1 Crore and seized 1180 tons of banned plastic items.[60] However, news reports indicated that while stringent enforcement was observed in the initial months of the ban, it was eventually eased out due to push back from the plastic manufacturers. Additionally, lack of alternatives to banned SUPs was found to be a major impediment, as the state made minimal efforts to look for viable alternatives.[61]

4.1.1 FGD outcome

The SUP ban in Maharashtra was moderately successful as hundreds of SUP manufacturing units were closed and the ban created large-scale awareness on the harms caused by plastic pollution. However, production of banned SUPs continues in the state and some manufacturers were reported to have shifted to nearby states where SUPs have not been banned. In fact, illegal transportation of SUPs from Gujarat was mentioned as a major challenge.

While the notification has created a decentralized structure for enforcement, the lead implementers of the ban are the ULBs, specifically the solid waste cell of municipalities. The police and other departments have authority to implement the ban, however, they have not been involved in the enforcement. Thus, the decentralized structure has not delivered as envisaged.

One of the key issues raised was the absence of proper guidelines for enforcement. ULBs were simply told to enforce the ban but no guidance or support was provided. This led to a lot of confusion during the initial months of implementation. Besides, MPCB, which is the nodal agency for the ban implementation reported having insufficient staff to monitor the ban.

Availability of alternatives was a major impediment in the ban. For example, the lack of alternatives for plastic garbage bags led people to use other plastic bags (e.g. chips packets) to discard household waste. Now, illegal plastic garbage bags are widely available.

The SUP ban adversely impacted the informal sector as they were mostly involved in recycling low-value plastics while the formal sectors got high-value plastics. The registration requirements for informal recyclers also forced smaller recyclers to shut down temporarily.

There were concerns around an increase in corporatisation of waste management leading to the informal and small-small sector losing out. The integration of the informal sector in the waste management has not been successful in Maharashtra. Also, the handholding of small-scale industries to move to alternatives was practically absent.

EPR implementation was tracked by MPCB through six Producer Responsibility Organisation (PROs). During the FGD it became evident that the EPR was largely unsuccessful; where EPR did happen it was centred around bigger cities. Some big producers wanted to create an EPR model with their own institutions, but MPCB reported that this model failed.

Some big companies reported 80-90% collection of the plastics they supplied. But as businesses work across different states, most of these collections have not happened in Maharashtra. In the absence of a national guidelines on EPR, it is becoming difficult to monitor the implementation of EPR across states. MPCB reported having strongly recommended to MoEF&CC to replace the national EPR obligation with state-specific obligations.

There has been a significant increase in SUP consumption during the pandemic, especially that of the garbage bags, masks, gloves and SUP used by food businesses. Enforcement took a backseat even before COVID-19, due to the change in the administration; COVID-19 has further slowed down the implementation.

4.2 ODISHA

Key features of the Odisha SUP ban

SUP items banned: *Plastic carry bag, PET bottles < 200 mL capacity, plastic and thermocol cutlery, plastic pouch and container, thermocol decorative materials, polyethene sheets of less than 50 micron thickness for any application.*

Activities banned: *Sell, trade, manufacture, import, store, carry, transport, use or distribute*

SUPs exempted: *Plastic garbage bags, containers for milk products, plastic bags used in horticulture and agriculture, materials for the healthcare sector, and plastic materials used for wrapping any item at the manufacturing stage.*

Enforcement agencies:

- *To implement the restrictions - Municipal Commissioners or Executive Officers of Urban Local Bodies.*
- *To enforce the provisions of the order under Environment (Protection) Act 1986 - District collector, Sub-divisional Magistrate, Member-Secretary of State Pollution Control Board; Additional District Magistrate, Superintendent of Police, Divisional Forest Officer, Tehsildar.*

Penalty: *Closure of industries that are not in compliance. 5-year jail term and fine up to ₹1 Lakh*

Odisha first implemented a ban on plastics in 1998 at tourist places, with little success. Following this, on September 29 2018, the Government of Odisha banned the usage, manufacture, sale, trade, import, storage, transportation, and distribution of any plastic bags, and certain other plastic and styrofoam products within the limits of six municipal corporations in the state, namely, Bhubaneshwar, Cuttack, Berhampur, Rourkela, Sambalpur and Puri.[62]

The ban restricted all plastic/polythene carry bags irrespective of thickness, size, and shape (excluding compostable bags). The other items banned were - single use disposable cutleries made of either plastic or styrofoam/thermocol (including cups, plates/dishes, forks, spoons, bowls, pouches to store liquid, and containers), PET drinking water bottles of less than 200 mL capacity, polythene sheets of less than 50 microns for storing, transporting, dispensing or packaging any commodity, and thermocol decorative materials.

The items that have been exempt include, plastic garbage bags, containers for milk products, plastic packaging used in horticulture and agriculture, materials for the healthcare sector, and plastic materials used for wrapping any item at the manufacturing stage.

The State also mentioned a buy back policy for PET bottles used for packaging drinking water and soft drinks. As per this policy, manufacturers and producers of such bottles were required to take back such items after their use through the same retail sales network, under mutually agreed terms and conditions of the EPR agreement.

The Odisha State Pollution Control Board (OSPCB) is the nodal authority for implementation of the ban order. At the district level, the District Collector (DC) and the Sub-divisional Magistrate (SDM) are the primary authorities. The DC was given the power to involve the Additional District Magistrate, the Superintendent of Police, the Divisional Forest Officer (DFO), the Tahasildar, Regional Officers of SPCB, Municipal officers, or any other officers as considered necessary. At the local level, Municipal Commissioners of the six municipal corporations or the Executive Officers of the ULBs remained responsible for implementation.

The Member Secretary of the OSPCB, the DC, and the SDM have also been empowered to take cognizance of offence under Sec 19 of EP Act, for violation of the orders as per the SUP ban. However, the order does not specifically mention any penalty amount that can be imposed on the violators. OSPCB did not report any violation of the law. It also does not have data on the enforcement actions taken at the district/municipal level.

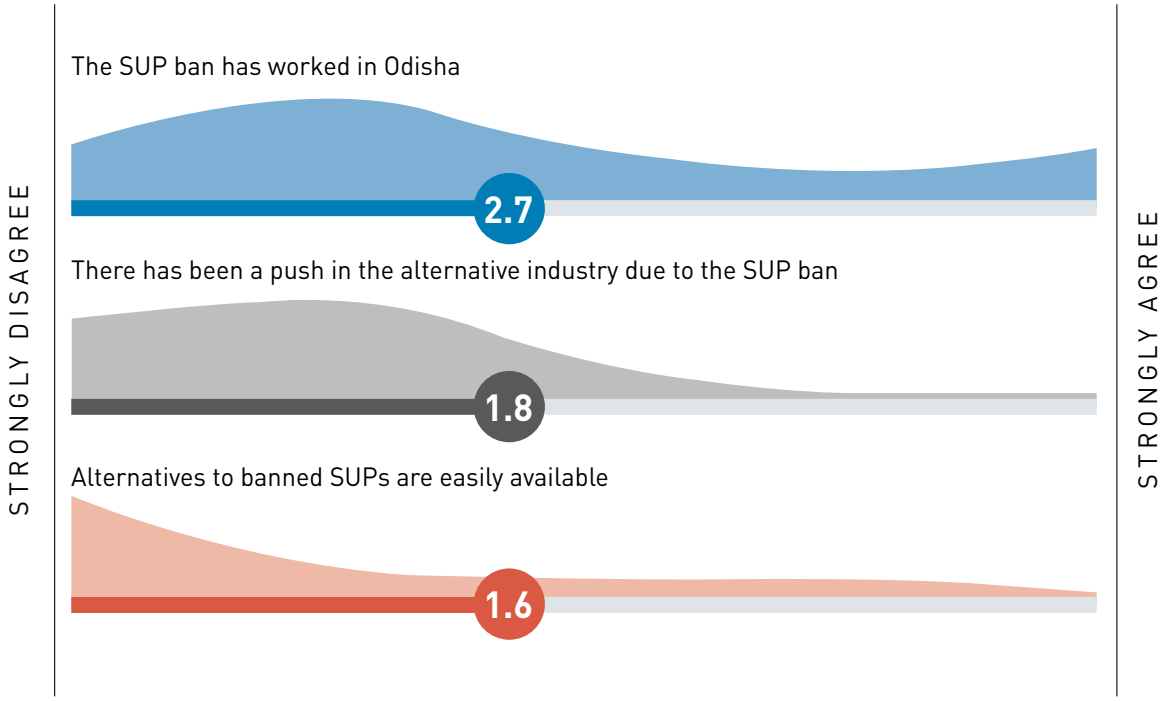
Odisha is primarily a consumer state with 14 authorised plastic manufacturers. Given Odisha imports almost all of its plastics the OSPCB stated that activities like ‘sale’ and ‘use’ of SUPs were the focus of the ban, and greater responsibility was placed on vendors to not give out plastics rather than on users.

Media reports indicated that the ban in Odisha had faltered. Eight months into the ban, not only was the implementation lax, but the ULBs, forests and environment department and OSPCB were reported to have blamed each other for the poor implementation of the ban.[63] The FGD also indicates unsuccessful implementation of bans.

4.2.1 FGD outcome

The key agencies involved in the SUP ban were the six ULBs. ULBs have formed enforcement squads to seize and fine the defaulters. The Bhubaneswar Municipal Corporation formed two squads for inspections and awareness generation in commercial and residential areas.

Figure 15: Responses of FGD participants in Odisha



Note: Scale is from 0-5.

Bhubaneswar Municipal Corporation recovered 10 tonnes of SUPs between 2018-2020 and about ₹15 lakhs in fines from large distributors for violating the ban. The penalties were determined by the respective ULBs as standard bye-laws for SUP ban have not been approved by the government. For now, a miscellaneous charge of ₹500 is being imposed as the penalty for small violations. For large quantities of SUP seized, the penalty is based on the amount of plastic seized. The fines can be a minimum of ₹5,000 which can increase to up to ₹25,000 depending on the quantity of plastic seized.

Confiscated/ collected plastics were reported to have been sent to cement plants for co-processing; about 4-5 cement plants have been enrolled for this. According to the OSPCB, there is sufficient capacity to process all the plastic waste generated within Odisha through these cement plants. OSPCB's main focus has been in monitoring plastic manufacturing units in the state. There is a dedicated Plastic Waste Management Cell within the OSPCB but it has a mere two officials.

Despite these efforts, the general consensus was that the ban was largely unsuccessful, a major hurdle being the lack of suitable alternatives and exemptions given to other districts (*see Figure 15: Response of FGD participants in Odisha*).

The plastic manufacturing and recycling industry in Odisha was reported to be small and at a nascent stage with few formal businesses in this sector. Most recyclers were informal and not registered with the OSPCB. They were mainly involved in recycling processes wherein plastic waste was converted into chips, granules or flakes. High value plastics like PET and HDPE[64] generally ended up outside the state for recycling as there were no recycling facilities within the state. The rest of the plastic, largely MLPs and other non-recyclable plastics, went to cement plants for co-processing.

The state has involved 11 PROs and over a 100 NGOs for the implementation of EPR. Yet, its implementation has not been successful. The lack of plastic manufacturing volume, insufficient recycling infrastructure and bad segregation practices have created a barrier for EPR. In addition to this, lack of awareness, logistic challenges, manufacturers apathy and lack of enforcement may have derailed the EPR programme. Besides, the penalty of not following EPR in Odisha was so small that manufacturers just paid the penalty.

While the SUP ban and EPR has seen little success, a project by the United Nations Development Program and Coca-cola with the municipalities in Bhubaneswar and Cuttack is attempting to create a system for recovery of all types of plastics. This programme also aims to integrate the informal recyclers into a sustainable waste management system. This project was reported as one initiative showing positive results.

The general consensus from the discussion on COVID-19 impacts was that there was an increase in SUP consumption leading to a doubling of biomedical waste as a result of the pandemic. While estimates currently do not exist, disposable gloves and masks used by non-infected people have increased phenomenally since the pandemic and these get mixed with municipal solid waste. Compostable bags are being promoted and distributed in

place of PP bags. However, the issues with compostable bags such as counterfeit products was acknowledged during the discussion. Another issue since the pandemic has been an increase in online packaging, disposable cutlery and PP bags. While the pandemic derailed the SUP ban, enforcement efforts have been reintroduced. On the other hand, since the pandemic large functions and gathering have not happened thereby reducing the SUPs generated from these.

Officials from the OSPCB remarked that, post-COVID-19 there is a need to re-evaluate SUP management in the state. While most of the SUPs used in hospitals are classified under biomedical waste and therefore will be handled as per the rules, disposable masks used by the public outside of medical facilities will accumulate making them a certain challenge. Recognising this issue and identifying steps to manage them in an effective manner needs to be addressed.

4.3 DELHI NCT

Key features of the Delhi NCT SUP ban

Banned items: *Plastic carry bags including polypropylene bags, plastic cover/ pouch for magazines, invitation cards, greeting cards etc.*

Activities banned: *Manufacture, storage, import, transport, usage and sale.*

Exemptions: *Plastic bags for export, plastic bags for biomedical waste, plastic containers for food, milk pouches, and plastic bags for nurseries.*

Enforcement agencies: *DPCC, Sub-divisional Magistrates, NDMC, MCD, Food and Supply officers, Labour Department, Food Adulteration Department.*

Penalty: *Prison upto 7 year and/or a fine of ₹1 Lakh*

On October 23, 2012, the Government of the NCT of Delhi issued a notification[65] (under Section 5 of the EP Act 1986) prohibiting the sale, storage, manufacturing, import and transport of any kind of plastic carry bags by individuals and various businesses, in the NCT. The use of plastic bags for disposal of biomedical waste, however, was allowed, as per provisions of the Bio-medical Waste (Management and Handling) Rules, 1998 (which was then effective at that time). The notification also prohibited the use of certain other types of plastic products, including any kind of plastic cover, plastic sheet, plastic film or plastic tube to pack or cover books (including magazine), invitation cards, and greeting card.

The directions on SUP came as a response for tackling the plastic nuisance that was affecting the local environment in the NCT. Littering and poor disposal of plastic bags was also observed to block gutters and the sewerage system, which not only affected city sanitation, but was also considered to be a potential threat to public health.

The state authorities were given a period of 30 days (from the date of issuance of the notification) to start implementing the directions on SUP ban. The Member Secretary of the Delhi Pollution Control Committee (DPCC) was made the nodal authority for implementation and monitoring. Officials of various other state departments were also entrusted with implementation, including the Director of Environment, Director of Health Services (or medical officers of the Government), Labour Inspectors of the Labour Department, and Inspectors of the Food Adulteration Department. Besides, SDMs, and various municipal officials (such as assistant sanitary inspector and above, health inspectors and above, general licensing inspectors and above) were also entrusted with implementation at the local level.

The Delhi notification however, did not elaborate on the repercussions of non-compliance with the directions. While the chairperson and Member Secretary of the DPCC, and SDMs of respective jurisdictions were empowered to file complaints under Section 19 of the EP Act, 1986 (pertaining to 'cognizance of offences'), no penalty provisions were specified in case of violations. It is, therefore, assumed that the penalties prescribed in the EP Act is applicable to the Delhi ban. In August 2017, the National Green Tribunal (NGT) issued directions on plastic ban and had imposed a fine of ₹5,000 for each violation.[66]

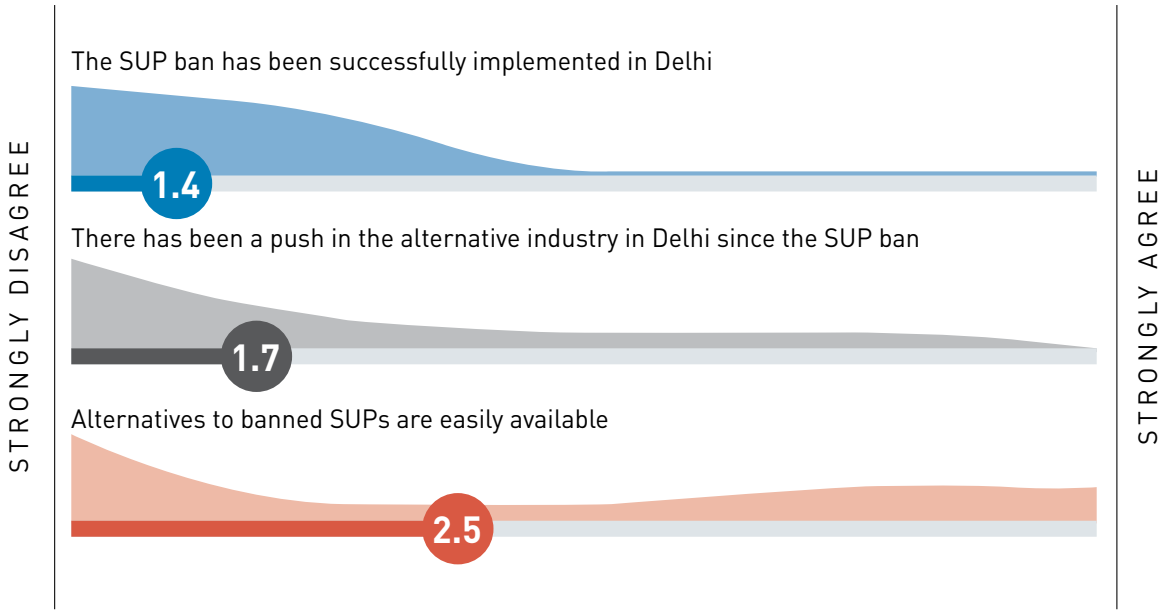
Over all, Delhi's SUP ban has been noted as unsuccessful by most reports. Newspapers reported continued use of banned items and poor enforcement.[67]

4.3.1 FGD outcome

In 2018-19, DPCC took the following enforcement measures:[68]

- Environmental Compensation (EC) of ₹50,000/- was imposed on 22 Units each which were engaged in manufacturing of plastic products of thickness <50 microns.

Figure 16: Response of FGD participants in Delhi NCT



Note: Scale is from 0-5.

- EC of ₹50,000/- was imposed on 243 Units each which were engaged in burning/dumping of plastic waste in Bhawana & Narela industrial area.
- 28,656 Kgs of banned plastic carry bags/sheets made of thickness less than 50 microns were seized.
- Show cause notices have been issued to 1,691 plastic units on 24.06.2019 for registration under PWM (Amendment) Rules, 2018.

Despite these enforcement actions, the implementation of SUP ban was found to be highly inadequate in Delhi. One of the reasons being the scale of the challenge; Delhi has the second-highest per capita plastic waste generation.[69]

The SUP ban in Delhi was not comprehensive and its enforcement was not done in a sustained manner, which in turn resulted in banned items being reintroduced. Reflecting this reality, the implementation of the SUP ban in Delhi was rated as below average by participants (*see Figure 16: Response of FGD participants in Delhi NCT*).

The capacity for enforcing the SUP ban was highly inadequate. ULBs and DPCC reported having insufficient workforce to consistently implement and monitor plastic waste management. Thus, DPCC's role was limited to sending information on the ban, beyond that the agency did not provide any other support on-ground to the ULBs. There was also lack of information in the public domain with no consistent efforts made to build awareness on the bans.

One positive aspect mentioned during the discussions was related to the availability of alternatives. Although the state government and the ULBs have not promoted the alternatives to SUPs, the private sector and the NGOs have taken the lead in bringing alternatives to the market.

Plastic recycling in Delhi is a big industry, mainly involving two types of recyclers: formal large recyclers and a large number of informal sector actors. The informal sector specialise in hyper-segregation and trading and basic recycling. Currently, however, it was reported during the discussions that, as the environment performance of the small-scale sector was not up to the mark, they were being denied consent to operate within the NCT and were being pushed to Uttar Pradesh. Further, with respect to the specific processes employed for recycling, a key concern was that a lot of the recycling was down-cycling, which means sooner or later, all the plastic will enter the waste stream.

The implementation of EPR was rated as poor by the FGD participants, including by the state government and ULB representatives. While companies were involving PROs; PROs were largely collecting low-value plastics/ MLPs from the informal sector and sending it for incineration/energy recovery. Further, the impact of EPR was negligible as the focus was largely on managing generated waste. To make a lasting impact EPR should also monitor the quantity of product recycled. Moreover, the financial cost of EPR should push companies to address their packaging and products at the manufacturing stage. A Delhi-centric EPR framework addressing these specific challenges and needs was suggested as a vital next step during the FGD.

The impact of COVID-19 on SUP use and waste generation was massive in Delhi. The little progress made on reducing SUPs was said to have been undone as result of the pandemic. As observed in Odisha, Delhi also saw an increased dependence on online shopping and associated plastic waste as a result of low mobility due to COVID-19 restrictions.

4.4 KERALA

Key features of the Kerala SUP ban

Banned items: *Plastic carry bags including compostable bags, plastic table covers, plastic and thermocol cutlery, plastic coated cutlery and items, plastic pouches, non-branded plastic juice packets, plastic garbage bags, PET bottles, plastic sapling bag.*

Activities banned: *Manufacture, storage, sale, and transportation. In a 2018 ban - supply, storage, transport, sale/ distribution and use - were also banned.*

Enforcement agencies: *Kerala State Pollution Control Board (KSPCB), local self-government, tourism department, district collector, police department, forest department.*

Penalty: *First time offence: ₹10,000, Second time offence: ₹25,000, Subsequent offences: ₹50,000 and cancellation of license.*

On November 27, 2019, the Government of Kerala issued an executive order directing a 'blanket ban of single use plastic (disposable plastic)' in the state.[70] The ban came into force from January 1, 2020, giving a month to the concerned authorities to implement the ban.

However, 2019 was not the first time that the Government of Kerala took a step to address the plastic menace. Since 2016, Kerala under the Suchitwa Mission has been promoting and supporting a set of Green Protocols to deal with various kinds of waste in urban and rural areas, including plastic.[71] Through the Mission, technical, planning, and management support were provided to the waste management sector under the Local Self Government (LSG) Department of Kerala.[72] Green Protocols, were promoted by the Mission, have specifically laid emphasis on the 'importance of discarding disposable plastic items, and using eco-friendly reusable substitutes'. As noted by the Government, the programme has been implemented in all Government offices and functions.[73] In October 2018, the State Government also issued a notification banning plastics 'in beaches and tourist spots'.[74] This included items such as, carry bags (and non-woven carry bags), flex and banners, buntings, cutleries (plates, cups, spoons, straws), bottles, pouches, flags, sheet (for covering), cling films, plastic beads and plastic decorative, and any other one-time use plastic.

The SUP ban notification of 2019 complemented these efforts to curb plastic waste. The 2019 notification specified a complete ban on the manufacture, storage, transport and sale of all plastic carry bags irrespective of their thickness. The ban order also extended to other SUP items (on their manufacture, storage, transport and sale), including, plastic sheets used as table spread, decorative materials and plates and cups made up of thermocol/styrofoam, cutleries, non-woven PP bags, plastic flags, PVC flex materials, plastic coated materials (like paper cups, plates, bowls, bags), plastic water pouches, non-branded plastic juice packets, less than 500 mL drinking water PET bottles, plastic garbage bags, and plastic packets.

The order however exempted 'branded items and products' using such plastic materials, products exclusively manufactured for export, products used for medical purposes and medical equipment, and products made from compostable plastic with the label 'compostable' (following ISO standard for compostable plastics) from the purview of the ban. For branded items and products, including plastic juice packets, PET juice bottles (all sizes), and drinking water bottles of 500 mL and above, a buy back policy was proposed. For such products, the manufacturers and producers were to comply with the EPR policies, and accordingly report to the SPCB.

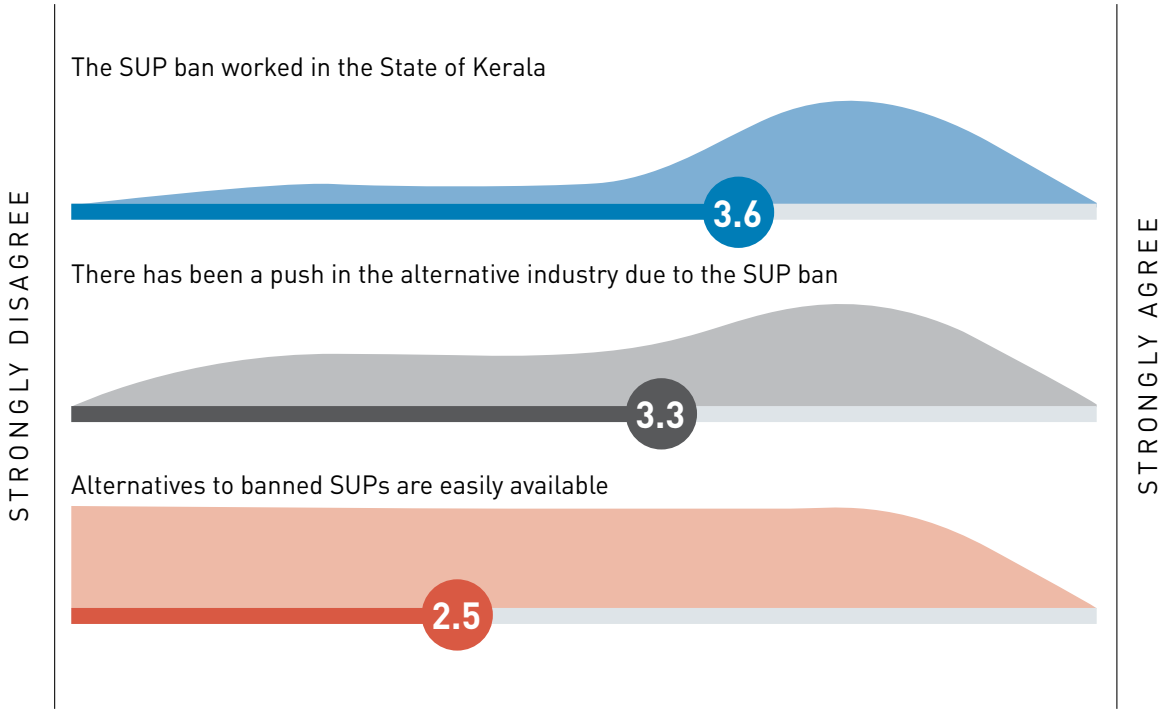
While the SPCB was the nodal authority for ban enforcement, the implementation was highly reliant on a decentralized system, involving authorities of LSG. This included representatives of Gram Panchayats, Block Panchayats, District Panchayats, Municipalities and Corporations. Currently the Panchayat Directorate, the Directorate of Urban Affairs, the Commissionerate of Rural Development, and the Department of Town and Country Planning are the major allied departments of local administration.[75] The 2018 notification had further entrusted other state and district level authorities, including the Tourism Department, Forest Department (as applicable), Police Departments and District Collectors. The State also mentioned penalty provisions for the violators, such as manufacturers, wholesalers or small traders. As noted, they will be fined ₹10,000 for the first offence, ₹25,000 for the second offence, and ₹50,000 along with closure of the business for the third offense.[76]

The Kerala government has been commended for its firmness in implementing the ban.[77] However, reports indicated that COVID-19 derailed the implementation.[78]

4.4.1 FGD outcome

Kerala's estimated plastic waste generation was 1,31,400 tonnes per annum consisting of both soft and hard plastic. KSPCB further estimated a total of 1481 plastic manufacturing units and 37 compostable plastic manufacturing units.[79]

Figure 17: Response of FGD participants in Kerala



Note: Scale is from 0-5.

There was considerable success in SUP waste management in both rural and urban areas in Kerala (*see Figure 17: Response of FGD participants in Kerala*). The segregation of waste is now an accepted and common practice and has helped with plastic waste management. Additionally, it is common practice to carry cloth bags and there is confidence that with continued efforts, by 2022 Kerala can be a model for the rest of the country on phasing out SUPs completely. Even the infrastructure for segregation was reported to be available with plastic collection centres having been set up. When SUPs were banned the press started bringing in stories on where the implementation was lacking thereby pressuring the government to strengthen the enforcement.

Haritha Keralam Mission and Suchitwa Mission are government organisations that contributed positively to better waste management practices and in turn SUP ban. Panchayats and Municipalities were the main enforcement agencies. The KSPCB had only three dedicated officials looking into plastic waste management. Additionally, relative to other states Kerala has been successful in promoting alternatives to SUPs (*see Table 10: Status of ban on various SUP items and alternatives promoted in Kerala*).

An issue noted in the SUP ban implementation was that the fine amounts were exorbitant; with a minimum amount of ₹10,000 for any kind of violation related to the SUP ban. This meant even for petty vendors/small businesses, authorities were forced to impose a fine of ₹10,000. This was too high an amount to pay for small establishments. Hence authorities were either ignoring small defaulters or imposing exorbitant fines, both extremes not contributing to a constructive transition from SUPs.

Kerala being a consumer state imported for use and exported plastic for recycling. Additionally, Kerala also generated a lot of plastic packaging waste as most other products also come from outside. As there were few recycling facilities in Kerala, plastics were generally collected and melted into a block which was then sent to other states for recycling. However, efforts are being made to encourage recycling. The Clean Kerala Company (CKC) under the Government of Kerala is attempting to set up recycling facilities. For this, land has been allocated in Malappuram District to the CKC to set up the facility which will be handed over to recyclers.

EPR was reported to be working in pockets of the state, but awareness on the EPR was found to be lacking among the LSGs. This was further highlighted in the discussions when representatives from the state remarked that LSGs were not aware about MoEFCC's Draft Guidelines on EPR. This was despite efforts from the State government on creating awareness.

Some companies have been financing the collection of plastics under the EPR, however, these end up in cement kilns for co-incineration. Moreover, Haritha Karma Sena has collected MLPs and other such plastics however the price paid by companies under EPR was too low to purchase this. There are, however, a few meaningful partnerships, like Coca Cola's partnership with Haritha Keralam Mission to establish an infrastructure to recover plastics and plastic wastes.

Table 10: Status of ban on various SUP items and alternatives promoted in Kerala

SUP item	Successfully banned?	Alternative available?	Alternative used
A. Polyethene carry bag	YES	YES	Cloth bags
B. Compostable plastic bags		YES	
C. Non-woven plastic bags	YES	YES	Cloth and paper bags
D. Paper and cloth bags lined with plastic		YES	cloth and paper bags free from plastic coating
E. Plastic bags for horticulture			Plastic saplings bags are banned, and should be substituted with non plastic materials. For grow bags compostable material can be used
F. Plastic bags for garbage	YES	YES	Compostable plastic garbage bags
G. PET	YES, below 500 ml	NO	PET below 500ml banned, No substitute. Glass bottles can be used
H. Plastic cutlery	YES	YES	Glass, ceramic, steel, wooden items
I. Plastic coated cutlery		YES	Glass, ceramic, steel, wooden items
J. Plastic straw	YES	YES	paper straw
K. Plastic sheet for dining table	YES	YES	paper spread
L. Plastic water pouches	YES		Banned, No substitute
M. Non-branded juice packets	YES		
N. Plastic coated leaves used as plates	YES	YES	Glass, ceramic, steel plates
O. Plastic banners/ flex	YES		
P. Plastic flags	YES	YES	cloth and paper flags
Q. plastic bunting	YES	YES	cloth and paper flags
R. plastic beads			(Plastic free)
S. Plastic coated cloth hoardings	YES	YES	cloth,paper (plastic free)and polyethylene
T. Thermocol cutlery	YES	YES	Glass, ceramic, steel, wooden cutlery
U. Thermocol cutlery	YES	YES	
V. plastic raincoats, tarpaulin sheets, pens			

As mentioned before the plastic waste management was negatively affected by the COVID-19 pandemic. One of the issues that emerged during this time was the health department's promotion of disposable cutlery, which openly contradicted the existing SUP ban. Countering this to some extent, in some parts of states, SHGs producing cloth masks were made available thereby reducing the use of disposable masks. However, COVID-19 led to a visible drop in waste in tourism hotspots in Kerala due to decrease in tourists.

The relative success of the SUP ban in Kerala may be attributed to several programs in the state focusing on different aspects of plastic waste management as summarised in Table 11.

Table 11: Success stories on plastic waste management in Kerala

Program	Summary
Green Protocols	Created by the Haritha Keralam Mission to curb rampant plastic use. Ban of SUP use in Government offices and events, including major events like the National Games, CM swearing in ceremony.
Zero waste Kovalam	Was instituted in 1998 and became the first recycling upcycling initiative on a large scale. The idea came from the waste issues from Kovalam.
Green checkposts	Tourism waste is an issue so checkposts have been created to collect waste.
Suchitwa Mission	Suchitwa Mission is the Technical Support Group (TSG) in the Waste Management sector under the Local Self Government Department, Government of Kerala. It is responsible for providing technical and managerial support to the Local Self Governments of the State.
Clean Kerala Company	Clean Kerala Company Limited, formed under the Local Self Government Department, Government of Kerala, for ensuring hygiene management of the state through the adoption of innovative and scientific methods and proven technology, adhering to the concept of active participation of the public and private sectors. The company aims to ensure comprehensive management of all harmful rejections in the state, thereby ensuring that the hygiene of the state is never compromised.
Suchitwa Sagaram	The plastic waste is then collected by Suchitwa Sagaram (Clean Seas), a Kerala government initiative launched in 2017, and cleaned and shredded in a special facility. Suchitwa Mission, Kerala's flagship waste management programme, helped pay for the shredding machine and six months of costs.

4.5 SIKKIM

Highlights - Key features of the Sikkim SUP ban

Items banned: *Single use plastic items in all forms such as carry bags, pouches, cups, plates, spoons, straws and other use & throw items made of plastic; Styrofoam cups, plates, spoons, containers (as per a ban notification issued in 2018); packaged/bottled drinking water in government meetings or functions (as per a ban notification issued in 2016).*

Activities banned: *Sale and Use*

Implementation agencies: *District collectors, Additional District Collectors (development), Sub Divisional Magistrates, Municipal Commissioners, Municipal Executive Officers, Block Development Officers, Superintendent of Police in all districts, Additional superintendent of police, sub divisional police officers, station house officers, in-charges in all police outposts and officer in charge of police check posts*

The State of Sikkim is a pioneer in banning the use of disposable plastic bags which was first enforced in 1998. On July 8, 1998 the Urban Development and Housing Department issued a notification amending the Sikkim Trade Licence and Miscellaneous Provisions Rules, 1985. One of the key amendments introduced to the Rules included specifications for prohibiting the use of plastic wrappers and plastic bags. As noted in the amendment (Rule 10), the traders "shall not deliver any goods or materials purchased or otherwise to any person, firm shop, company or any other agency or organisation in plastic wrappers or plastic bags".[80]

On May 5, 2016, the State issued two more notifications expanding the scope of plastic ban. Through one of these, the Government imposed a ban on the use of plastic (packaged) drinking water bottles during any Government meetings and functions. Simultaneously, alternatives such as, large water dispensers or reusable water bottles were encouraged.[81] Through the other notification, a state-wide ban was imposed on the sale and use of disposable items made of styrofoam, including, plates, cups, spoons, containers etc.[82]

Following the state's own initiatives, and the notification of the PWM Rules (2016), various jurisdictions in the state have been taking measures to tackle the challenge of plastic pollution. As noted in the State Policy on Solid Waste Management Strategy, notified on April 29, 2019, there have been significant efforts at the local levels for banning SUP products. For example, Jorethang Village has implemented a comprehensive ban on disposable plastics. Similarly, Gerethang Village can be considered as the first village in India to ban SUP cups, plates, carry bags, and styrofoam plates. The village has also promoted eco-friendly alternatives to plastic.

The state has also used various instruments to reduce and recycle plastics. For example, the Kangchendzonga Conservation Committee (KCC) initiated a zero-waste programme in Kangchendzonga national park in Yuksam. A materials recovery facility was set up at the entrance of the national park for recovery of plastic waste. A check post was maintained to inspect the tourists for the plastic disposable products they were carrying in. An inventory of plastics going into the national park was kept against a cash deposit which would be reimbursed once the plastics are brought back.

The Government has also been promoting *Green Protocols* to reduce and eliminate the use of various SUP products and promote alternatives. Para 8 of the State Policy provides specific directions in this regard. As the Policy underscores, *"Green protocol shall be made mandatory across all sectors to eliminate single use plastic products and to bring down use of low value small format plastics. The Government shall promote alternate products and services that can replace wasteful, ecologically unviable and unsustainable products."*[83]

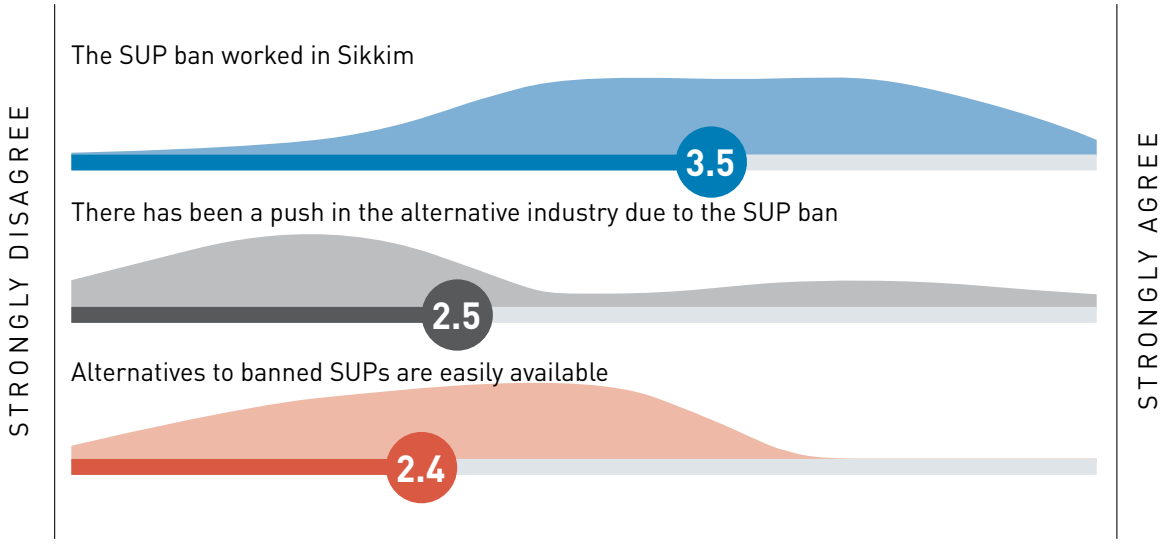
This policy on solid waste management in the state (which was effective from the date of being notified) thus directed a comprehensive ban on sale and use of a number of SUP products across the state (Para 9.1.1). These included, carry bags, plates, cups, cutleries, non-woven PP carry bags, single use plates made of MLPs, food containers made of expanded polystyrene etc. The local authorities have been mandated to integrate such provisions in their respective by-laws, in consultation with stakeholders.

Simultaneously, EPR mechanisms have also been specified for manufacturers, brand owners and distributors of plastic products. These entities shall be held responsible and liable for the collection, sorting, transportation, storing and recovery of plastic.

4.5.1 FGD outcome

While the bans enjoyed some success initially, over time the implementation weakened, especially for polythene bags along peripheral towns and in wayside shops selling vegetables. The biggest issue was that plastic bags have been replaced by PP bags. This was further compounded with a lack of awareness that PP bags are also a type of plastic. To counter the use of PP bags as an alternative for plastic carry bags the Sikkim PCB plans to implement a

Figure 18: Response of FGD participants in Sikkim



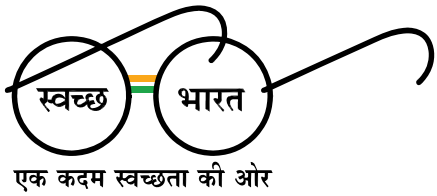
Note: Scale is from 0-5.

phase-wise ban of these. Additionally, plastic packaging used by the e-commerce companies and MLPs for food packaging were a prevalent source of plastic waste with no existing alternatives (*see Figure 18: Response of FGD participants in Sikkim*).

Ban on plastic bags in Sikkim was implemented only through the rules for trader licenses. However, during the discussion participants from the state indicated that there may be merit in creating a separate act for plastic waste management. So far, awareness activities were conducted regularly, especially for the management aspects of SUPs like awareness training for Rural and Urban Development departments. The plastic ban imposed for government functions and the styrofoam ban were found to be effective. However, a ban from the Rural Management Department on all types of SUPs (less than 50 microns) in 2019, was not effective.

Implementation of the ban in rural areas was done by Gram Panchayat Units (GPUs) and in urban areas by municipalities and police as well as many NGOs that were working on waste management. The Urban Development Department was responsible for issuing trade licenses for commercial establishments. Sikkim has 7 ULBs all of whom have been involved in plastic waste management. As per SWM 2016 the state formed a state level advisory committee in 2017.

In order to better manage plastic waste, the Sikkim SPCB proposed to set up refuse derived fuel (RDF) plants. There were two waste processing facilities, one is east Sikkim (Marthum) and the other in West Sikkim (Siphsu). The RDF plant was proposed to be set up in these two sites so that they can take the solid waste consisting of plastics. This proposal was accepted on 3rd December 2020 by the state government.



With no plastic manufacturing or recycling in Sikkim, plastic bags come from Siliguri and used plastics are collected and sent to West Bengal for recycling. Almost 30-35% of Sikkim's plastic waste was reported to be taken care of in this manner. Seized plastics were also sent to Siliguri for recycling after being processed at the landfill site. Some plastic was used last year for laying roads as a part of *Swacch Bharat Abhiyan*. In order to fill the recycling infrastructure gap, the government of Sikkim reported having laid emphasis on start-up projects in the direction of developing a recycling infrastructure.

The state of Sikkim stated that a large volume of plastic waste in the state was from tourism. As most of the products used in the state were imported, Sikkim SPCB reported no manufacturing units were registered with them to implement EPR within the state. While there currently exists no infrastructure for EPR, in coordination with the Urban Development Department, there was a plan to establish an EPR with the branded products brought into the state. Such a plan needs to take into consideration the large number of small retailers and rough terrain in the state that have made traditional models of EPR less likely to be economically feasible in the state. With respect to the centre's draft rules of EPR, respondents remarked that the funding mechanism for the EPR needed to be handed over to the state.

COVID-19 related waste was not a problem in the state as disposable masks are being supplied and used. Further due to low tourist inflow, there was a notable reduction in SUPs. In hospitals use of SUPs had increased and these were incinerated. In the quarantine centres disposable items were being used to supply food and water. Despite these changes, overall volume of waste did not increase because tourism contributed to a greater extent to Sikkim's plastic waste.

BOX 3: BEST PRACTICES ON SUP REDUCTION IN SIKKIM

(1) Yuksom village

In 1996-97, the village of Yuksom banned the use of single use plastic, much before the state ban. The project was piloted in Kanchenjunga National park with the forest department officials along the trekking trail. The first initiative taken was to ensure that all the items that went in with the trekkers, came out. For this a resource recovery centre was set-up. Source segregation was practiced and therefore the resource recovery centres had segregation chambers. These centres were also used for brand auditing. The lack of recycling centres in Sikkim makes it very challenging. High-value plastics and easy to recycle items are sold to kabbadi walas. Non-saleable/non-recyclable plastics (chips, biscuit packets) are discarded; these are not taken by kabadi wallas and even those that go to landfills don't get recycled. Presently, 16 GPUs have these resource recovery units with one resource recovery vehicle at the cost of I12 Lakhs. The project is being discussed with the state government to find some solution for non-recyclable plastics.

(2) Tashi – a model GPU

SUPs are banned in Tashi. All residents have been informed not to use PP bags and PP-based surgical masks. SHGs have been mobilised to make cloth masks. These masks are being distributed free of cost to migrant labourers. To reduce plastic bags, using Gram Panchayat funds, SHGs are making khadi bags. They are paid I40 to make these bags. The GP is also providing composting bins and teaching composting to the residents. The GP has purchased steel cutlery (300-400 pieces) and gives it on rent for village level functions or personal functions in the village. There is also an organisation that is making cloth sanitary pads and these are being distributed free-of-cost in schools using Gram Panchayat funds. These measures have visibly reduced the waste generated.

(3) Sikkim SPCB awareness drives

Sikkim SPCB organises several awareness activities for schools on waste management. Once schools reopen after the COVID-19 related lockdown, Sikkim SPCB plans to organise cleanliness drives. In the past, Sikkim SPCB did a lot of work related to awareness especially for field implementers of these rules. The Sikkim SPCB further stated that with proper channelisation of waste, despite the difficult terrain, small interventions in processing, recycling, segregation and collection can be implemented thereby solving issues in waste management. Combined efforts from municipalities, regulators and NGOs is imperative for proper management of waste.

4.6 MAIN CHALLENGES AND KEY RECOMMENDATIONS

The five states/UT selected for an in-depth assessment of SUP ban have given a balanced view on the state of implementation of SUP ban in the country. While Kerala and Sikkim reported some success, the ban has not been successful in Maharashtra, Odisha and Delhi. Overall, a common outcome observed was that the ban has been enforced in fits and starts, without any long-term strategy. The main challenges faced in implementation and key recommendations are listed below:

(A) Scope of SUP ban

There was a widespread consensus that a national definition and list of SUPs to be banned is necessary. The national list could be a national minimum list, with states having the scope to add products. Currently, states have created an arbitrary list of SUP items for the ban, without determining their contribution to the plastic waste problem. It was often unclear what processes were followed in determining the items included in the list. Besides, in many states the specific definition of the banned items lacks clarity.

(B) Enforcement Agencies

Almost all states have given powers to a large number of agencies to enforce the ban. However, there was no evidence that distribution of power among the different government agencies led them to actively participate in ban enforcement or improve implementation. On the contrary, there was some evidence that this has led to lack of coordination and blame-game.

The ULBs and SPCBs/PCCs were two critical agencies for the SUP ban implementation. However, both of them faced major challenges:

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- There was no support provided to the ULBs on how to carry out the enforcement. This in turn led to only two modalities of ban implementation: awareness drives and raids/ confiscations. As ULBs have limited workforce, these methods could not be sustained.
- Some SPCBs/PCCs have a dedicated cell for plastic waste, but most reported only 2-4 officers for implementation.
- The ban notifications were often unclear about the types of SUPs banned which in turn led to uncertainties in the implementation of the ban. In some cases, such vagueness has been reported to have led to excesses of power being used on-ground.
- The thickness criteria for polythene bags was difficult to enforce and hence has not worked in the last two decades.
- In most states, urban centres or areas with high economic activity were the focus of the SUP ban, but such isolated efforts have failed due in part to lack of awareness which in turn led to continued reliance on SUPs in the rest of the state.

Overall, capacity enhancement of alternatives is a prerequisite for sound implementation.

(C) Alternatives

Lack of alternatives to banned SUPs was identified as a key contributor to an unsuccessful ban. Among alternatives that have emerged as a consequence of the ban, the non-woven PP bags present a major threat to the environment. However, there is a clear lack of awareness on the ill-effects of PP bags.

Another alternative identified to replace polyethylene carry bags were compostable plastic bags. However, certification and labelling of compostable bags is expensive, making fraudulent bags a common challenge. Despite regulations that require proper labelling of compostable bags, authorities have reported finding it difficult to identify genuine compostable bags. Further, testing facilities for compostable bags in the country are both sparse and expensive. Mainstream use of compostable bags may also disrupt the existing segregation system wherein they may be introduced into the recycling stream. Finally, the compostability of these plastics is possible only with industrial composters. Compostable plastics and their degradation was also associated with the deposition of microplastics into the environment making them a non-eco-friendly alternative.

Despite these challenges, the ban has led to the development of alternative industries, albeit at a small-scale. Common alternatives that emerged as replacement for plastics are cloth, jute and paper for carry bags, paper or metal for straws, paper or leaf for plates. These alternatives are common across all the states, but their use remains limited.

(D) Approach

The extent of success of the SUP ban seems to be linked to the approach adopted by states/UTs. A long-term comprehensive strategy on waste management seems to have aided states with successful implementation of ban. On the other hand, enforcement of ban in states/UTs with poor waste management systems has been unsuccessful.

Both Kerala and Sikkim have a long running campaign of waste management. Kerala made focused efforts on building a robust waste management infrastructure through the creation of a dedicated plastic management company called Clean Kerala Mission and the Haritha Keralam Mission. Additionally, regular information, education and communication campaigns have been conducted over 15 years in Kerala. As a result, segregation of waste was reported to be a common practice. This, in turn, contributed positively to better SUP waste management in the state of Kerala. Similar efforts through awareness activities have been reported by Sikkim since the late 1990s. In both states the government showed leadership by introducing some form SUP ban for government events and offices.

Delhi, Odisha and Maharashtra have struggled with waste management and have poor compliance with the Solid Waste Management Rules, 2016, including segregation of waste and littering. The SUP ban notifications are ridden with ambiguities with respect to items banned and implementation strategy. There is, therefore, a lack of an ecosystem to implement bans in these states. It is thus evident that without a comprehensive waste management system, SUP ban cannot be successful. Further, state/ UT autonomy in SUP ban design and implementation along with guiding regulations at the Central-level were found to be preferred during the FGDs. Thus, the design and implementation of SUP ban has to be a bottom-up effort and not a top-down initiative.

(E) EPR

EPR has largely been unsuccessful across states/UTs. Through the discussion it was evident that in order to strengthen EPR there is a need for a robust waste management system in terms of proper segregation, collection and a functional recycling industry. There was also an overwhelming support for increasing the number of SUP items under the purview of the EPR. Some commonly named items were sanitary pads, toiletries, medical supplies, sachets, food and online delivery packaging.

Another aspect lacking in EPR implementation was its narrow focus leaving out small businesses, small towns and rural areas. Thus, the EPR was mostly for large businesses and was implemented in urban centres.

A fundamental shift in EPR needs to be towards making it broader than just a means to manage plastic waste, that is, minimising the use and production of SUPs also has to be made part of the EPR. One way of achieving this could be through introducing a high financial cost during production, which will push companies to address their packaging and products at the manufacturing stage. Standardization of product design including the packaging could lead to better recycling. For example, the wrappers for PET bottles are made of PVC in some cases and BOPP in others, both of which are difficult to recycle. Similarly, for MLPs, the number of layers and materials vary between companies.

CHAPTER 5

COVID-19 AND PLASTIC WASTE MANAGEMENT

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- The pandemic increased the usage of SUPs and weakened the implementation of the SUP ban across all focus states/UTs.
- Commonly found SUPs due to the pandemic were: disposable masks and gloves, sanitiser bottles, disposable containers for food, online packaging, and carry bags.
- On the one hand, the pandemic has increased the use of certain kinds of SUPs such as PPEs and food packaging; on the other hand, it has also reduced plastic waste generation due to decreased tourism and restrictions on large gatherings.
- While waste from hospitals and quarantine facilities was being handled as per protocols, there is currently no protocol or monitoring for masks and gloves discarded as a part of household waste. Additionally, the practice of segregation of waste seems to have dwindled since the pandemic.
- Learning from the COVID-19 pandemic, exceptions can be introduced in the SUP ban notification for exempting certain SUP items during emergencies like a pandemic. This will help prevent the prevalent disregard for the SUP ban as observed during COVID-19.

The COVID-19 pandemic forced a 'new normal' exposing fractures in existing systems and structures. While the direct and indirect impacts of the pandemic have been catastrophic, to say the least, its long term effects are not fully understood. Among the sectors that were forced to quickly adapt to the pandemic was waste management.

Responding to the public health crisis, the CPCB issued a document with Guidelines for the Collection, Segregation and Disposal of COVID-19 waste.[84] These Guidelines have been implemented in addition to existing practices as per the Biomedical Waste (BMW) Management Rules (2016). The Guidelines provide a detailed set of rules for different entities and agencies on the frontline of COVID-19 (*See Box 3*). These included (i) COVID-19 isolation wards, (ii) sample collection centres and laboratories for suspected COVID-19 patients, (iii) Quarantine facilities of varying scale including homes, (iv) Common Biomedical Waste Treatment Facilities (CBWTF), and (v) SPCBs.

A recent report submitted by the CPCB to the National Green Tribunal showed the following about the state of COVID-19 BMW management system across the country:[86]

- The quantity of COVID-19 BMW in December 2020 was 146 MT/day and the quantity of other BMW was 651 MT/day. So, COVID-19 BMW was about 20% of the total BMW.
- There were about 198 CBWTFs with a cumulative incineration capacity of 840 TPD across the country, providing services for collection, transportation, treatment and disposal of biomedical waste. Overall, this was sufficient to handle COVID-19 BMW.
- While the CBWTF capacity may seem sufficient for COVID-19 BMW, the SPCBs have reported that in localised situations the CBWTF infrastructure has been found to be insufficient, leading to some states resorting to using deep burial pits.
- The SPCBs also reported a steady decline COVID-19 BMW since November 2020.

While there are rules and infrastructure available for biomedical waste, everyday municipal solid waste is being handled per usual. With the rampant use of personal protective gear such as masks and gloves by the general public, often disposable, the composition of MSW is bound to change. Waste emerging from households is increasingly likely to contain SUPs during and possibly after the pandemic too. Additionally, restricted movement due to the pandemic and consequent lockdown has increased plastic use worldwide due to reliance on food delivery mechanisms and online stores. An estimated leap from USD 909.2 billion in 2019 to USD 1012.6 billion in 2021 is expected in the global plastic packaging market, largely attributed to pandemic response.[87]

In addition to increased use of SUPs, the crisis has forced governments across the world to turn their attention away from waste management. With the pandemic's adverse effect on human health, there has been a delay

BOX 4: GUIDELINES FOR COVID 19 BIOMEDICAL WASTE IN INDIA

The guidelines for the collection, segregation and disposal of COVID-19 waste identified two types of waste generated across various types of healthcare facilities, namely, COVID-19 waste and general waste[85]. Facilities were encouraged to segregate general waste into wet and dry categories at source. It is important to note that the guidelines on general waste emphasized on the need to use "non-disposable" items wherever possible for activities like serving food. Compostable bags have been recommended for collecting wet-waste and yellow coloured plastic bags with double lining for biomedical waste in COVID-19 isolation wards.

All the biomedical waste from isolation wards, testing centres and quarantine centres and homes are to be collected and disposed of by CBWTFs. The CPCB created a mobile app called 'COVID19BWM' for reporting details of COVID-19 biomedical waste from isolation wards, quarantine facilities and CBWTF. In addition, all the facilities handling COVID-19 wastes have been asked to maintain a separate record of the quantity of waste generated on a daily basis. CBWTFs are to maintain a separate record of the collection, treatment and disposal of COVID-19 waste. They have also been instructed to provide waste collection data on the COVID19BWM app in addition to registering the vehicle used to collect COVID-19 specific biomedical waste.

or reversal of policies aiming to reduce SUP use and its supply chain including the plastic recycling industry.[88] Thus, in addition to an increase in reliance on SUPs, the faltering of regulation and mechanisms to check these can be harmful in the long run.

5.1 INSIGHT FROM FOUR STATES AND ONE UT

During the FGDs, perspectives on the impact of COVID-19 on SUP consumption and the challenges introduced by the pandemic on plastic waste management were discussed.

It was evident that the pandemic not only increased the usage of SUPs but also weakened the implementation of SUP ban across all focus states/UTs. Some of the commonly found SUPs as a consequence of the pandemic were: disposable masks and gloves, sanitiser bottles, disposable containers for food, online packaging, and carry bags. This increase in SUPs was attributed to a general sense of hygiene associated with disposable products.

The increased volume of biomedical waste from hospitals and isolation centres were handled as biomedical waste and appropriate protocols were followed. However, there is currently no protocol or monitoring for masks and gloves discarded as a part of household waste. Additionally, the practice of segregation of waste seems to have dwindled since the pandemic.

On the other hand, with decreased tourism and restrictions on large gatherings, some states reported a substantial decrease in the plastic waste generated, especially Kerala and Sikkim. Many states also reported large-scale use of reusable face masks resulting in some reduction in COVID-19 related plastic waste.

Overall, there was a general sense that personal protective equipment from households were poorly managed, while those from hospitals and healthcare facilities were properly managed. Going forward, there is therefore a need to refocus on the SUP ban. Learning from the COVID-19 pandemic, exceptions can be introduced in the SUP ban notification for exempting certain SUP items during emergencies like a pandemic. This will help prevent the prevalent disregard for the SUP ban as observed during COVID-19.

5.2 PANDEMIC IMPACTS AND REBUILDING RIGHT

As in the case of so many other systems, the pandemic exposed the fragility of the waste management infrastructure. Not only was there a noticeable increase in SUPs but the implementation of the ban took a backseat. The following are some important lessons to be considered in all future SUP ban legislations:

- As mentioned before, there is a need for regulation to recognise extraordinary circumstances (such as a pandemic, natural disaster etc.) and specify the types of SUPs that may be imperative under these situations. This way SUPs will not resurface indiscriminately.
- Coordination between government departments is fundamental to a successful enforcement of SUP ban. Steps that openly contradict the SUP ban like promoting disposable masks or cutlery need to be considered carefully by government agencies.
- Segregation of waste is an important element of a robust waste management system. Continued enforcement of this through appropriate steps needs to be a priority. There is a need for a classification of household hazardous waste to allow the segregation of medically hazardous waste produced due to pandemics like the COVID-19. In some cases, establishment of proper segregation channels were instrumental in COVID-19 tracing.

CHAPTER 6

THE WAY AHEAD

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- India needs a National Plastic Strategy to develop an environmentally cognizant plastic industry, reduce SUPs, improve waste management and reduce plastic pollution, including marine pollution.
- Before enacting SUP legislation, it is crucial to have a comprehensive set of data and information to understand the ground realities.
- While a national list of SUPs to be banned is imperative, a nationwide ban on SUPs must allow flexibility to states/UTs to add more SUP items if these items are a major cause of pollution.
- Giving adequate time and phased implementation is more likely to be successful as the market will get time to adapt.
- A sound waste management ecosystem, including segregation, collection and recycling, is crucial for managing SUPs.
- The key to EPR success is to have a national scheme that is locally enforceable. Also, a deterrent penalty for not meeting the targets is crucial.

While India's per capita plastic consumption of 13.6 kg/year is less than half the global average and one-fourth of China's, the rapid growth rate in plastic consumption, estimated to be 8-10% annually, means that India's per capita plastic consumption could double every 8-9 years. (*see Figure 19: Per capita plastic consumption*) Even as India struggles to manage its low plastic footprint, a new set of strategies and policies needs to be carefully designed and executed to manage rapidly increasing plastic consumption, especially disposable, SUPs.

India has enacted four amendments of PWM Rules since 2021 to address essential and non-essential plastics under a phaseout schedule and EPR targets. The approach to plastic waste management has been iterative and futuristic. Any new legislative efforts for managing plastic waste should be created by carefully examining the past success and failures and future prognosis. Based on findings from a country-wide assessment of SUP ban notifications as well as FGDs with representative from five states/UTs, we present the following recommendations:

I. DEVELOP A NATIONAL PLASTIC STRATEGY

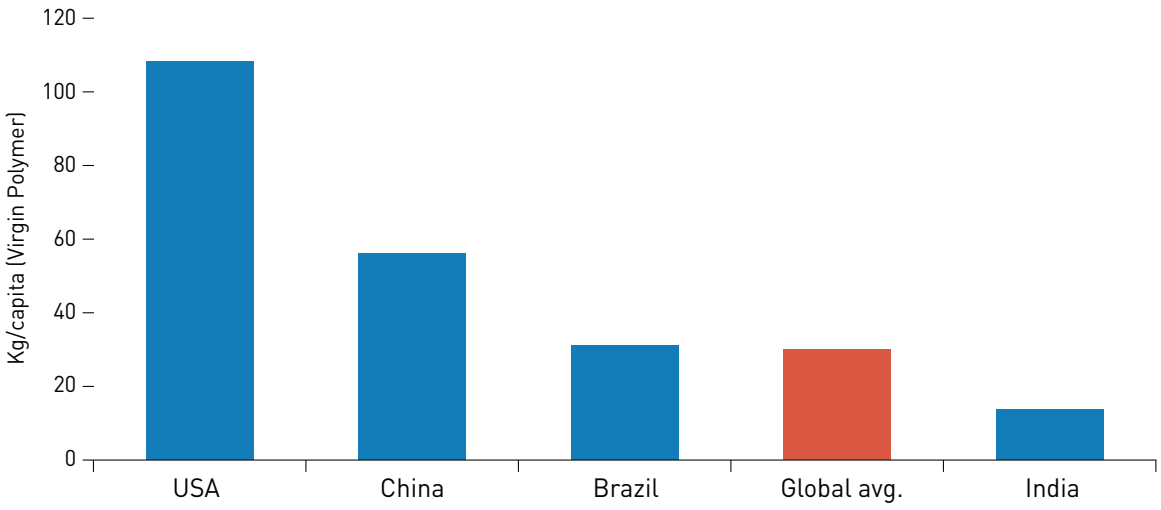
Addressing SUPs and the resultant plastic pollution requires a long-term vision, target and strategy. Currently, while on one hand, states/UTs are banning SUPs, on the other hand, the government is promoting large-scale production of plastics and setting-up Plastic Parks to promote the domestic downstream plastic processing industry.[89] Also, SUPs reduction requires a comprehensive waste management approach and ecosystem; if the ecosystem is not available, bans are likely to fail.

It is, therefore, essential that India develops a National Plastic Strategy for the next 20 years to develop an environmentally cognizant plastic industry, reduce SUPs, improve waste management and reduce plastic pollution, including marine pollution. The strategy must include the concept of circular economy in the life-cycle of plastic, develop alternatives to SUPs, introduce sustainable feedstock for plastics, and remain focused on reducing SUPs. The strategy of an SUP ban would be one of the instruments to reduce these disposable plastics, along with other economic and market instruments.

II. DESIGN A COMPREHENSIVE LEGISLATION BASED ON GROUND-LEVEL STUDIES AND ASSESSMENT

Before enacting SUP legislation, it is important to have a comprehensive set of data and information to understand the ground realities. Unfortunately, the data on SUPs and plastic waste is lacking in India. There are no reliable estimates on the amount of SUPs consumed, recycled or disposed in the country. The state/UT-level and city-level information is even more deficient. The data collected by

Figure 19: Per capita plastic consumption



Source: PLASTINDIA Foundation, 2019

BOX 5: A EUROPEAN STRATEGY FOR PLASTICS IN A CIRCULAR ECONOMY

In 2018, the European Commission published its plastic strategy with 'A vision for Europe's new plastics economy'. The vision is to develop a circular economy covering the entire value chain of plastics. The vision includes the following target and goals:

- Plastics and products containing plastics are designed to allow for greater durability, reuse and high-quality recycling. By 2030, all plastics packaging placed on the EU market will either reusable be or can be recycled in a cost-effective manner.
- Changes in production and design enable higher plastics recycling rates for all key applications. By 2030, more than half of the plastic waste generated in Europe can be recycled. Separate collection of plastic waste can reach very high levels. Recycling of plastic packaging waste can thus achieve levels comparable with those of other packaging materials.
- EU plastics recycling capacity is significantly extended and modernised. By 2030, sorting and recycling capacity is expected to increase fourfold relative to 2015, leading to the creation of 200,000 new jobs, spread all across Europe.
- Thanks to improved separate collection and investment in innovation, skills and capacity upscaling, export of poorly sorted plastics waste will be phased out. Recycled plastics will become an increasingly valuable feedstock for industries, both at home and abroad.
- The plastics value chain will be far more integrated and the chemical industry will work closely with plastic recyclers to help them find wider and higher value applications for their output. Substances hampering recycling processes have been replaced or phased out.
- The market for recycled and innovative plastics will be successfully established with clear growth perspectives as more products incorporate some recycled content. Demand for recycled plastics in Europe will grow four-fold, providing a stable flow of revenues for the recycling sector and job security for its growing workforce.
- More plastic recycling helps reduce Europe's dependence on imported fossil fuel and cut CO2 emissions, in line with commitments under the Paris Agreement.
- Innovative materials and alternative feedstocks for plastic production will be developed and used where evidence clearly shows that they are more sustainable compared to the non-renewable alternatives. This will further support efforts on decarbonisation and creating additional opportunities for growth.
- Europe will thus confirm its leadership in sorting and recycling equipment and technologies. Exports rise in lockstep with global demand for more sustainable ways of processing end-of-life plastics.

The above vision has been complemented with strategies such as better and more harmonised separate collection and sorting, improved waste management, progressive ban on SUPs, designing products for recyclability, boosting demand for recycled plastics, investments in R&D and strategy to reduce littering and pollution.

Source: European Commission. (2018). A European Strategy for Plastics in a Circular Economy. (https://ec.europa.eu/environment/circular-economy/pdf/plastics-strategy-brochure.pdf)

the CPCB as part of the PWM Rules, 2016 is also highly unreliable because of the absence of protocols for data collection and validation *(see Box 6: Data collection and reporting on plastic waste)*.

Based on the data and information, a comprehensive legislation, combining multiple regulatory approaches, should be designed and implemented to reduce SUP consumption effectively. The regulatory instruments could include (1) Bans and restrictions; (2) Taxes, subsidies or other fiscal instruments; (3) Standards, certifications and labelling; (4) EPR; and, (5) Waste management legislations.

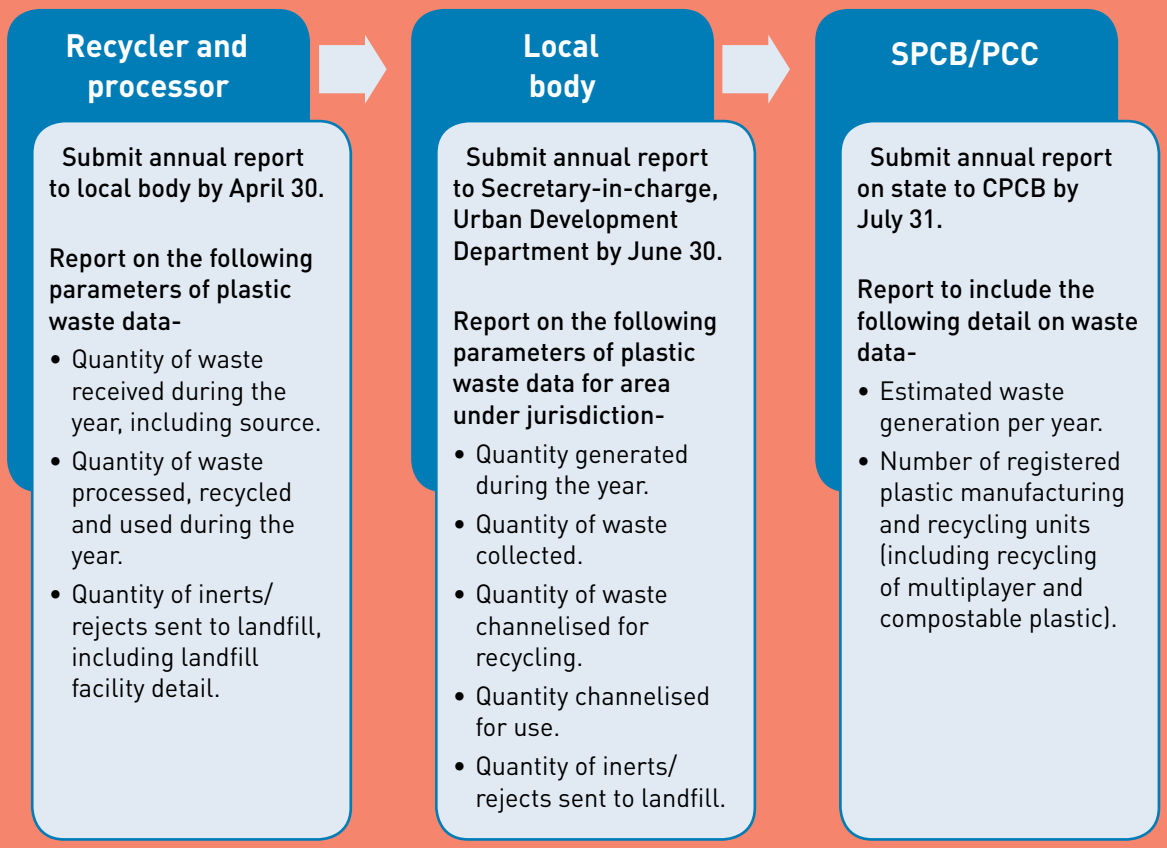
III. STATE AND CITY ACTION PLANS

It is quite apparent that the plastic ban imposed by various states/UTs have had limited success due to various factors discussed in the report. However, case studies in Kerala, Maharashtra, Sikkim, Odisha and Delhi have elucidated the critical successes and best practices attributable to the participation of local authorities. There is thus merit in exploring the specific roles of state and city authorities in facilitating the SUP ban through action plans. These action

BOX 6: DATA COLLECTION AND REPORTING ON PLASTIC WASTE

Rule 17 of the Plastic Waste Management Rules, 2016, requires annual reports to be submitted by waste processors and authorities on waste generation, treatment and disposal. The Rules also outline the data collection and reporting method. The mechanism for this is outlined in the diagram below.[90]

Data collection and reporting on plastic waste



The major challenges with respect to plastic waste data include the following:[91]

- Inadequate information as SPCBs/PCCs are unable to collect information from all ULBs.
- Lack of proper collection, source-segregation and disposal system for plastic waste, affects data generation.
- Lack of data on disposal of plastic waste such as, plastic manufacturing, recycling, MLP packaging units.
- While Rule 13(1) of the PWM Rules (2016), require all the plastic manufacturing/recycling units to be registered, there are a large number of unregistered plastic manufacturing/recycling units. The data from these units are not collected.
- Mismatch in data on plastic waste generation and recycling between the industry and the government.

Overall, the information provided by most of the ULBs/ SPCBs on plastic waste is inadequate. There is an urgent need to:

- Simplify and harmonize data collection and validation forms/methods under PWM Rules, 2016;
- Publish protocols for the development of waste inventory, data collection and validation; and,
- Capacity building of local bodies and SPCBs/PCCs to collect, collate and process data.

plans, while being a critical extension of the Amended PWM Rules 2021, can also be an important data collection tool. States and city governments can play a critical role in gathering evidence on the level of success and existing gaps in the SUP ban legislation.

SUP ban legislation is an iterative process. To this end, the action plans can help identify the most problematic SUP items. States and local authorities could play a critical role in revising the national SUP lists for bans under the following categories:

Category 1 - Products that have alternatives readily available and should be banned: These include all kinds of carry-bags (including non-woven PP bags), disposable cutleries, straws, pouches for liquids, small bottled water, decorative materials and flags, etc.

Category 2 - Products that can be brought under buy-back/ deposit-refund EPR schemes: These include PET bottles, plastic packaging used by hotels and takeaways, milk pouches and food and medicine packaging of more than 50-micron thickness, big plastic bottles of body care products and medicines, packaging of e-commerce, Raffia etc.

Category 3 - Products that can come under non-buy-back EPR scheme: These can include MLPs, small sachets and bottles, etc. Companies producing these products will have to work with local authorities to ensure maximum recovery and recycling/end-use of these products.

IV. COMMUNICATION AND AWARENESS AMONG CONSUMERS

A robust IEC strategy helped the state of Kerala achieve relative success with plastic waste management *(noted in section 4.4)*. As an extension to the PWM Amendment Rules 2021, there is a need for state and local governments to outline and implement IEC strategies. UNEP-WRI's legislative guide for regulation of SUP products noted that while consumer education is important, simply mandating relevant authorities to conduct these educational programmes is a minimal legislative approach. For success with the consumer education, specific obligations for these authorities must be prescribed including the need to define a funding pathway and require reporting on such programmes.[92] This is an important point to take into consideration, as most of the state-issued ban orders merely prescribed the need for an awareness campaign without specifics on duration, target audience, or subjects to be communicated.

As per the latest iteration of PWM Amendment Rules 2021, various SUPs have been defined for a ban.[93] Given that a variety of SUPs used daily are the target of this ban, the first phase of such a strategy could focus on widely disseminating list of banned SUPs and their respective phaseout dates. In the second phase, authorities could focus on educating and raising awareness on the need for a nation-wide SUP ban. It is important that these announcements are periodic and consistent to ensure stakeholders are well-prepared for the ban. Specifics on how these IEC campaigns should be designed are beyond the scope of this report and must be determined by the local authorities based on field studies.

V. REDESIGN EPR

EPR has two principle environmental goals:[95]

- To provide incentives for manufacturers to design resource efficient and low-impact products; and,
- To ensure effective end-of-life collection, the environmentally sound treatment of collected products and improved rates of reuse and recycling.

BOX 7: PHASED IMPLEMENTATION IN FRANCE

France Law No. 2020-105 of 2020 on Combating Waste and on a Circular Economy includes regulatory measures that aim for all plastic to be recyclable by 2025 and for a 50% reduction in the use of single-use plastic bottles in the next decade. Additionally, this law requires fast-food restaurants and takeaways to stop using plastic containers by 2023. The law also includes obligations on e-commerce platforms to prevent and manage waste produced by their business activities (such as packaging waste from online sales) and requirements to provide certain information to consumers about products to disincentivize the purchase of those that are not recyclable or contain hazardous substances.

Similarly, the EU has banned cotton bud sticks, cutlery, plates, straws, stirrers, and sticks for balloons in the first phase because sustainable alternatives are easily available and affordable for these items.[94] China has also banned just plastic straws and thin shopping bags from the end of 2020.

Source: UNEP & WRI. (2020). Tackling Plastic Pollution: Legislative Guide for the Regulation of Single-Use Plastic Products.
https://wedocs.unep.org/bitstream/handle/20.500.11822/34570/PlastPoll.pdf.pdf?sequence=3&isAllowed=y
https://ec.europa.eu/environment/topics/plastics/single-use-plastics_en
https://www.packaginglaw.com/news/china-continues-efforts-ban-and-limit-use-plastic-products

Environmentally sound treatment of collected plastic products is critical to successful management of plastic waste. EPR is one such regulatory approach that facilitates end-of-life collection, recycling and reuse of plastic products. A comprehensive EPR scheme, including both upstream and downstream EPR, needs to be designed as follows:

- Upstream EPR: This could include mandatory targets for reusability and recyclability of packaging or products. Mandatory requirements to facilitate higher rates of recycling of packaging like MLPs is an important part of EPR. Reduced plastic packaging or 'lightweighting' is also an important strategy to reduce waste quantity and plastic pollution.
- Downstream EPR: EPR schemes rely on producers paying fees to cover the cost of the collection, processing and disposal of single-use plastic products and packaging. In countries, like Japan, producers are required to directly pay to the local authorities the collection, processing and disposal/recycling costs. The German EPR system requires plastic packaging manufacturers to pay a fee to a national waste management company. The size of the fee depends on the number of packaging units and the weight of the materials.

In other countries, producers are required to develop collectives/PROs to collect and process waste. Depositrefund and buy-back schemes are the most common EPR schemes used worldwide. The key for EPR success is to have a national scheme that is locally enforceable. Also, a deterrent penalty for not meeting the targets is crucial. Research has also found that the effectiveness of EPR schemes in meeting reuse and recycling targets also tends to increase when EPR is coupled with economic instruments such as landfill and incineration taxes, disposal bans for certain products or materials, packaging taxes and pay-asyou-throw schemes.[96]

VI. ALTERNATIVE (NON-PLASTIC) MATERIALS

In many countries bans are accompanied by the promotion of alternative materials to replace the SUP products. Before banning a single-use plastic product, policymakers should work to develop the markets for alternatives. This could include instruments like providing subsidies and government procurement, to develop the market. Plastic manufacturers, who are likely to lose due to the ban, should also be compensated and facilitated to move into alternative industry.

VII. SOUND WASTE MANAGEMENT ECOSYSTEM

SUPs cannot be addressed in isolation. A sound waste management ecosystem, including segregation, collection and recycling, is crucial for managing SUPs. While India has enacted Solid Waste Management Rules, 2016, the rules have no targets or a roadmap to achieve certain goals. States have also not developed roadmaps to meet the requirements of the SWM Rules. It is time to revisit SWM Rules and set practical goals and targets for segregation, recycling and disposal.

VIII. CAPACITY BUILDING

A larger need to capacitate various stakeholders in the plastic value chain is the need of the hour on policy instruments on SUPs, on EPR and its implementation and to capacitate them on strengthening infrastructure on plastic waste management for better channelization of resources.

IX. SUP MANAGEMENT DURING EMERGENCIES

A critical learning from the pandemic was the need for a seamless and robust waste management system. A key building block for such a waste management system is meticulous source segregation. Additionally, waste management regulations, especially SUP bans must account for extraordinary circumstances (e.g., pandemic, natural disaster etc.) and introduce exemptions in the legislations. This can prevent indiscriminate use of SUPs. Coordination between government departments is fundamental to a successful ban. Measures that openly contradict the ban, such as promotion of disposable masks, gloves and cutlery need to be carefully deliberated before endorsement.

Annexure 1: State-wise ban of SUP items

States/UTs	SUPs banned		Activities banned
	Plastic bags	Other SUPs	
Andaman and Nicobar Islands	Complete ban	Less than 2 litres PET bottles (water, beverages, alcohol); All sizes of plastic and styrofoam cutleries, straws, plasbodies cigarette lighter, use and throw pens, plastic sheets/pouches (transparent, coloured, layered) used for packaging water, gifts, food items etc; Bubble wraps; Shampoo sachets less than 15 ml or equivalent in weight; and All makes of ear-bud with plastic stick	Complete ban on use, storage, import, manufacture, transportation, distribution, sell and disposal
Andhra Pradesh	< 50 microns	Not Banned	
Arunachal Pradesh	< 50 microns	Not mentioned	
Assam	< 50 microns	Plastic sheets/ multilayered packaging less than 50 microns, Plastic cups with less than 50 microns thickness and less than 60 mm diameter; Short-life PVC and all chlorinated plastic bags, sheets, banners, flex, buntings, flags (irrespective of thickness).	Ban on use, manufacture, import, supply, storage, transportation, sale and distribution
Bihar	Complete ban; Rural areas exempted	Not mentioned	
Chandigarh	Complete ban	Plastic cutleries, stirrer, straws; Thermocol/Styrofoam cutlery; Plastic containers less than 250 microns used for packaging/ covering of food/liquid items and packaging dairy items; Plastic (sold in the name of Silver/Aluminium) bag/pouch for packing food items, drinking water sealed glasses and plastic mineral water pouch; Use and throw) razors; Use and throw pens; Thermocol/Styrofoam decorative items; Plastic decorative items; Non-woven polypropylene bags; Industrial packaging (of any kind) less than 50 microns; Plastic sachets with packaging capacity of 50 ml/50 gm. and less; Plastic sticks for ear buds, balloons, flags and candies; Plastic refill pouches having quantity less than 500 ml; Plastic straws attached with tetra packs; and Multilayered packaging used for food/snacks packing.	Complete ban on manufacture, store, import, sell, transport, supply or use
Chhattisgarh	Complete ban	Short-life PVC and chlorinated plastics (such as advertising and publicity materials, including, banners. flexes. hoardings etc). PVC and plastic items/cutlery used for catering;	Complete ban on manufacture, manufacture. store, import, sell, transport and use
Dadra and Nagar Haveli, and Daman and Diu	Complete ban	Not mentioned	

States/UTs	SUPs banned		Activities banned
	Plastic bags	Other SUPs	
Delhi NCR	Complete ban	Complete ban on: Use of any kind of plastic cover, plastic sheet, plastic film or plastic tube to pack or cover any book (including magazine, invitation card, greeting card); Manufacture, import, storage, sell, transport of poly propylene, non-woven fabric type carry bags.	
Goa	Complete ban	Items made up of plastic/styrofoam such as, cups, straws, lids, cutlery, cello and poly film, metalized film, plastic cellophane paper.	Complete ban on manufacture, import, store, transport or sell
Gujarat	< 50 microns; Gandhinagar, Sabarmati river front and Statue of Unity		
Haryana	Complete ban	Cutlery (such as, cups, tumblers, spoons, forks) made of virgin or recycled plastic; Straws made of virgin or recycled plastic; Complete ban on use of containers made of recycled plastic for storing, carrying, packaging or dispensing food stuff; Ban on manufacture of plastic containers that are not of neutral shade or white in colour.	Complete ban on manufacture, stock, distribution, sell of plastic items
Himachal Pradesh	Complete ban	Complete ban on plastic (having one time use) and styrofoam cutlery, including disposable plastic cups, glasses, plates, spoons, or any other item produced from non-biodegradable material that is used for serving or consuming food in any form	
Jammu & Kashmir	< 50 microns	Plastic sheets, covers, packaging and multilayered packaging less than 50 microns in thickness	Ban on manufacture. stocking, distribution, sale and use
Jharkhand	Complete ban	Not mentioned	
Karnataka	Complete ban	Plastic banners, buntings, flex, and flags; Plastic cutlery, including plates, cups, spoons; Cling films and sheets used for spreading on dining table irrespective of irrespective of thickness; Any of the above items that are made of styrofoam/ thermocol, and which uses plastic microbeads.	Complete ban on manufacture, supply, sale and use
Kerala	Complete ban	Plastic sheets used as table spread, decorative materials and plates and cups made up of thermocol/styrofoam, SUP cutleries, non-woven bags, plastic flags, PVC flex materials, plastic coated materials (like paper cups, plates, bowls, bags), plastic water pouches, non-branded plastic juice packets, less than 500 ml drinking water PET bottles, plastic garbage bags, and plastic packets.	Complete ban on manufacture, storage, transport and sale
Ladakh	< 50 microns	Use of plastic bottles, plastic files and folders in Government offices	
Lakshadweep	Complete ban	Ban on use of plastic sheet/film used for food wrapping and dining table cover, plates and cups made up of thermocol/ plastic/plastic coated paper, water pouches/packets/PET bottles, plastic straws and plastic flags.	
Madhya Pradesh	Complete ban	Not banned	

States/UTs	SUPs banned		Activities banned
	Plastic bags	Other SUPs	
Maharashtra	Complete ban	Disposable products manufactured from plastic & thermocol (polystyrene) such as single use disposable cutleries, decorative items, container, disposable dish/bowl used for packaging food in hotels, spoon, straw, non-woven polypropylene bags, cups/ pouches to store liquid, packaging with plastic to wrap or store the products, packaging of food items and food grain material etc. Use, sell, storage and manufacture of PET bottles less than 0.5 L and PET bottles above 0.5 L of low grade material and without buy back price printed on it.	Complete ban on manufacture, usage, transport, distribution, wholesale & retail sale and storage, import
Manipur	< 50 microns	Not mentioned	
Meghalaya	< 50 microns	Not mentioned	
Mizoram[97]	< 50 microns; Complete ban in Aizawl	Ban on use, storage and carry of plastic bottles and plastic cutlery	
Nagaland	Complete ban	Total ban on all SUP; this includes ban on stocking, distribution, selling and use of SUP products such as cutleries, nylon, polythene, PVC, PP and PS. The ban is also extended to cutleries and decorative items made of thermocol/styrofoam.	
Odisha[98]	< 50 microns; complete ban in six districts	Single use disposable cutleries made of either thermocol or plastic, thermocol decorative materials, PET drinking water bottles of less than 200 ml capacity, polythene sheets of less than 50 microns for storing, transporting, dispensing or packaging any commodity (this excludes garbage bags, containers for milk products, packaging used in horticulture, agriculture and healthcare sector)	Ban on sell, trade, manufacture, import, store, carry, transport, use and distribute
Puducherry	Complete ban	Polythene/plastic/styrofoam cups, plates; Plastic sheet pouches used for cooked food wrapping; plastic sheets for use on dining tables; Water pouches; Plastic straw; Plastic flag	Complete ban on manufacture, use, supply, sell, storage, transportation, and distribution
Punjab	< 50 microns; Rural areas exempted	Not mentioned	
Rajasthan	Complete ban	Not mentioned	
Sikkim	Complete ban		
Tamil Nadu	Complete ban	'Use and throw away plastic' such as sheets used for food wrapping, spreading on dining table, plastic cutleries, water pouches and packets, straw and flags irrespective of thickness.	Ban on manufacture, storage, supply, sale and use
Telangana	< 50 microns	Not Banned	
Tripura	Complete ban	Non-woven fabric type carry bags; and use plastic sheet, plastic cover, plastic film, plastic tube to pack, plastic cover for books including magazine and invitation or greeting card.	Ban on manufacture, import, store, sell or transport
Uttar Pradesh	Complete ban; Rural areas exempted	One time use disposable cutleries made of plastic and thermocol	Ban on use, manufacture, sell, distribution, storage, transport, import or export of
Uttarakhand	Complete ban	Plastic and thermocol cutleries and packaging	Ban on use, sell, transport and storage
West Bengal	< 50 microns; complete ban at religious and historical places	Not mentioned	

Annexure 2: Authorities responsible for SUP ban implementation

State	State level	District level	Local body
Andaman and Nicobar Islands	Andaman PCC		
Andhra Pradesh	Member Secretary, SPCB (authorisation manufacturing, recycling, disposal)		Municipal authority (use, collection, segregation, transport, disposal)
Arunachal Pradesh	No clarity/elaboration on authorities at any level		
Assam	Commercial Tax department officials; all officers of Dept of food and civil supplies; Controller, Deputy Controller and regional officers of Legal Metrology Department	District Collector (DC)	Assistant Commissioners of revenue sub division; Sub division officer/circle officer/ panchayat
Bihar	Principal Secretary, Environment and Forest Department; Principal Secretary, Urban Development and Housing Dept; Chairman/Member Secretary of SPCB	District Magistrate (DM); Superintendent of police; Sub-divisional Magistrate (SDM); Sub-divisional police officer; Regional Officers/AEEs/Scientists/ ASOc of SPCB; Geeneral Managers of District Industry Centers (in respective jurisdictios)	Municipal Commissioner; Executive officers of municipal councils/nagar panchayats; Bye-laws implementation authority or local task force
Chandigarh	Under Section 5 of EP Act (presumed to be SPCB)		
Chhattisgarh	Environment Conservation Board; Urban Development Department		Gram Panchayat
Dadra and Nagar Haveli and Daman and Diu	Member Secretary PCC; Director of Health Services	SDM	Chief Officer, Municipal Corporation (in respective areas); Officer of Dept of Food & Supply; CEO of district panchayat
Delhi NCR	Member Secretary DPCC; Director of Environment; Director of Health Services (or nominated officer); Labour Inspectors of Labour Department; Inspectors of Food Adulteration Dept	SDM	Assistant Sanitary Inspector and above; Health inspectors and above; General licensing inspectors and above of local bodies, such as NDMC, MCD, DCB; Food and Supply officers
Goa	The Goa Non-Biodegradable Garbage (Control) Act, 1996. as amended till 2019, provides no specification on roles related to SUP		
Haryana	Principal Secretary, Urban Local Bodies Department	DM, Additional DM, District Development Panchayat Officer, SDM	City magistrates, Municipal Commissioners, Executive Officer of Municipal Council, Secretaries of Municipal Committees, Assistant and Joint Commissioners of Municipal Corporations;
Himachal Pradesh	No clarity/elaboration on authorities at any level		
Jammu & Kashmir	No clarity/elaboration on authorities at any level		
Jharkhand	SPCB		ULBs and Gram Panchayats

State	State level	District level	Local body
Karnataka	Commissioner; Joint Commissioner; Revenue officers, Health officers; Controller/Deputy Controller of Legal Metrology Department; Officers of Dept of Food and Civil Supplies; Officials of Commercial Tax Dept; All environment officers- assistant environmental officers, senior environmental officers. deputy environment officers of KSPCB	DC; All Assistant Commissioners of revenue sub divisions; Regional Officers (RO) of Legal Metrology Dept	All engineers of BBMP (Bhurat Bengaluru Mahanagara Palike); All Commissioners of City Corporations, Chief officers, health officers, engineers of ULBs; Tahsildars of all Taluks
Kerala	SPCB		
Ladakh	Since Ladakh has specified institutions where it will be banned, therefore the concerned Heads of Organizations/ Institutions/ Boards/Units have been entrusted to ensure compliance with the order	DCs	
Lakshadweep	No clarity/elaboration on authorities at any level		
Madhya Pradesh	No clarity/elaboration on authorities at any level		
Maharashtra	Member Secretary, SPCB; Regional Officer, Sub-Regional Officer, and Field Officer of SPCB; Scientist-I & II and Director, Environment Department; Director, Deputy Director and Officers of Health Services Department; Director, Primary & Secondary Education Board; Commissioner State Tax and all State Tax Officer; All Tourism Police, Police Inspector, Sub-Inspector, Motor Vehicle Inspector, Traffic Police; Joint Managing Director, Maharashtra Tourism Development Corporation or any other officer authorized by Managing Director, Maharashtra Tourism Development Corporation; Range Forest Officer or any other officer authorized by Deputy Conservator of Forest	DC, Deputy Collector, Sub-Divisional Officer, Tahasildar, Talathi; and any other officer nominated by DC; CEO Zilla Parishad; Block Development Officer (BDO), Health Officer, Development Officer, District Education Officer, Block Education Officer; Deputy Commissioner (Supply), District Supply Officer	Municipal Commissioners, Deputy Municipal Commissioners, Shops; Gram Sewak and Establishment Officers and Inspectors, Sanitary Inspector, Health Inspector, Health Officer, Ward Officers; or any other Officer nominated by the Municipal Commissioner as well as Chief Officers of all Municipal Councils; and any other Officer nominated by the Chief Officer
Manipur	SPCB		
Meghalaya	No clarification given; this is a 2004 Act		
Mizoram	No information; only Aiswal byelaws is there		
Nagaland		District task force	
Odisha	Member Secretary, SPCB	DC; SDM. The DC will involve Additonal District Magistrate Superintendent of police, Divisional Forest Officer (DFO), Tahasildar, RO of SPCB, municipal officers or any other nominated by him/her	Municipal Commissioners or Executive Officers of ULBs

State	State level	District level	Local body
Puducherry	Member Secretary, PCC;	Tahsildars, Dept of revenue and Disaster Management; Food inspector in Department of Food Safety	Commissioners of municipalities/commune panchayats; Revenue officers of municipalities
Punjab			Municipal Commissioners or Executive Officers of Municipal Council/Nagar Panchayat
Rajasthan		DCs; Regional Officers of SPCB	
Sikkim	Overall state policy which broadly outlines authorities for strategic waste management		
Tamil Nadu		DCs (responsible for prevention of storage, supply, distribution, sale, transport, use); District Environmental Engineers (responsible for oversight of manufacturing)	Municipal Commissioners in their jurisdictions (prevention of storage, supply, distribution, sale, transport, use)
Telangana	SPCB; Secretary-in-charge of Urban Development Department	DM/DC	Gram Panchayat
Tripura	Member Secretary, SPCB; Officers at the level of Junior Environmental Engineer/Junior Scientist; Director, Dept of Science, Technology and Environment; Director Food and Civil Supplies Dept and Inspector; Director of Industries and Commerce Dept and nominated officers; Director of Health and Family Welfare Dept and nominated officers; Commissioner of Taxes and Excise and officers at inspector level; Labour Commissioner; Controller, Weights and Measure Department and officers at Inspector level	SDM	BDO
Uttar Pradesh	Member Secretary, SPCB; All environmental engineers, Scientific officers; Assistant Environmental Engineers; Assistant Scientific Officers; Junior Engineer and Scientific Assistant of SPCB; Director, Deputy Director and Assistant Director of Environment; All Deputy/Assistant GST officers; Tourism officers; Food and Safety Inspectors; Industrial Development Authorities officers at the rank of Assistant managers, junior engineers and above	DMs, ADMs and SDMs; Chief Medical Officers; Divisional Forest Officers, Sub-divisional officers, range officers; Tourism officers; District supply officers and food inspectors;	Municipal Commissioners; Additional Municipal Commissioners; Executive Officers; Zonal Officer; Sanitary Officers of ULBs
Uttarakhand	Sub-divisional forest officer	DM, SDM, station house officer (police officer), forest officer	ULBs/Assistant Commissioners.

Source: Various state/UT notifications, executive orders, and laws

Annexure 3: Power of authority to take action on non-compliance

State	Cognizance of offence and filing complaints	Imposing Penalty (compounding offence)
Andaman and Nicobar Islands	Officers empowered under Sec 19 of EP Act include, DM/ Assistant Commissioner, Tehsildars; Secretary Port Blair Municipal Corporation; CEO Zila Parishad; Executive Officer Panchayat Samiti; Secretary; Gram Panchayat; DFO; Deputy Conservator of Forest in respective jurisdictions; Station house officer of all police stations; Food Inspector of Dept of Food and Safety	
Assam	Officers empowered under Sec 19 of EP Act- Secretary Env and Forest Department; Chaiman and Member Sec of PCB; DCs; Regional officers of PCBs; Assistant Commissioners of revenue sub-divisions;	
Bihar	Officers empowered under Sec 19 of	
	EP Act, 1986	
Chhattisgarh	Officers empowered under Sec 19 of EP Act, including DC, SDM, regional officer of State Environment Conservation Board	
Dadra and Nagar Haveli and Daman and Diu	Officers empowered under Sec 19 of EP Act- Chairman/Member Secretary, DPCC; SDM	
Delhi NCR	Officers empowered under Sec 19 of EP Act- Member Secretary, PCC; SDM	
Jharkhand	Officers empowered under Sec 19 of EP Act	
Karnataka	Officers empowered under Sec 19 of EP Act- Secretary, Forest, Environment and Ecology; Chairman and Member Secretary SPCB; DC; Assistant Commissioners of Revenue Sub-divisions; ROs of KSPCB	
Maharashtra	Section 12 of Maharashtra Non-Biodegradable (Control) Act, 2006	
Nagaland		District authority/local body
Odisha	Officers empowered under Sec 19 of EP Act- Member Secretary of SPCB; DC, SDM	
Puducherry	Chairperson and Member Sec of PCC empowered under Sec 19 of EP Act	
Uttar Pradesh		Local authority; Industrial Development Authority

Source: Various state/UT notifications, executive orders, and laws

Annexure 4: Compliance with MoEF&CC's Standard Guidelines for SUPs

States/UTs	Products banned						SUP ban in government offices	Promotion of alternatives
	All plastic carry bags, with or without handles, irrespective of thickness and size[99]		Plastic cutlery including plates, plastic cups/glass, straws, stirrers etc[100]		Cutlery and other decorative made of styrofoam[101]			
	With or without handles + Irrespective of thickness and size	Irrespective of thickness and size	Cutlery + Straws + Stirrers	Cutlery	Styrofoam cutlery + Decorative	Styrofoam cutlery		
Andaman and Nicobar Islands	✓	✓	✓	✓		✓		
Andhra Pradesh								
Arunachal Pradesh								
Assam				✓[102]				
Bihar		✓						
Chandigarh	✓	✓	✓	✓	✓	✓		
Chhattisgarh		✓		✓				
Dadra and Nagar Haveli, and Daman and Diu		✓						
Delhi NCR		✓						
Goa	✓	✓	✓	✓		✓		
Gujarat								
Haryana		✓	✓	✓				
Himachal Pradesh		✓	✓	✓	✓	✓	✓(a)	
Jammu & Kashmir								
Jharkhand		✓						
Karnataka		✓		✓		✓		
Kerala		✓	✓	✓	✓	✓	✓(b)	✓ (c)
Ladakh							✓	✓
Lakshadweep		✓	✓	✓		✓		
Madhya Pradesh		✓						
Maharashtra	✓	✓	✓	✓	✓	✓	✓	✓(d)
Manipur								
Meghalaya								
Mizoram[103]				✓				✓
Nagaland	✓	✓	✓	✓	✓	✓		
Odisha		✓[104]		✓	✓	✓		
Puducherry[105]		✓	✓	✓		✓		
Punjab								
Rajasthan		✓						
Sikkim		✓	✓	✓		✓	✓ (e)	✓(f)

States/UTs	Products banned						SUP ban in government offices	Promotion of alternatives
	All plastic carry bags, with or without handles, irrespective of thickness and size[1]		Plastic cutlery including plates, plastic cups/glass, straws, stirrers etc[2]		Cutlery and other decorative made of styrofoam[3]			
	With or without handles + Irrespective of thickness and size	Irrespective of thickness and size	Cutlery + Straws + Stirrers	Cutlery	Styrofoam cutlery + Decorative	Styrofoam cutlery		
Tamil Nadu		✓	✓	✓		✓		
Telangana								
Tripura		✓						
Uttar Pradesh		✓		✓		✓		
Uttarakhand		✓		✓		✓		✓ (g)
West Bengal								
Total	**5**	**23**	**12**	**18**	**6**	**15**	**5**	**6**

(a) The Notification issued in July 2018, under the Himachal Pradesh Non- Biodegradable Garbage (Control) Act, 1995, in Para 5 notes the liability of 'offices' (does not specify Government or private office) to comply with the notification, and violation will lead to penalty.

(b)The Suchitwa Mission implemented by the local government departments have been promoting 'Green Protocol' over past five years, which include discarding of disposable plastic items and using eco- friendly reusable substitutes. This programme has been implemented in all government offices.

(c) Alternatives to SUPs, other than compostable plastics, will be examined by Kerala SPCB and then recommended to the government.

(d) Alternative suggested only for milk bottles

(e) On May 5, 2016 the state issued a notification banning the use of plastic (packaged) drinking water bottles during any government meeting and functions. (f) Alternatives such as large water dispensers or reusable water bottles are encouraged.

(g) Campaign to make people aware about paper and jute bags.

Annexure 5: Assessment of enforceability of the SUP notifications/ orders

	Comprehen-siveness of the ban[106]	Clarity in definition of products banned	Activities targeted and its impact on enforcement	Time given for enforce-ment	Exemptions given to jurisdiction	Exemptions given to SUPs items and its impact on enforcement	Promotion of alternatives	Compensa-tion/ support to SUP man-ufacturers	Clarity in the role of enforcement authorities	Penalty imposed	Other reg-ulatory in-struments used
Andaman and Nicobar islands	Yes	Yes	All excluding export. So, no impact on enforcement	60 days (short)	No	Exemptions mentioned for plastic carry bags which form an integral part of packaging goods which are sealed prior to use at manufacturing units; bags and sheets used in forestry and nurseries; plastic packaging for milk/ dairy products, oil, medicines and medical equipment	No	No	Enforcement authorities at the UT and district levels have been clearly mentioned. Also Officers who have the power to file complaints/ take cognizance of offence for violation have been specifically mentioned (as per Section 19 of EP Act).	Not mentioned	No
Assam	Not compre-hensive (It mentions only plastic bags below 50 microns and cups of less than 60 mm dia. in plastic cutlery section), but banners/flex/ bunting/flags have been banned	Yes	All activities excluding export are banned. So no impact on enforcement.	Immediate (no time at all)	No exemptions	Exemptions mentioned for plastic carry bags which form an integral part of packaging goods which are sealed, prior to use at manufacturing units; bags and sheets used in forestry and nurseries; medicine packaging	No	No	Accountability of enforcement authorities is vague. However, Officers who have the power to file complaints/ take cognizance of offence for violation have been specifically mentioned (as per Section 19 of EP Act).	Noted as per Section 15 of EP Act	
Bihar	Not compre-hensive	Yes (carry bags as per PWM Rules)	All excluding export. So, no impact on enforcement	60 days (short)	Major impact as exemptions given to rural areas.	No impact due to other SUP products exemption as they are from other category.	No	No	As per section 15 of EP Act and seizure and spot-fine under the municipal byelaws. No one agency is accountable for enforcement.	Adequate	No

	Comprehen-siveness of the ban[1]	Clarity in definition of products banned	Activities targeted and its impact on enforcement	Time given for enforce-ment	Exemptions given to jurisdiction	Exemptions given to SUPs items and its impact on enforcement	Promotion of alternatives	Compensa-tion/ support to SUP man-ufacturers	Clarity in the role of enforcement authorities	Penalty imposed	Other reg-ulatory in-struments used
Chandigarh	Yes	Yes	All excluding export. So, no impact on enforcement	Phased ban depending on product type. Immediate to 3 months (short)	No	Clear exemption given for biomedical related use, and industrial packaging above 50 microns	No	No	Vague on responsible authorities, and the power of authorities to take cognizance of offence or file penalties. Only mentions Section 15 and 5 of EP Act	Penalty only noted in reference to a NGT order that specified a fine of ₹5000 per violation	No
Chhattisgarh	Not compre-hensive (plas-tic carry bags irrespective of thickness, publicity materials, including, banners. flexes. Hoard-ings, etc) Plastic straws, thermocol items are not mentioned	Yes	All excluding export. So, no impact on enforcement	Lacks clarity	No	Nothing mentioned on exemption except export. Has major impact as some have no alternatives.	No	No	Nodal implementation authorities specified for state and panchayat levels, but not for district. Officers who have the power to file complaints/ take cognizance of offence for violation have been specifically mentioned (as per Section 19 of EP Act).	Penalty mentioned specifically for various stakeholders	No
Dadra and Nagar Haveli, and Daman and Diu	Not compre-hensive	Yes	Limited activities targeted such as use, sell and storage	35 days (short)	Some exemptions noted for hotels, hospitals based on occupancy	No exemption mentioned. Has major impact as some have no alternatives.	No	No	Nodal authorities specified for implementation, and cognizance of offence	No	No

	Comprehen-siveness of the ban[1]	Clarity in definition of products banned	Activities targeted and its impact on enforcement	Time given for enforce-ment	Exemptions given to jurisdiction	Exemptions given to SUPs items and its impact on enforcement	Promotion of alternatives	Compensa-tion/ support to SUP man-ufacturers	Clarity in the role of enforcement authorities	Penalty imposed	Other reg-ulatory in-struments used
Delhi	Not compre-hensive	Yes	All excluding export for plastic carry bags. However, for other products only use has been specified. Potentially can weaken enforcement	30 days (short)	No	Exemptions for medical use; bags that constitute an integral part of packaging in goods are sealed prior to use	No	No	Nodal authority for monitoring specified as well as officials to take cognizance of offence	No	No
Goa[107]	Yes	Yes	All excluding export. So, no impact on enforcement	Immediate (short)	No	Not mentioned. Has major impact as some have no alternatives.	No	No	No specifications given in law specifically for SUP; however power of local authorities mentioned for non-biodegradable garbage	Yes (for non bio-degradable garbage)	No
Haryana	Not com-prehensive (Plastic cutlery and straw and carry bags is mentioned) Thermocol cutlery is not mentioned	Yes	Activities such as transport or import of plastic products not mentioned. Others are banned	Immediate	No	Not mentioned. Has major impact as some have no alternatives.	No	No	Clear mention of nodal authority at state level, at district and local level multiple authorities. No clear mention of authorities regarding cognizance of offence or imposing fine.	Yes. Rs. 500-25000 Based on quantity seized. In adequate for large quantity	No
Himachal Pradesh	Quite com-prehensive (only with or without handle is not mentioned)	Yes.	Ban on use, store, supply and sale. Manufacturing, export and transport not noted	90 days (short)	No	Not mentioned. except straws that come with tetrapacks. In absence of alternatives can be a major problem	No	No	No clarity/ elaboration on authorities at any level	Penalty noted for bulk generator, not very com-prehensive	Separate buy-back policy notied on SUP on October 2, 2019

	Comprehen-siveness of the ban[1]	Clarity in definition of products banned	Activities targeted and its impact on enforcement	Time given for enforce-ment	Exemptions given to jurisdiction	Exemptions given to SUPs items and its impact on enforcement	Promotion of alternatives	Compensa-tion/ support to SUP man-ufacturers	Clarity in the role of enforcement authorities	Penalty imposed	Other reg-ulatory in-struments used
Jammu & Kashmir	Not compre-hensive	Yes	Activities such as transport or import of plastic products not mentioned. Others are banned	30 days (short)	No	Clear exemption given for biomedical related use, and usage of plastics above 50 microns.	No	No	No clarity/ elaboration on authorities at any level	Not in notification	No
Jharkhand	Not compre-hensive	Yes	All excluding export. So, no impact on enforcement	Immediate (short)	No	No impact due to other SUP products exemption as they are from other category. Exemption for medical use not mentioned.	No	No	Identifies nodal agencies at the state and local level. However for taking cognizance of offence, only the regulatory provision has been mentioned without any specification on authorities.	Not in notification	No
Karnataka	Quite comprehen-sive (only plastic with or without handle is not mentioned, straws and stirrer is not mentioned)	Yes	All excluding export. So, no impact on enforcement	Immediate (short)	No	Exemption clearly mentioned (export orders, integral part of packaging of goods prior to use at manufacturing, and packaging of milk and milk products) except for use for medical purpose.	No	No	Many enforcement authorities mentioned, with no clear specification on roles/ responsibility. Challenge for accountability. But Officers who have the power to file complaints/ take cognizance of offence for violation have been specifically mentioned (as per Section 19 of EP Act).	Not in notification	No

	Comprehensiveness of the ban[1]	Clarity in definition of products banned	Activities targeted and its impact on enforcement	Time given for enforcement	Exemptions given to jurisdiction	Exemptions given to SUPs items and its impact on enforcement	Promotion of alternatives	Compensation/ support to SUP manufacturers	Clarity in the role of enforcement authorities	Penalty imposed	Other regulatory instruments used
Kerala	Quite comprehensive (only plastic carry bags with or without handle is not mentioned)	Lacks clarity in thermocol items; definition of branded products unclear.	All excluding export	1 month (short)	No	Branded products and SUPs for medical usage and compostable plastic	Yes, partly	No	Much more clarity on responsibility	10000-50000 with closure - Adequate	EPR
Ladakh		Yes	N/A	37 days- but only for offuces (short)	Ban on use is only in government offices and functions	Not mentioned	Yes, alternatives for banned items are suggested	No	Concerned Heads of Organizations/ Institutions/ Boards/Unit and DCs to ensure compliance	No	No
Lakshadweep		Limited mention of cutlery (spoons and knives not noted)	Only use is prohibited	Immediate (short)	No	Not mentioned	No	No	No clarity/ elaboration on authorities at any level	No	No
Madhya Pradesh	Not comprehensive	Yes	All excluding export. So, no impact on enforcement	Immediate (short)	No	Not mentioned	No	No	No clarity/ elaboration on authorities at any level	Not in notification	No
Maharashtra	Yes	Yes	All excluding export	Phased- immediate to 30 days (short)	No	Exemptions are clearly mentioned for medicine and milk packaging, handling of waste, usage for horticulture/ agriculture/nurseries. For export purpose and the plastic which forms an integral part at manufacturing stage.	For, milk pouches	No	Mentions almost all possible authorities. Challenge for accountability	₹5,000-10,000	EPR

	Comprehen-siveness of the ban[1]	Clarity in definition of products banned	Activities targeted and its impact on enforcement	Time given for enforce-ment	Exemptions given to jurisdiction	Exemptions given to SUPs items and its impact on enforcement	Promotion of alternatives	Compensa-tion/ support to SUP man-ufacturers	Clarity in the role of enforcement authorities	Penalty imposed	Other reg-ulatory in-struments used
Nagaland	Yes	Yes	Ban on stocking, distribution, selling, and use. Manufacturing not specified, can potentially manufacture and transport	90 days (short)	No	Not mentioned	No	No	Limited mention of district task force. For cognizance of offence and penalty not specified	Yes. But amount not noted. To be fixed by district administra-tors and local bodies.	No
Odisha	Quite com-prehensive (but plastic straws and plastic with or without handle is not mentioned)	Yes	All excluding export. So, no impact on enforcement	2 days (short)	Only in 6 municipal corporation areas	Exemption on garbage bags, containers for milk products, packaging used in horticulture, agriculture and healthcare sector and packaging material used for wrapping at manufacturing stage.	No	No	Clarity on responsibility of officials, including nodals on implementation, as well as on taking cognizance of offence	Amount not mentioned in notification	EPR
Puducherry	Not com-prehensive (in cutlery only cups and plates has been mentioned, plastic with and without handle is not mentioned)	Yes	All excluding export.	Immediate (short)	No	Exemptions clearly mentioned.	No	No	Authorities specified at various levels	Not mentioned in notification	
Punjab	Not compre-hensive	Yes	All., except for export and transportation	45 days (short)	Municipal corporations, municipal councils, nagar panchayats	Not mentioned	No	No	Partial clarity; noted for municipality level	Amount not clearly specified; As per offence.	No

	Comprehensiveness of the ban[1]	Clarity in definition of products banned	Activities targeted and its impact on enforcement	Time given for enforcement	Exemptions given to jurisdiction	Exemptions given to SUPs items and its impact on enforcement	Promotion of alternatives	Compensation/ support to SUP manufacturers	Clarity in the role of enforcement authorities	Penalty imposed	Other regulatory instruments used
Rajasthan	Not comprehensive	Yes	All excluding export. So, no impact on enforcement	10 days (short)	No	Exemption for containers used for packaging food, milk, and raising plant in nursery. Medical not given, can be challenge without any alternative	No	No	Partial clarity, noted for district level; SPCB nodal for implementation	Not mentioned in notification	No
Sikkim	Quite comprehensive (only plastic carry bags with or without handle is not mentioned)	Yes	Partial, unclear on manufacturing and transportation; although state policy directs to be integrated in bye-laws	Long in terms of products, first started in 1998. However, implementation of said directions was from date of notification	No	No	Promotion of alternatives is noted in policy and part of Green protocol	No	Not clearly specified in any one notification, but multiple authorities involved	Not mentioned in notification	EPR
Tamil Nadu	Quite comprehensive (only plastic carry bags with or without handle is not mentioned)	Limited mention of cutlery (only plates, cups and tumblers are mentioned)	All excluding export	6 months (short)	No	Exemption clearly mentioned except for use for medical purpose. Is a potential challenge without alternatives	No	No	Implementation authorities with specific roles noted for district and local level	Not mentioned in notification	No
Tripura	Not comprehensive	Yes	All excluding export.	90 days (short)	No	Exemptions for medical use and plastics which form an integral part of packaging in which goods are sealed prior to use.	No	No	Many agencies mentioned; no one agency is accountable	Amount not specified,, as per offence	No

	Comprehensiveness of the ban[1]	Clarity in definition of products banned	Activities targeted and its impact on enforcement	Time given for enforcement	Exemptions given to jurisdiction	Exemptions given to SUPs items and its impact on enforcement	Promotion of alternatives	Compensation/ support to SUP manufacturers	Clarity in the role of enforcement authorities	Penalty imposed	Other regulatory instruments used
Uttar Pradesh	Quite comprehensive (only plastic carry bags with or without handle is not mentioned)	Disposal plastic bags, Disposable plastic and thermocol cutleries. Lack of clarity in cutlery definition.	All	Phased – 1 to 3 months (short)	Major impact as exemptions given to rural areas.	No exemption mentioned. Has major impact as some have no alternatives.	No	No	As per UP Plastic and Other non-biodegradable garbage (regulation) Act, 2000. No one agency is accountable for enforcement.	₹1,000-25,000 based on quantity seized. In adequate for large quantity.	No
Uttarakhand	Quite comprehensive (only plastic carry bags with or without handle is not mentioned)	Lack of clarity in definition of packaging items. Cutlery section only mentions plates, glasses, cups	Manufacturing is not mentioned. Transportation is only noted for bringing	Immediate (short)	No	No exemption mentioned. Has major impact as some have no alternatives.	Jute and paper bags	No	Specified for implementation of orders; No mention for cognizance of offence or fines	Not mentioned in notification	No

ANNEXURE 6: List of participants in the state-specific FGDs

1. Maharashtra

Sl. No.	Name	Designation	Organisation
1	Mr Nandakumar Gurav	HOD, Implementation of plastic rules	Maharashtra Pollution Control Board
2	Ms Ruthuja Bhalerao	Sub-Regional Officer	Maharashtra Pollution Control Board
3	Ms Laxmi Karhadkar	Mayor	Panchgani Municipal Council
4	Mr Ramdas Kokare	Chief Officer	Kalyan Dombivli Municipal Corporation
5	Mr Harshad Barde	Legal Consultant	Swacch Pune Seva Co-operative Society
6	Mr Jarad	Nodal Officer	Gangapur
7	Mr Ashok Sable	Chief Officer,	Basmat Municipal Council
8	Mr Anish Malpani	Founder	Ashaya Recyclers Pvt Ltd
9	Ms Natasha Zarine	Director	EcoSattva Environmental Solutions
10	Ms Jyoti Mapsekar	Founder	Stree Mukti Sangathana, Mumbai
11	Ms Pratibha Sharma	Project Manager	United Nations Development Program

2. Kerala

Sl. No.	Name	Designation	Organisation
1	Mr Shibu Nair	India Coordinator	Global Alliance for Incinerator Alternatives
2	Mr Jaga Jeevan	Consultant – Waste Disposal Management	Haritha Keralam Mission, Govt. of Kerala
3	Mr Sreerag Kuruvat	Project Head (Govt. Projects)	Green Worms Waste Management
4	Mr Dharmesh Shah	Independent Consultant	Policy Advisor and Senior Technical Consultant on Circular Economy, Marine Plastic Pollution, Zero Waste Systems.
5	Mr Shailendra Yashwant	Senior Advisor	Climate Action Network South Asia
6	Ms Satyarupa Shekhar	Asia Pacific Coordinator	Break free from plastics
7	Dr. R Ajaykumar Varma	Chief Project Consultant	Vertex (ex-Suchitwa Mission and Haritha Keralam Mission)
8	Mr Nijin Taliparamba	Green Technical Support Team	Nirmal Bharat Abhiyan
9	Mr T K Sujit		Kondungallur Municipal Corporation
10	Mr Resham		Clean Kerala Company Ltd.

3. Delhi

Sl. No.	Name	Designation	Organisation
1	Dr Ruby Makhija	Secretary	Residents Welfare Association, South Delhi Municipal Corporation
2	Ms Priti Mahesh	Chief Program Coordinator	Toxic Links
3	Ms Bharati Chaturvedi	Founder	Chintan Environmental Research and Action Group
4	Ms Sonia Garga	Director, Strategic Partnerships and Programmes	Saahas
5	Ms Vishakha	Engineer	East Delhi Municipal Corporation
6	Mr Madhusudan Hanumappa	Social Development Specialist	World Bank
7	Representative		South Delhi Municipal Corporation
8	Ms Ira Singhal	Joint Director	Department of Social Welfare, Govt. of NCT of Delhi (ex-North Delhi Municipal Corporation)
9	Mr Rajesh Pahwa	Founder & CEO	21st Century Polymers
10	Mr Ranjit Devraj	Regional Coordinator & Editor	SciDev.Net

11	Mr Vaibhav Rathi	Technical Advisor	GIZ
12	Dr Shyamala Mani	Professor, Waste Management and Environmental Health	National Institute of Urban Affairs (NIUA)

4. Odisha			
Sl. No.	**Name**	**Designation**	**Organisation**
1	Mr N R Sahoo	CEE	Odisha State Pollution Control Board
2	Ms Neelima Mishra	Founder	Ceiba Green Solutions
3	Mr Subhasis Samal	City Coordinator	Paradeep, Urban Management Centre (Implementing DAY-NULM and SBM-U convergence program with Paradip Nagar Palika)
4	Mr Soubhagya Chandra Biswal	Program Manager (Head of Operation)	Green Worms Odisha Initiative
5	Mr Narsingha Panigrahi	Founder	Shree Ganesh Recycling
6	Mr Subendu Kumar	Deputy Commissioner	Bhubaneshwar Municipal Corporation
7	Mr Soumya Ranjan Biswal	Founder	Odisha Paryavaran Sanrakshan Abhiyan Trust
8	Mr Chakravarti Singh Rathore, IAS	Commissioner	Berhampur Municipal Corporation
9	Representative		Cuttack Municipal Corporation
10	Dr Amrit Kumar Mishra	Scientist C	Marine Conservation Department Bombay Natural History Society, Chilika, Odisha, India

5. Sikkim			
Sl. No.	**Name**	**Designation**	**Organisation**
1	Ms Kusum Gurung	Joint Director	Sikkim State Pollution Control Board
2	Mr Rajendra P. Gurung	CEO	Eco Tourism and Conservation Society of Sikkim
3	Ms Tshering Uden Bhutia	CEO	Kangchedzongna Conservation Committee
4	Mr Roshan Rai	Program Manager	Darjeeling Ladenla Road Prerna
5	Ms Nima Bhutia		Rural Management and Development Department
6	Mr Kinzong	Founder Member	Kangchedzongna Conservation Committee and Zero Waste Himalayas
7	Mr Hem Chetri	Deputy Municipal Commissioner	Gangtok MC
8	Ms Tashi Bhutia	Rural management dept	President Navey Shotak Panchayat
9	Ms Khushboo Sharma	Sikkim University	Research Scholar/ZW activist
10	Mr Shashanka Dev		Civil Society Member

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53 Section 15 of the EP Act (1986) stipulates that: (1) Whoever fails to comply with or contravenes any of the provisions of this Act, or the rules made or orders or directions issued thereunder, shall, in respect of each such failure or contravention, be punishable with imprisonment for a term which may extend to five years or with fine which may extend to one lakh rupees, or with both, and in case the failure or contravention continues, with additional fine which may extend to five thousand

rupees for every day during which such failure or contravention continues after the conviction for the first such failure or contravention. (2) If the failure or contravention referred to in sub-section (1) continues beyond a period of one year after the date of conviction, the offender shall be punishable with imprisonment for a term which may extend to seven years.

54 Section 15(1) of EP Act, 1986, stipulates that- Whoever fails to comply with or contravenes any of the provisions of this Act, or the rules made or orders or directions issued thereunder, shall, in respect of each such failure or contravention, be punishable with imprisonment for a term which may extend to five years or with fine which may extend to one lakh rupees, or with both, and in case the failure or contravention continues, with additional fine which may extend to five thousand rupees for every day during which such failure or contravention continues after the conviction for the first such failure or contravention.

55 Manufacturers 1. First offence: In case of manufacturers a fine of upto ₹1 Lakh. 2. Second offence: In case of Manufacturers a fine of upto ₹2,00,000 or simple imprisonment upto six months. 3. Having been convicted by a Court for subsequent offence (after second offence) punishable under this Act shall be punished with double the fine levied at the time of earlier (previous) conviction and rigorous imprisonment upto 3 years which shall not be less than 3 months. Street vendors 1. First offence: In case of street vendors a fine of ₹500 pr maximum of 3 months of simple imprisonment incase of default of penalty. In case of shops and establishments a fine of upto ₹25,000. 2. Second offence: In case of street vendors a fine of ₹1,000 or simple imprisonment upto three months. In case of shops and establishments a fine of upto ₹50,000 or simple imprisonment upto three months. 3. Having been convicted by a Court for subsequent offence (after second offence) punishable under this Act shall be punished with double the fine levied at the time of earlier (previous) conviction and rigorous imprisonment upto 3 years which shall not be less than 3 months. Individual - 1. first offence: ₹500 or maximum of 3 months of simple imprisonment in case of default of penalty. 2. Second offence: in the case of individuals a fine of one thousand (₹1000) or simple imprisonment upto three months. 3. Having been convicted by a Court for subsequent offence (after second offence) punishable under this Act shall be punished with double the fine levied at the time of earlier (previous) conviction and rigorous imprisonment upto 3 years which shall not be less than 3 months.

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84 CPCB, MoEFCC. (2020). *Guidelines for Handling, Treatment and Disposal of Waste Generated during Treatment/ Diagnosis/ Quarantine of COVID-19 Patients (Revision 4)*. https://cpcb.nic.in/uploads/Projects/Bio-Medical-Waste/BMW-GUIDELINES-COVID_1.pdf

85 In this context general solid waste is defined as follows for isolation wards: "General solid waste comprising of wrappers of medicines/syringes, fruit peel offs, empty juice bottles or tetra packs, used water bottles, discarded papers, carton boxes of medicines, empty bottles of disinfectants, left-over food, disposable food plates etc., should be collected separately as per SWM Rules, 2016." General solid waste for quarantine facilities is defined as follows: "General solid waste should comprise of waste generated from kitchen, packaging material, waste food material, waste papers, waste plastics, floor cleaning dust, etc. including left-over food, disposable utensils, water bottles, tetra packs, used by suspected quarantined persons and COVID-19 patient at homecare or home quarantine."

86 CPCB. (2021). *Report by CPCB in O.A No. 72 of 2020 (In re Scientific Disposal of Bio-Medical Waste arising out of Covid-19 treatment- Compliance of BMW Rules 2016).pdf*. National Green Tribunal. https://greentribunal.gov.in/sites/default/files/news_updates/Report%20by%20CPCB%20in%20O.A%20No.%2072%20of%202020%20(In%20re%20Scientific%20Disposal%20of%20Bio-Medical%20Waste%20arising%20out%20of%20Covid-19%20treatment-%20Compliance%20of%20BMW%20Rules%202016).pdf

87 Adyel, T. M. (2020). Accumulation of plastic waste during COVID-19. *Science, 369*(6509), 1314–1315. https://doi.org/10.1126/science.abd9925

88 Silva, ALP., Prata, J., Walker, T., Campos, D., Duarte, A., Soares, A., Barcelò, D., Rocha-Santos, T. (2020). Rethinking and optimising plastic waste management under COVID-19 pandemic: Policy solutions based on redesign and reduction of single-use plastics and personal protective equipment. *Sci. Total Environ.* 742, 140565. https://digital.csic.es/bitstream/10261/216015/1/Rethinking%20and%20optimising%20plastic%20waste%20management.pdf

89 PIB. (2015). *Policy initiatives taken for promotion of Plastics Industry. Government of India*. https://pib.gov.in/newsite/printrelease.aspx?relid=133722

90 Ministry of Environment, Forest and Climate Change. (2016). Plastic Waste Management Rules,2016. https://cpcb.nic.in/displaypdf.php?id=cGxhc3RpY3dhc3RlL1BXTV9HYXpldHRlLnBkZg==

91 Central Pollution Control Board. (2019). Annual Report 2018-19, Implementation of Plastic Waste Management Rules, 2016. https://cpcb.nic.in/uploads/plasticwaste/Annual_Report_2018-19_PWM.pdf

92 Adopted from UNEP & WRI. (2020). *Tackling Plastic Pollution: Legislative Guide for the Regulation of Single-Use Plastic Products*. https://wedocs.unep.org/bitstream/handle/20.500.11822/34570/PlastPoll.pdf.pdf?sequence=3&isAllowed=y

93 As per the PWM Amendment Rules 2021, the manufacture, import, stocking, distribution, sale and use of following single-use plastic, including polystyrene and expanded polystyrene, commodities shall be prohibited with effect from the 1st July, 2022:-
a. ear buds with plastic sticks, plastic sticks for balloons, plastic flags, candy sticks, ice-cream sticks, polystyrene [Thermocol] for decoration;
b. plates, cups, glasses, cutlery such as forks, spoons, knives, straw, trays, wrapping or packing films around sweet boxes, invitation cards, and cigarette packets, plastic or PVC banners less than 100 micron, stirrers.
In order to stop littering due to light weight plastic carry bags, with effect from 30th September, 2021, the thickness of plastic carry bags has been increased from fifty microns to seventy five microns and to one hundred and twenty microns with effect from the 31st December, 2022. This will also allow reuse of plastic carry due to increase in thickness.

94 https://ec.europa.eu/environment/topics/plastics/single-use-plastics_en

95 UNEP & WRI. (2020). *Tackling Plastic Pollution: Legislative Guide for the Regulation of Single-Use Plastic Products*. https://wedocs.unep.org/bitstream/handle/20.500.11822/34570/PlastPoll.pdf.pdf?sequence=3&isAllowed=y

96 *Ibid*

97 In Mizoram, the order only pertains to Aizawl Municipal Corporation as integrated in the bye laws.

98 Applicable in six districts Bhubaneswar, Cuttack, Berhampur, Rourkela, Sambalpur and Puri. In rest of state provisions of PWM Rule, 2016 is applicable.

99 A total of 24 states/UTs have banned all plastic carry bags irrespective of thickness. However, if this is considered along with the criteria 'with or without' handle, then only 5 out of the 24 states have done so as indicated in the table. (ANNEXURE 4)

100 A total of 19 states/UTs have banned plastic cutlery (which typically includes plates, cups, glass etc.). Out of these 12 states have banned plastic straws as well.

101 A total of 15 states have banned cutlery made of styrofoam. Out of these 6 states/UTs have banned Styrofoam decorative items alongside.

102 Only cup less than 60 mm diameter is mentioned.

103 In Mizoram, the order only pertains to Aizawl Municipal Corporation as integrated in the bye laws.

104 Banned only in six districts.

105 Puducherry notification does not specifically mention 'irrespective of size' but can be interpreted as so, though suffers from vagueness. Source: https://greentribunal.gov.in/sites/default/files/news_updates/REPORT%20BY%20PUDUCHERRY%20POLLUTION%20CONTROL%20COMMITTEE%20IN%20EA%20NO.%2013%20of%202019%20IN%20OA%20NO.%20247%20of%202017%20(CPCB%20VS%20STATE%20OF%20ANDAMAN%20&%20NICOBAR%20&ORS).pdf

106 Comprehensiveness of the ban items has been considered as per the MoEFCC guideline dated 21, January 2019 where it has prioritized the products which needs to be targeted. They are Plastic carry bags, with or without handle, irrespective of the thickness and size; Plastic cutlery including plates, cups/glass, straws, stirrer, etc.; and Cutlery and decorative items made up of Styrofoam (Thermocol).

107 Goa is an Act of 2019, no sub-ordination legislations, such as notification, executive order available yet.

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