ARE BUSINESSES READY TO BEAT PLASTIC POLLUTION

gaia Global Anti-Incinerator Alliance
Global Alliance for Incinerator Alternatives

CAG
Citizen consumer and civic Action Group

#breakfreefromplastic

ACKNOWLEDGEMENTS

This report was authored by Satyarupa Shekhar, Director – Urban Governance at Citizen consumer and civic Action Group (CAG), and Dharmesh Shah, an independent policy researcher.

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This report with references is available at www.no-burn.org. For more information, please contact info@no-burn.org.

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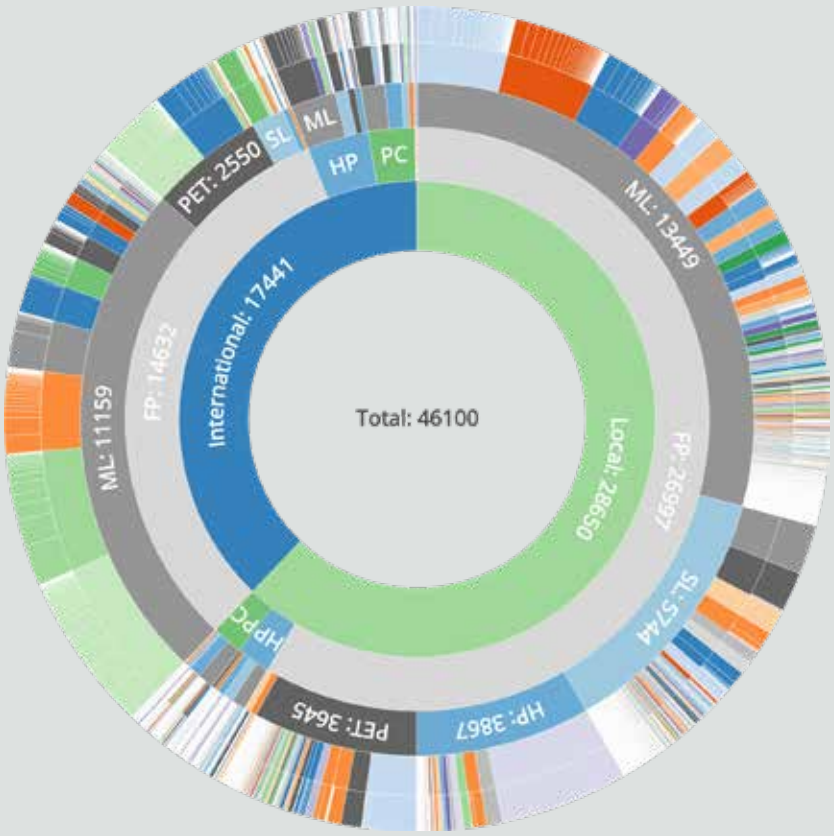
EXECUTIVE SUMMARY

Millions of tonnes of plastic waste leaks into the world's oceans every year. Though these are local, the problem of plastic production, waste generation, and plastic pollution is global. Global plastic production has increased steadily and has reached 320 million tonnes a year. Of the estimated 8.3 billion tonnes of plastic produced since the 1950s, only 9 per cent has been recycled and another 12 per cent incinerated. Over the last two decades, the fast-moving consumer goods and processed food industries have become the biggest consumers of low-value plastics for their packaging and delivery systems. Policies aimed at regulating single-use plastics have faced stiff opposition from the plastics and manufacturing industries, which have historically linked the plastic problem exclusively to consumer behaviour and poor waste management.

To highlight the pervasiveness of plastics and to ascertain responsibility for the proliferation of problematic plastic packaging in the environment, waste and brand audits were conducted in 250 sites across 15 cities in 18 Indian states in 21 days in May 2018. Participating groups conducted the audits in different sites such as public parks, water bodies, and resource recovery centres. Waste was classified into seven main categories (unbranded plastics, branded plastics, polystyrene, rubber, glass/metal, textile, and paper/cardboard), then measured by weight and volume. Random samples of branded plastics were further audited to record the brand and identify the manufacturer. They were also categorised into product types (food, household and personal care), and type of plastic packaging (single layer, multilayer/composites/laminates, polystyrene, expanded polystyrene, hard plastics, polyethylene, foil, and others).

Our findings show that there is too much plastics – particularly low-value, disposable plastics–contaminating all of our habitats, from the mountains to the coasts. A total of 46,100 pieces were audited for type of packaging. Multilayered packaging accounts for nearly 60 per cent of the total branded plastics. Single layer plastics are 15.6 per cent and hard plastics are 10.7 per cent. PET, the most recyclable kind of plastics, was only 10 per cent of the total branded plastics.The brands on the plastics were also recorded and analysed. There were a total of 3,847 brands, one-third of which were international. Of the 46,100 pieces audited, 62 per cent (17,386 pieces) were of products that have local or domestic brands and 38 per cent (28,714 pieces) were international.

IMAGE 1: PRODUCTS, PACKAGING, MANUFACTURERS AND BRANDS



Product Categories:

FP - Food Packaging
HP - Household Packaging
PC - Personal Care Packaging

Packaging Categories:

SL - Single Layer
ML - Multilayer/Composites/Laminates
PS - Polystyrene
ES - Expanded Polystyrene
HP - Hard Plastics
PET - Polyethylene
F - Foil
O - Others

To tackle this plastic crisis, we need a cohesive, holistic and sustainable waste management framework – one that not only includes management of products and packaging at their end-of-life, but more importantly, has at its core, a singular and committed effort towards a materials economy that designs waste out of the system. While plastic waste management should be seen as part of this larger management framework and the roles of producers, manufacturers, governments and consumers should be clearly identified within this framework, it is crucial that we address primarily the production, and not merely the disposal of waste.

Producer responsibility can be executed through a variety and combination of different policy instruments, a lot of which are being implemented successfully in other countries. These instruments range from product take-back schemes, "pay-as-you-throw" or waste users' fees, advance disposal fees, deposit refund schemes, and recycling and composting incentives. Inappropriate and unsustainable technologies, such as cement co-processing and waste-to-energy, should not be considered as solutions for reducing plastic waste.

WE MAKE THE FOLLOWING RECOMMENDATIONS:

1. Drastically reduce plastic production, particularly of single-use, low-value, disposable plastics. Recycling has been used as a crutch by the plastics and manufacturing industries to divert attention from the increasing production of plastics, but recycling will never be enough to solve the plastic crisis.

2. Redesign products and delivery systems to ensure that materials and packaging can be fully reused and are toxic-free, and that products and packaging are readily re-absorbed into existing production processes with little or no toxic by-products.

3. Support and strengthen the existing, invisible, unsupported, and unregulated recycling sector that currently operates on the fringes with appropriate policy and financial instruments from the government and private sector.

4. Implement a comprehensive Extended Producer Responsibility (EPR) policy that will clearly identify accountability and responsibility all through the life of a product. Interventions at different stages of the production and waste management systems will influence the value and quality of plastics and determine its reusability and recyclability.

India's commitment to phase out non-recyclable multi-layered plastics by 2018 through its Plastic Waste Management Rules 2016 was hailed as a bold step in the right direction. However, this decision was reversed in March 2018 through an amendment that effectively allows manufacturers of multilayered plastics and plastic bags to continue with business as usual. This raises several ethical questions about the commitment of the government and the private sector in solving the plastic crisis. The government must be steadfast in its mandate to protect public health and the environment and not be swayed by industry pressure.

The success of any waste management programme depends on the distribution of responsibility across all involved actors, such as the **consumer** (responsible purchase and consumption, source segregation); **policy makers** (craft holistic policies with inputs from all stakeholders); **local bodies** (provide the required infrastructure support for setting up recycling and collection facilities); **regulators** (ensure strict and impartial law enforcement); **waste management companies** (ensure efficient collection with zero dumping/leakage); **recyclers and waste processors** (follow all environment and safe work conditions norms); and others. However, since the producer has maximum influence on how a product is designed, packaged, delivered, consumed, and discarded, their role in preventing plastic pollution is paramount.

CONTENT

INTRODUCTION

Versatility, flexibility, resistance to the elements and strength are a few attractive qualities of plastic that have led to its over-production. However, some of these qualities also pose the biggest challenge when plastic-based products are discarded as waste. Global plastic production has increased steadily and has reached 320 million tonnes a year. Of the estimated 8.3 billion tonnes of plastic produced since the 1950s, only 9% has been recycled and another 12% incinerated.[1] Over the last two decades, the fast-moving consumer goods and processed food industries have become the biggest consumers of low-value plastics for their packaging and delivery systems. Policies aimed at regulating single-use plastics have faced stiff opposition from the plastics and manufacturing industries, which have historically linked the plastic problem exclusively to consumer behaviour and poor waste management.

The biggest impact of discarded plastics is on the world's water bodies, especially the rivers and seas and ultimately on the life that they sustain. According to the National Oceanographic and Atmospheric Administration, plastic debris kills an estimated 100,000 marine mammals annually, as well as millions of birds and fishes. Plastics are greatly affecting marine life on shore and offshore. Whales, sea lions, birds and even microscopic zooplankton have been found with plastics in their bodies. Major sources of marine plastic pollution are several. Land-based sources account for the majority of the pollution, followed by sea based sources like shipping and fishing vessels. The United Nations Joint Group of Experts on the Scientific Aspects of Marine Pollution (GESAMP), estimated that land-based sources account for up to 80 per cent of the world's marine pollution, 60 to 95 per cent of the waste being plastics debris. **(See box)**

This study is an endeavour to understand the contribution of plastic packaging to the marine litter crisis. According to the UN Environment Program, 95% of disposable plastic packaging put out in the markets is waste. The exponential increase in international trade and e-commerce has only exacerbated the challenge of packaging waste management, especially in the economies in transition that lack mature waste management infrastructure.

However, the major consumers of plastics are the developed countries where economic growth has been inextricably linked to consumption and where disposable plastics facilitate and sustain this correlation. However, despite relatively better waste management systems, developed economies depend heavily on economies in transition both for manufacturing and disposal of waste. In 2016, the U.S. exported 775,500 tons of plastic to China and 91,913 tons to India making scrap one of US's biggest export to Asia.[2] A similar trend has been observed from Europe, which exported in excess of 1 million tons of plastics to China in 2015 to be managed by a largely informal and unregulated plastic recycling industry.[3,4] Developed economies often boast of impressive recycling rates, but in the absence of systems to monitor the scrap once

The major land-based sources of marine litter include wastes from dumpsites located on the coast or banks of rivers; rivers and flood waters; industrial outfalls; discharge from storm water drains; untreated municipal sewerage; littering of beaches and coastal picnic and recreation areas; tourism and recreational use of the coasts; fishing industry activities; ship-breaking yards; and natural storm related events. The major sea-based sources of marine litter include shipping (merchant, public transport, pleasure, naval and research vessels) and fishing (vessels, angling and fish farming) activities; offshore mining and extraction (vessels, and oil and gas platforms); legal and illegal dumping at sea; abandoned, lost or otherwise discarded fishing gear; and natural disasters. Adequate quantitative and qualitative knowledge of the sources of marine litter is extremely important because it serves as the main basis for managerial decisions on actions to prevent, reduce and control problems caused by marine litter.

UNEP, 2009. Marine Litter: A Global Challenge. Nairobi: UNEP. 232 pp.

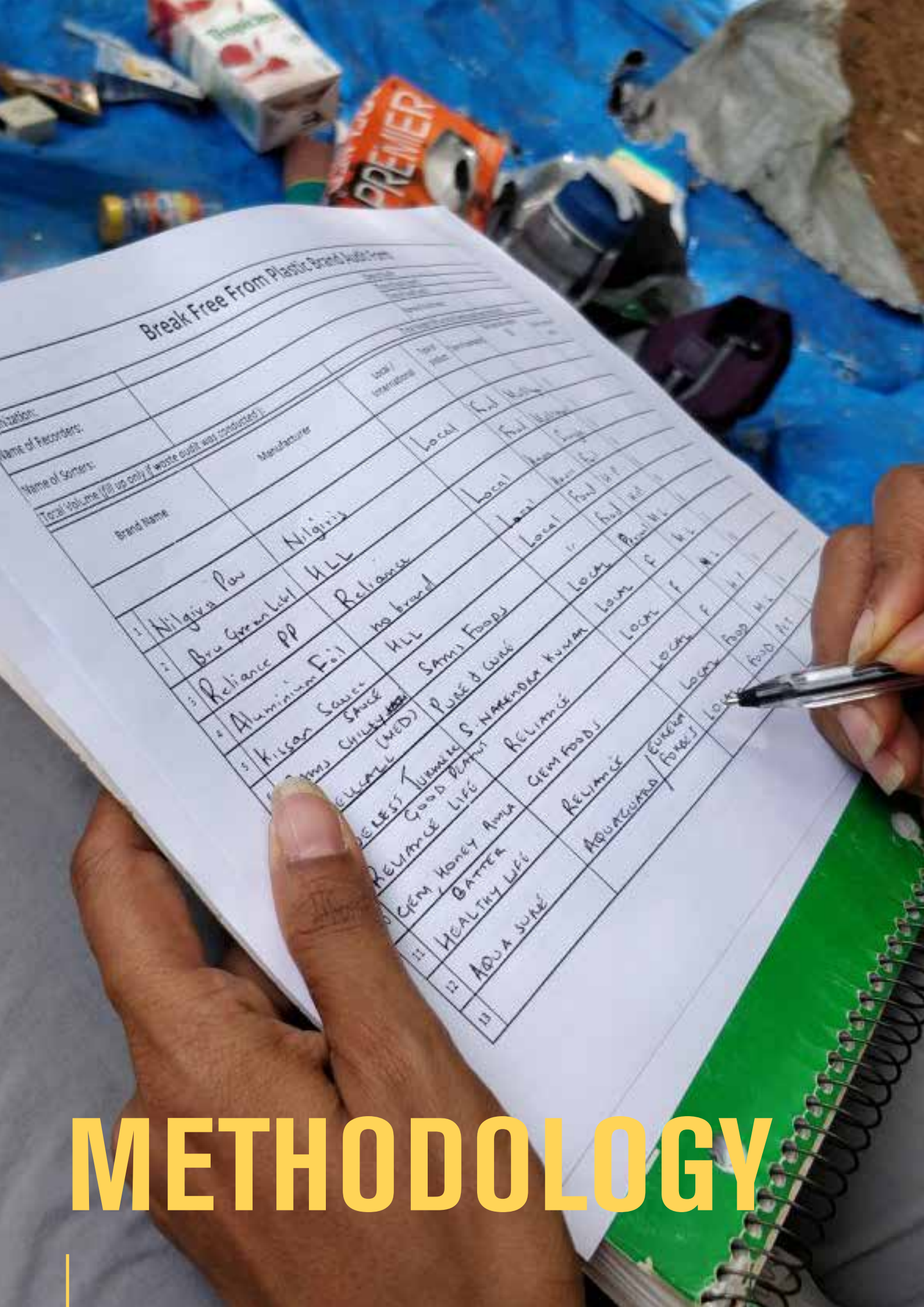
1 Marine Plastic Litter and Microplastics, Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal
2 https://www.wastedive.com/news/isri-scrap-exports-2017-china-disruption-paper-plastic/517202
3 https://www.euractiv.com/section/circular-economy/news/httpwww-euractiv-comsectioncircular-economynewschinese-ban-on-plastic-waste-imports-could-see-uk-pollution-rise/
4 https://www.plasticchina.org/

it leaves their shores, it is hard to establish the ultimate fate of such plastics. This also imposes additional burden on the infrastructure of developing countries that are struggling to manage their domestic discards.

Over the last two decades, the fast moving consumer goods and processed food industry has become the biggest consumer of low value plastics for their packaging, and delivery systems. The burden of managing the packaging waste since then has been shifted onto tax payers. Policies aimed at regulating single use plastics have faced stiff opposition from the industry which has historically linked the plastic problem exclusively to poor waste management. This narrative has been consistently challenged by policy makers who have found material bans and material substitutions more sustainable over management interventions. European Union regulators announced its policy in January this year aimed at all plastic packaging on the EU market to be recyclable or reusable by 2030.[5] The policy specifically targets single-use items like straws, take-away containers, cutlery and other low value non-recyclable plastics.

India's commitment to phase out non-recyclable multi-layered plastics by 2018 through its Plastic Waste Management Rules 2016 was hailed as a bold step in the right direction. However, this decision was reversed in March 2018 through an amendment that effectively allows manufacturers of multilayered plastics and plastic bag users to continue with business as usual.[6] This raises several ethical questions about the commitment of the private sector in solving the plastic crisis. Management through interventions like plastic roads, pyrolysis, cement kiln co-incineration and waste to energy incineration are often promoted as solutions to the crisis; however despite a decade or more of research and development to improve these technologies, they remain underdeveloped and also pose a significant risk to public health. Moreover, in cities where such projects have been deployed, their success has been dependent on good waste management practices like source separation.

5 http://ec.europa.eu/environment/circular-economy/pdf/plastics-strategy-annex.pdf
6 http://envfor.nic.in/sites/default/files/PWM%20amendment%20english%202018.pdf



METHODOLOGY

Advocates for zero waste practices and corporate liability policies regularly conduct waste and brand audits to monitor the types and volume of waste generated in a particular city or neighbourhood. There are systematic exercises that enable a physical identification of waste composition to provide a detailed understanding of the nature and quantum of the waste problem. A brand audit identifies, counts and documents the brands found on plastic and other collected packaging waste to help identify the producers of the product.

The data generated from waste and brand audits can help decision makers and communities to develop resource management plans which include at-source segregation, comprehensive composting and recycling schemes, residual waste reduction and product redesign. City officials can use the data to design collection systems and schedules, decide what policies to enact, identify what kind of collection vehicles to use, how many workers to employ, and what kind of technology to invest in, among others. The insights from the data are also particularly useful to identify the polluters and to adopt strategies to work with them and local authorities to reduce such materials.

The pan-India audit used the BFFP waste and brand audit methodology. There are five broad steps in this methodology:

1. **Plan**
    - 1.1. Identify the clean-up area
    - 1.2. Assign areas and teams for the clean-up and the audits
    - 1.3. Decide how to select sample data
    - 1.4. Train the audit teams
    - 1.5. Prepare the audit area, forms and other materials
2. **Waste Audit**
    - 2.1. Prepare the audit area
    - 2.2. Collect waste
    - 2.3. Separate waste by category
3. **Brand Audit**
    - 3.1. Sort waste by brand
    - 3.2. Sort waste by category
4. **Record the audit data**
5. **Dispose the waste**

The toolkit and audit results are available:
https://www.breakfreefromplastic.org/brandaudittoolkit/

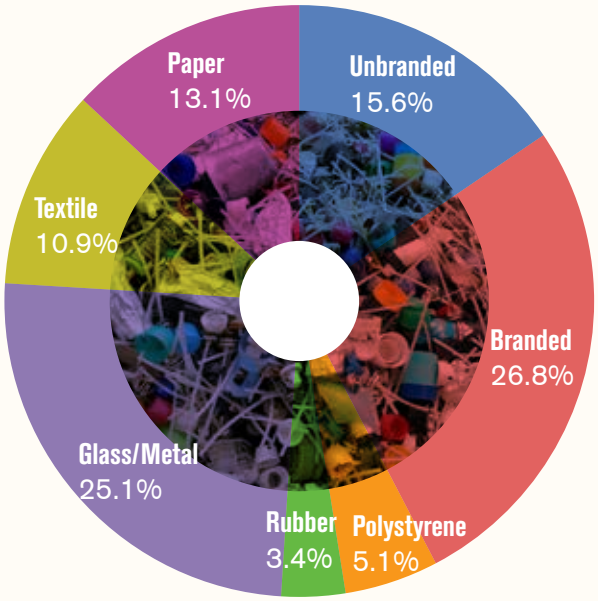
Participating groups conducted the audits in different sites such as public parks, water bodies, and resource recovery centres. Waste was classified into seven main categories (unbranded plastics, branded plastics, polystyrene, rubber, glass/metal, textile, and paper/cardboard), then measured by weight and volume. Random samples of branded plastics were further audited to record the brand and identify the manufacturer. They were also categorised into product types (food, household and personal care), and type of plastic packaging (single layer, multilayer/composites/laminates, polystyrene, expanded polystyrene, hard plastics, polyethylene, foil, and others). The audit data was recorded by each participating organisation and aggregated by the authors. It was reviewed and uploaded to the BFFP global database.

AUDIT RESULTS

WASTE AUDIT RESULTS

Of the waste collected, plastics made up for the largest component, accounting for 42.4 per cent in weight. In contrast, paper, textile, glass and metal taken together were 50% of the total waste audited.

WASTE COMPOSITION FOR ALL 15 CITIES



TYPE OF PRODUCT	PACKAGING	NO. OF PIECES	SHARE
Food Products	SL	6,485	14.07%
	ML	24,611	53.39%
	PS	138	0.30%
	HP	3,989	8.65%
	PET	6,196	13.44%
	O	220	0.48%
FP Total		41,639	90.32%
Household Care Products	SL	506	1.10%
	ML	1,320	2.86%
	PS	7	0.02%
	HP	292	0.63%
	PET	227	0.49%
	O	82	0.18%
HP Total		2,434	5.28%
Personal Care Products	SL	264	0.57%
	ML	910	1.97%
	PS	10	0.02%
	HP	656	1.42%
	PET	21	0.05%
	O	166	0.36%
PC Total		2,027	4.40%
Grand Total		46,100	100%

SL - Single Layer ML - Multilayer/Composites/Laminates
PS - Polystyrene HP - Hard Plastics PET - Polyethylene
O - Others

The plastic was further analysed for the type of packaging and product category. A total of 46,100 pieces of plastic were audited for type of packaging. Multilayer plastic accounts for nearly 60 per cent of the total branded plastics. Single layer plastics are 15.6 per cent and hard plastics are 10.7 per cent. PET, the most recyclable kind of plastics, was only 10 per cent of the total branded plastics.

Food packaging accounts for 90 per cent of the plastic, while household and personal care packaging each account for close to five per cent. Within each of these, multilayer plastic dominated all other types of packaging. Both single layer and PET packaging were present in significant quantities in food products.

BRAND AUDIT RESULTS

In order to understand and communicate the problem of plastic pollution, the groups undertook a brand audit. This goes further than identifying the plastic that is polluting our environment. It is also a way to identify the original producers of the plastic and hold them accountable for the plastic waste.

There were a total of 3,847 brands, one-third of which were international. Of the 46,100 pieces audited, 62 per cent (17,386 pieces) were of products that have local or domestic brands and 38 per cent (28,714 pieces) were international.

TOP POLLUTERS (INTERNATIONAL)

MANUFACTURER	NO. OF PIECES	SHARE
PepsiCo	4,294	27.70%
Perfetti van Malle	2,513	14.45%
Unilever	2,027	11.66%
CocaCola	1,828	10.51%
Mondelez	1,587	9.13%
Nestle	1,035	5.95%
CG Foods Pvt. Ltd.	1,012	5.82%
McDonalds	340	1.96%
P&G	295	1.70%
Ferrero SpA	269	1.55%
Lotte	203	1.17%
Reckit Benckisser	184	1.06%
Colgate Palmolive	175	1.01%
Pran Foods Ltd.	118	0.68%
Johnson & Johnson	107	0.62%

TOP POLLUTERS (LOCAL)

MANUFACTURER	NO. OF PIECES	SHARE
Parle Products	2,929	10.34%
Karnataka Milk Co-Op	2,379	8.40%
Britannia	1,904	6.72%
ITC	1,454	5.13%
Amul	1,413	4.99%
Mother Dairy	934	3.30%
Kerala Milk Co-Op	930	3.28%
Parle Agro	536	1.89%
Aparna Group	472	1.67%
Haldiram	440	1.55%
Delhi Milk Scheme	434	1.53%
Som Fragrance P Ltd.	421	1.49%
Geetsagar Foods P Ltd.	374	1.32%
Prachi Aqua	372	1.31%
Dabur India Ltd.	301	1.06%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taste for life but
makes every moment
of your movie
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PVR
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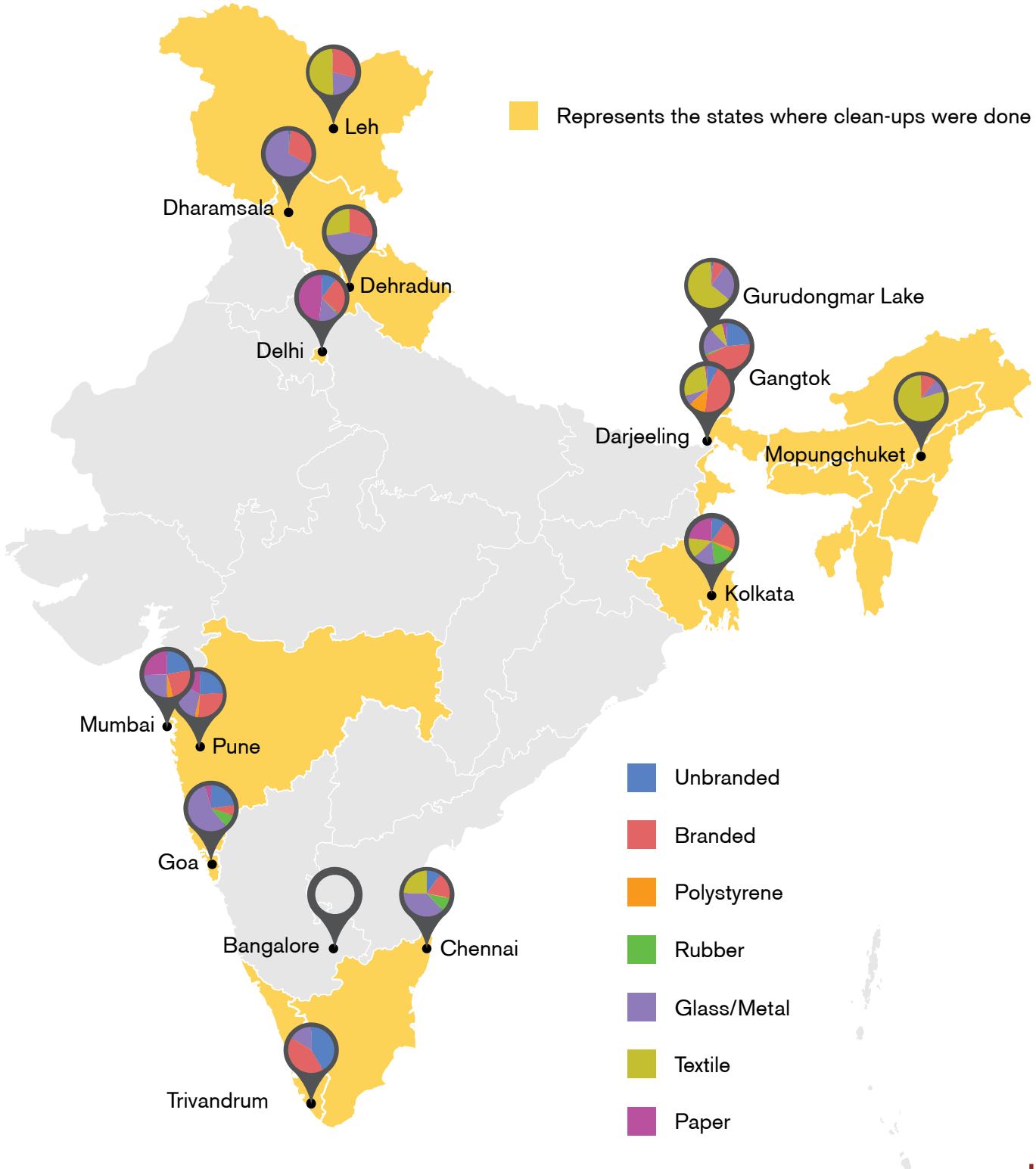
LOCATIONS

India is home to many critical and innovative solutions to prevent and manage waste. Despite initiatives to implement holistic waste management solutions however, management of residual waste, particularly plastics, has posed an ever increasing challenge. To highlight the pervasiveness of plastics and to ascertain responsibility for the proliferation of problematic packaging in the environment, waste and brand audits were conducted in May 2018 across the country.

Clean-ups were conducted by 15,384 volunteers in 250 sites in 18 Indian cities. The waste and brand audits were conducted in 15 cities: Bangalore, Chennai, Darjeeling, Dehradun, Delhi, Dharamsala, Goa, Gurudongmar Lake, Gangtok, Leh, Mopungchuket, Mumbai, Pune, and Trivandrum. They chose different sites such as public parks, water bodies, and resource recovery centres.

IMAGE 5: CITIES THAT UNDERTOOK WASTE AND BRAND AUDITS



WASTE ACROSS CITIES (BY PACKAGING CATEGORIES)

CITY	SL	ML	PS	HP	PET	O	TOTAL
Bangalore	292	4,174	2	3,091	1,054	141	**8,754**
Chennai	164	2,086		812	4	7	**3,073**
Darjeeling		3,870		2	766	151	**4,789**
Dehradun	24	607			121		**752**
Delhi	1,559	133	72	247	225		**2,236**
Dharamsala	26	567		20	37	1	**651**
Gangtok	91	1,283		114	193	54	**1,735**
Goa	147	113		7	1,056	74	**1,394**
Gurudongmar Lake	11	281		1	100		**393**
Kolkata	395	278	22	106	288	4	**1,093**
Leh	265	666		16	395		**1,342**
Mopungchuket	80	7,890		290	1,289		**9,549**
Mumbai	2,199	3,204	59	118	577		**6,157**
Pune	719	955		34	112		**1,820**
Trivandrum	1,283	734		79	230	36	**2,362**
GRAND TOTAL	**7,255**	**26,841**	**155**	**4,937**	**6,444**	**468**	**46,100**

SL - Single Layer
ML - Multilayer/Composites/ Laminates
PS - Polystyrene
HP - Hard Plastics
PET - Polyethylene
O - Others

WASTE ACROSS CITIES (BY PRODUCT CATEGORIES)

CITY	FP	HP	PC	GRAND TOTAL
Bangalore	7,766	564	424	**8,754**
Chennai	2,262	393	418	**3,073**
Darjeeling	4,780	6	3	**4,789**
Dehradun	691	29	32	**752**
Delhi	2,022	78	136	**2,236**
Dharamsala	639	6	6	**651**
Gangtok	1,702	24	9	**1,735**
Goa	1,299	21	74	**1,394**
Gurudongmar Lake	399	3	2	**393**
Kolkata	829	148	116	**1,093**
Leh	1,330	2	10	**1,342**
Mopungchuket	9,059	229	261	**9,549**
Mumbai	5,226	714	217	**6,157**
Pune	1,559	120	141	**1,820**
Trivandrum	2,087	97	178	**2,362**
GRAND TOTAL	**41,639**	**2,434**	**2,027**	**46,100**

FP - Food Packaging
HP - Household Packaging
PC - Personal Care Packaging

In terms of product categories, we find that food packaging accounted for 90 percent of plastic pieces audited for brands.

HIMALAYAN STATES

There is a general opinion that the mountains are pristine and safe from plastic pollution. However, these ecologically sensitive areas, many of them popular tourist locations, are drowning with plastic.

PARTICIPATING ORGANISATIONS

Zero Waste Himalaya is a group formed by the active participation of organisations and individuals concerned about the increasing problem of waste management in the Himalayas. ZWH Sikkim and Darjeeling has actively worked with local self-government institutions, community groups, educational institutions, faith based organisations and media in promoting zero waste practices in the transboundary landscape.

> It was an extremely good point of reflection for the fight against plastic pollution as it gives insights to our consumption patterns. It also showed us the different brands who need to own up that responsibility.
>
> *Priyadarshini Srestha,*
> *ZWH and Joint Secretary of IMI*

Integrated Mountain Initiative is a coalition of individuals and institutions formed in 2011 to redefine the architecture of sustainable development across the twelve mountain states in the Indian Himalayas and Northeast India, engaging in debate to inform and influence policy for mountain region such as waste, water, community forestry, disaster risk reduction, and mountain agriculture.

LOCATIONS OF CLEAN UP

The Himalayan clean up was taken up in twelve states to demonstrate how the fragile ecosystem was being ruined by plastic pollution. The waste and brand audit took place in seven towns: Darjeeling, Dehradun, Mopungchuket, Gangtok, Gurudongmar Lake, Dharamsala, and Leh. The chosen sites are popular with locals, students and tourists but also where the local government has a good regular cleanup system. This was to demonstrate and bring visibility to the plastic pollution problem that affects even the most privileged sites.

Outreach was particularly focused on schools and organisations who could undertake a waste clean-up and brand audit in their immediate neighbourhoods. The early monsoon meant that the plastic waste was piled up with leaf litter and the slopes were slippery. This made the collection and segregation tedious and slightly dangerous. This made it difficult to keep the children volunteers motivated and also safe. The presence of diapers and syringes made plogging on auditing an extreme challenge.

SALIENT FINDINGS

BRAND NAME	SHARE
DARJEELING	
Lays	12.47%
Kurkure	9.46%
Wai Wai Noodles	5.32%
DEHRADUN	
O Yes	7.05%
Tata Tea	5.45%
Bonn Bread	5.32%
Mother Dairy Ice-Cream	5.05%
Maggi	4.52%
DHARAMSHALA	
Real	21.66%
Frooti	8.45%
Appy	6.91%
Tropicana	6.14%
Lays	5.38%
GANGTOK	
Center Fresh	20.23%
Happy Dent	10.78%
Lays Chips	4.32%
Pulse	3.92%
Dairy Milk	2.88%
GURUDONGMAR LAKE	
Real Activ 100% Tender Coconut Drink (Small)	19.34%
Dairy Milk	13.99%
Good Day	11.20%
Center Fresh	9.16%
Pulse	3.05%
Lays	3.05%
LEH	
Maggi	18.26%
Mountain Dew	6.33%
Minute Maid	4.84%
Lays	4.10%
Amul Taaza	4.10%
MOPUNGCHUKET	
Center Fresh	12.16%
Lays	4.48%
Talab	4.41%
Babloo Supari	3.84%
Wai Wai Noodles	3.43%

> It was an amazing, reflective, exhilarating and extremely tiring experience. The coming together of a multitude of people across the 12 Mountain States of the Indian Himalaya was an empowering experience and felt connected, in solidarity with hope to address this extremely frustrating pile up of waste with very few taking responsibility.
>
> *Roshan Rai, Member of ZWH and IMI, Programme Officer DLR Prerna*

NEW DELHI

Despite being the national capital, Delhi has earned a disreputable distinction of being one of the most polluted cities in the world. Solid waste management is one of the many environmental challenges the city grapples with. Five municipal authorities manage over 9,500 tonnes of garbage every day, out of which nearly 8,000 tonnes of waste is collected and transported to three landfill sites at Bhalswa, Okhla and Ghazipur.

SALIENT FINDINGS

BRAND NAME	SHARE
Mother Dairy Milk	**31.80%**
Delhi Milk Scheme	**19.36%**
Amul Milk	**7.96%**

> Volunteers were surprised to see all kinds of things in the waste collected including blank cheques, framed photographs and packed bathroom slippers. But more surprising were the results. It wasn't the international brands which were contributing the most to the plastic waste that was being thrown out by households, but the domestic ones including Mother Dairy, Amul and so on. It's been an insightful process for us, and we are now aware about which brands to keep a watch on.
>
> *Ritika Chawla,*
> *Senior Assistant Manager,*
> *Advocacy and Communications*

PARTICIPATING ORGANISATIONS

Chintan Environmental Research and Action Group (CHINTAN) works to ensure equitable and sustainable production and consumption of materials, and improved disposal of waste. An important part of this is ensuring green jobs, security and dignity for the urban poor, many of whom earn a living as waste recyclers. It undertakes research, campaigns, policy interventions, building capacity among those engaged in recycling, and creating awareness about the need for reduced consumption and better waste management.

LOCATIONS OF CLEAN UP

Higher income levels are known to directly correlate with the level of consumption, especially products that come in plastic packaging. This is why waste collected from households in two affluent colonies of Delhi was audited so as to study the kind and quantum of plastic waste produced by this group. Initially, the volunteers found it difficult to classify the waste, but the subsequent classification based on brands, especially the popular, renowned ones happened quickly, and was exciting for the volunteers. In contrast to the expectation of more international brands and FMCG packaging, the audit results showed a lot of dairy food packets, like milk sachets and curd cups.

KOLKATA

In 2016, Kolkata Municipal Corporation was awarded with the Best Cities of 2016 award at the C40 Mayors Summit held in Mexico City for its waste management practices. Ironically, this was in recognition of the improvement of the condition of waste transfer stations and the introduction of compactors to achieve this. City environmentalists and social activists have voiced concerns that this has resulted in a lot of recyclable materials and plastics getting mixed with other waste, thus preventing composting of organic materials and reducing the recycling of others.

PARTICIPATING ORGANISATIONS

Centre for Environment Education (CEE) was established in 1984 as a 'Centre of Excellence in Environmental Education' of the Ministry of Environment, Forest and Climate Change (MoEFCC), Government of India. CEE develops innovative programmes and educational material, and builds capacity in the field of education and communication for sustainable development. It undertakes demonstration projects in education, communication and development that endorse attitudes, strategies and technologies that are environmentally sustainable.

LOCATIONS OF CLEAN UP

The audits were undertaken at two transfer stations, where the collection trolleys/wheelbarrows are used to bring waste from households and put into compactors (located on the side of streets) every day. The two sites were chosen due to the availability of waste pickers for segregating and sorting the waste. The councillor of the ward was also enthusiastic about the audits and had personally mobilised waste sorters from his SWM team for the activity.

SALIENT FINDINGS

BRAND NAME	PIECES
Amul Taaza Milk	101
Bisleri	38
Dada Alcohol	30
ThumsUp	29
Kinley	29

The audit was a chance to audit fresh domestic waste that was brought by the collection trolleys to be put into the compactors. It was truly mind boggling to see the quantum of waste that a single ward generates! Since it was a transfer station, there was no dearth of waste and every category mentioned in the waste audit sheets was easily found. However, the sheer volume of waste that came in made it difficult to select an appropriately sized. It was challenging to undertake the plastic categorisation, primarily because the waste pickers were familiar with categories that were different from those required for the audit.

> The waste pickers told us that they were particularly alarmed at the quantum of multilayered packaging. They said that it was ironic that this material was so abundant but that even if they spent all day sorting, it is not useful for them as it has no value in the recycling market.
>
> *Reema Banerjee,*
> *Programme Director,*
> *CEE Eastern Region*


ASSOCIATION OF RAG PICKERS
OF CALCUTTA

MUMBAI

Mumbai, financial capital of the country, accommodates more than 12 million people presently. The Municipal Corporation of Greater Mumbai (MCGM) estimates that the city grapples with more than 6500 tonnes per day. Despite the lack of a robust regulation that mandates segregation at source, Mumbai has been declared the cleanest capital city in the country in the recently unveiled Swacch Survekshan Survey 2018.

PARTICIPATING ORGANISATIONS

Stree Mukti Sanghatana (SMS) works to empower women by creating awareness in the society about women's issues and the issues related to equality, social justice and development. Through its Parisar Vikas programme, SMS addresses the issue of waste management, while simultaneously addressing the livelihood concerns of self-employed women engaged in waste picking. It started organising and training waste pickers in composting, biomethanation and gardening, forming their SHGs since 1999. SMS is currently the secretariat of the Alliance of Indian Waste pickers.

LOCATIONS OF CLEAN UP

Given Mumbai is so vast and each ward/ sub-region is so drastically different from each other, it was quite challenging to decide on the location. The two locations - Mulund and Chembur – were chosen because of their diversity in socio-economic parameters such as class, religion, consumption patterns, residential and commercial establishments, and dry waste recovery centres.

SALIENT FINDINGS

BRAND NAME	PIECES
PVR Popcorn	**255**
Pepsi Cups	**242**
Rin Powder	**235**

Several volunteers participated despite the short notice, which reflected their concern and commitment to fight plastic pollution. It was challenging to explain the audit methodology, especially to informal wastepickers as they are traditionally accustomed to a highly refined classification. For example, while the audit recorded all paper in a single category, waste pickers sort different kinds of paper as scrap, white paper, etc. The share of local manufacturers and brands in the total waste and brand audit was a revelation. The amount of unbranded plastic found was equally shocking. It was very close to the per centage share of branded plastic and left no room for doubt to call out for banning all kind of single-use plastic. There was a unanimous call for corporate accountability as everyone saw the primary role of corporates and industries in addressing the issue of plastic.

> Brand Audit is a powerful tool led by citizens to expose the plastic mess created by the brands and manufacturers. Corporations cannot continue polluting the environment, make money out of the problem they are creating but contribute nothing to cleaning up the pollution caused by them. Since most of the environmental cost of our throwaway culture is upstream, brands and manufacturers must take complete responsibility.
>
> *Pratibha Sharma,*
> *India Regional Coordinator*

PUNE

Pune is the eighth largest city in India and second largest in the state of Maharashtra. It is one of the few cities in the country that has ensured high (50%-55%) segregation at source in a city that generates 1600-1700 tonnes of waste every day. The Pune Municipal Corporation attributes this to the integrated approach with a decentralised waste management strategy that relies heavily on NGOs and private sector participation.

PARTICIPATING ORGANISATIONS

SWaCH is India's first wholly-owned cooperative of self-employed waste collectors and other urban poor. It is an autonomous enterprise that provides front-end waste management services to the citizens of Pune. In the course of 2016, SWaCH increased its coverage by over 50% of the households serviced. More than 600,000 households are covered daily, 3025 waste pickers are integrated and more than 50,000 metric tonnes of waste recycled.

LOCATIONS OF CLEAN UP

There were two locations for the audit. One was a sorting shed where waste pickers bring household waste collected at source and bring the waste for sorting into recyclables and non-recyclables. This allowed for auditing (organised) waste from over 300 households in one location. The second site was next to the river, which allowed for auditing of littered waste.

The collection and sorting into various categories was quite simple. However, separating plastic was extremely challenging. Some packaging is mostly paper with a very thin laminate of plastic which is not easily distinguishable from normal paper packaging and therefore requiring double, triple checks to ensure the correct material type has been recorded. There was also a challenge at the end of the process to determine which of the materials found were liable to be recycled by waste-pickers and which were not though the audit methodology did not capture this. It was a great learning experience to see how many branded items were actually manufactured by the same small group of brand owners.

> "Since the study was also conducted on household waste collected from the doorstep, volunteers came across many diapers and sanitary napkins wrapped in plastic packaging material. Though this was difficult for them to handle, it gave them a clear idea about what waste pickers and waste collectors have to face on a day to day basis."
>
> *Harshad Barde,*
> *Legal Activist, SWaCH,*
> *Kagad Kach Patra Kashtakari Panchayat*

SALIENT FINDINGS

BRAND NAME	PIECES
Vimal	**285**
Chitale Milk	**193**
Krackjack	**147**

GOA

Goa, once admired for its pristine environment, is now littered with garbage, like most other Indian states. There are numerous contributing factors, ranging from weak institutions to inadequately managed and uncontrolled dump sites. There is no authentic data available on the waste generation and its disposal in all of Goa. Estimates suggest that across the whole state, including the villages, the figure could be in the range of 400 tonnes per day.

PARTICIPATING ORGANISATIONS

V-Recycle is a waste management service company that services 6000-8000 homes in Goa. It provides waste infrastructure, like composting units, recycling bins, doorstep waste pickup, treatment and disposal services. It also employs waste pickers and engages with the informal waste sector to provide waste management services. It undertakes outreach, education, consultancy, and design projects for NGOs, institutions and schools.

LOCATIONS OF CLEAN UP

The audits were conducted on St. George's Island and Grande' Island and another site on the mainland popularly known as 'Monkey' beach. The choice was influenced by news of the critical attention received for the audit done on Freedom Island in the Philippines. Like that, the audit sites in Goa are highly ecologically sensitive but remain invisible to the public eye and neglected, rather than popular tourist sites, which typically get a lot of attention.

SALIENT FINDINGS

BRAND NAME	PIECES
Golden Goa	372
Bisleri	230
Aqua Goa	154

A lot of people wanted to volunteer but they could not be accommodated. The real challenge was the documentation of the waste and brands largely because it was difficult to identify the foreign brands. Volunteers were confronted with a lot of glass bottles littered on the beaches, mostly broken. Goa has banned glass bottles on the beaches, but the enforcement has been poor. So the audit results are useful evidence to show policymakers and support local advocacy for better rules and stronger implementation.

> Since the audits, we have had continuous engagement with the municipal authority. We are using the audit results to support our advocacy for stringent EPR and CSR. The data from our audits revealed the magnitude of single-use plastics, so we are trying to push for them to be banned in the islands.
>
> *Clinton Vaz,*
> *Founder and CEO of V Recycle*

BENGALURU

Bangalore is hailed as a Garden City and as India's Silicon Valley, drawing multinational IT firms and facilitating startups. But today it is paying a heavy price for this. The city is overflowing with garbage, its infrastructure and waste collection services unable to keep up with the rapid, unchecked growth. The city government, Bruhat Bengaluru Mahanagara Palike (BBMP), estimates that the city generates anywhere between 3000 MT-3500 MT of garbage every day, which it is unable to cope with.

> Onlookers approached us to understand why we were playing with waste; it gave us an opportunity to explain that not all plastic waste gets recycled. Many joined us for the audit. Overall, it was an eye-opener and a great learning experience.
>
> *Smita Kulkarni,*
> *SWMRT Member and Volunteer*

PARTICIPATING ORGANISATIONS

Hasiru Dala (meaning Green Force in Kannada) is an organisation of wastepickers. Started in 2011, Hasiru Dala has facilitated enumeration and registration of more than 7,500 waste pickers with Bangalore municipal period in past years. Hasiru Dala strives to integrate the informal waste workers into solid waste management of the city. Hasiru Dala provides necessary training and gear to offer excellent solid waste management services to individual and bulk operators. It has also been authorised by city government to run Dry Waste Collection Centres (Material Recovery Facilities). Hasiru Dala is part of the Solid Waste Management Round Table (SWMRT), a Bangalore based initiative which aims to build a sustainable system of waste management in the city through decentralisation of processes, services and management, and inclusion of all stakeholders in the formal processes.

LOCATIONS OF CLEAN UP

The audit was conducted in eight locations including six dry waste collection centres (DWCC) and one public place, Lalbagh Gardens. These sites were selected based on conversations with the volunteers and reflected the number of participants for audits at each location. The audit started with a pilot where the volunteers were requested to bring their own waste, which was mixed and the volunteers were trained on sorting. The idea was to prepare the volunteers on what to expect during the days of the audit. Mobilising volunteers was very easy. They are extremely motivated members of the SWMRT who are already invested and committed to the cause of zero-waste. However, for most of them, it was really their first time sifting through a pile of garbage. The sheer volume of waste collected made the data entry particularly challenging, but thanks to extremely committed volunteers, the effort was successful.

SALIENT FINDINGS

BRAND NAME	SHARE
Nandhini Milk	**26.50%**
Snack	**7.43%**
Galaxy	**4.00%**
Lays	**3.93%**
Parle Mango Bite	**3.03%**
Britannia	**2.86%**
Amul Kool	**2.74%**
Kwality Walls Ice-cream	**2.70%**
Bisleri	**2.65%**
Coke	**2.10%**

> Public spaces like Lalbagh which double up as tourist spots, have to make us citizens understand the cycle we are in. My personal takeaway from this is do we consume from a want or a need based intention.
>
> *Renuka Bhosle,*
> *SWMRT Volunteer*

CHENNAI

The Chennai city government estimates that the city generates nearly 4500 metric tonnes of garbage every day, and at 700g per capita generation per day, it is reckoned to be one of the highest in the country. Yet, solid waste management continues to be pressing issue from for the city government from the point of environment, health, labour rights and cost to the public exchequer.

> I am surprised to find that a lot of materials that I thought have value in the scrap market such as milk packets (LDPE), alcohol bottles (glass) are being discarded by people, especially in the low-income community.
>
> *Abishek Venkat, Volunteer*

PARTICIPATING ORGANISATIONS

Citizen consumer and civic Action Group (CAG) is a non-profit and non-political organisation that works towards protecting citizens' rights in consumer and environmental issues and promoting good governance processes including transparency, accountability and participatory decision-making. Kuppai Matters is a collective of nearly 30 organisations in Chennai which aims to transform the exercise of public hearings from a ritual to a serious process that can forge a cooperative partnership between people and public institutions. The member organisations of this dynamic alliance identify themselves with different causes, all converging in the need for a sustainable city. The organisations that participated in this audit were Arappor Iyakkam, Chennai Trekking Club, Chitlapakkam Rising, and Vettiver Collective.

LOCATIONS OF CLEAN UP

All the audit locations were chosen because of waste being thrown in eco-sensitive areas. Srinivasapuram, is on the banks of the Adyar river where a low-income settlement lives, disposes their waste and defecates because the city government does not collect their waste and very few homes have toilet facilities. As a result, access to the waste was a challenge. The second site was the Adyar estuary, where the waste is mixed with mud and sewage. This made it difficult to calculate the exact weights of the sample. The brands and prints had also worn off from most samples making brand audits difficult. The Pallavaram and Chittlapakkam lakes are rapidly being turned into waste yards. It was difficult to identify an area for the audit as the lake banks were not visible and there were lots of stray animals. We resorted to scooping out a mound and collecting all possible samples from a cross section of the pile.

> This (magnitude of waste) just shows me the rampant consumer culture we have gotten ourselves into. Just look at the amount of food packaging here (pointing to the nutritional value in a chips packet), if it is neither good for my health, nor for the environment, why is it still being promoted so vigorously'?
>
> *Sushila Natraj, Volunteer*

SALIENT FINDINGS

BRAND NAME	SHARE
Aavin Milk	**9.40%**
Aachi Masala	**7.42%**
Thirumala Milk and Curd	**5.14%**
Britannia Milk Bikis	**4.10%**
Britannia Marie Gold	**3.58%**
Comfort Fabric Conditioner	**3.06%**
Dodla Milk	**2.93%**
Clinic Plus Shampoo	**2.38%**
Gold Winner	**2.34%**
Surf Excel Detergent	**2.21%**

THIRUVANANTHAPURAM

Thiruvananthapuram Municipal Corporation (TMC) has been following decentralised solid waste management and has been encouraging onsite management of biodegradable discards since 2013, a striking departure from the SWM practices in other cities. The city has no centralised solid waste management system, landfill or waste dumping yard. TMC made it mandatory for all bulk waste producers (BWPs) to take responsibility for the waste generated by them and this was made a criterion for licensing. This probably explains why the city generates only about 350 tonnes of waste per day, nearly ten times less than any other capital city in the country.

PARTICIPATING ORGANISATIONS

Thanal was started in 1986 as a small group of nature enthusiasts to bring environmental awareness to the people with an aim to raise an environmentally conscious generation by conducting studies on natural history and bringing environmental education to schools and colleges. Their transformation from nature enthusiasts to serious environmental activists was triggered by the rise in pesticide use and pesticide-related illness, increasing deforestation, improper handling of urban waste, and other alarming issues. Thanal operates the Organic Bazaar, the Agro-Ecology Centre, and the Zero Waste Centre - a regional hub for training communities on zero waste management. It also facilitates some very successful Zero Waste initiatives, the most impactful of this being the Zero Waste Himalayas.

LOCATIONS OF CLEAN UP

For the audit, 75 households were chosen and asked to store their dry waste for a period of three weeks. This waste was analysed to gain insights into the brands used and consumed at the household level to inform an EPR policy for the Trivandrum Municipal Corporation.

> The brand audit was conducted on plastic discards collected from households. It revealed consumption behaviour and the role of local and international brands. This data was crucial for Thiruvananthapuram Municipal Corporation authorities and it is rewarding to see them rounding up brands to chalk out take back or collection mechanisms.
>
> *Nikhilesh Paliath, Thanal*

There was wet paper and wet newspaper mixed with the domestic dry waste. The moisture made adjusting the weight particularly difficult. The waste also included burnt medicine strips. Another interesting revelation was that a lot of local brands have packaging that imitates international brands. A less aware consumer is likely to get confused unless they pay close attention. High quality plastics were less in number and it was really difficult to differentiate between single and multilayer packaging many cases.

SALIENT FINDINGS

BRAND NAME	PIECES
Milma	901
Dailee	98
Britannia	67

PRODUCER LIABILITY

The results of this study convey the need for policy makers to assess the role of producers more comprehensively. Plastic waste management should be seen as part of the larger waste management framework. The inclusion of Extended Producers Responsibility (EPR) into the Plastic Waste Management 2016 Rules is a step in the right direction as far as packaging waste is concerned. There should be a greater focus on implementation of EPR and also further progressive amendments. Interventions at different stages of the waste management systems will influence the value and quality of plastics and determine its reusability and recyclability. It is important to acknowledge that the role of producing companies is paramount in the EPR system.

EPR CAN BE BROADLY CLASSIFIED INTO FOUR TYPES:[7]

1. ENVIRONMENTAL LIABILITY

Producer is responsible for environmental damages caused by a product - in production, use or disposal.

2. INFORMATION LIABILITY

Producer is required to provide information on the product regarding life span, recyclability, recycled content, environmental impact as prescribed by the rules. This is to enable the consumer to take informed decisions. Extension of this -

3. ECONOMIC RESPONSIBILITY

Producer covers all or part of the costs for managing wastes at the end of a product's life (eg. collection, processing, treatment or disposal). Lot of plastic packaging waste is handled through such programs.

4. PHYSICAL RESPONSIBILITY

Producer is involved in the physical management of the products such as lead acid batteries are often collected by producers for refurbishment and recycling.

ECONOMIC AND PHYSICAL RESPONSIBILITY CAN BE EXECUTED THROUGH FOLLOWING POLICY INSTRUMENTS:

PRODUCT TAKE BACK

Producers are assigned the responsibility of taking-back their products at the end of their useful life.

END OF LIFE SWM FEE

Consumers are charged all or part of the collection and treatment costs of general household waste or of specific waste products through an "end-of-life" fee. This may be a charged per bag or per kilogram of general household refuse ("pay as you throw"), or a specific charge for the collection and treatment of a particular item (e.g. car tyres, refrigerator, end-of-life vehicle, etc.).

ADVANCE DISPOSAL FEE

A tax is levied at the time a product is sold, at a level intended to reflect the end-of-life waste management costs of the product. Producers may be responsible for collecting the charge and remitting it to the public authorities, but are otherwise not necessarily involved in the collection or disposal of wastes. There also ADF schemes where the money collected is used by the Producers towards collection and disposal.[8]

DEPOSIT REFUND SCHEME

A deposit is levied at the time the product is sold, and all or part of the deposit is later refunded when the product (or its packaging - e.g. a bottle) is returned for reuse, recycling or safe disposal.

7 http://www.grrn.org/resources/BevEPR.html

8 One of the most famous and large scale example of such a program is the "Green DoT' Program (DSD:Duales System Deutschland) for packaging waste in Germany. 600 companies are participating in this and almost 75% of packaging at retail stores is being collected under this program. All products licensed by DSD carry a green dot and are collected by the consortium-funded private service. Consumers pay an increased price for the packaging, based on material type to cover the cost of recycling. The manufacturers thus have an incentive to use more favourable materials which have a lower disposal fee or reducing the amount of packaging to reduce product price.

RECYCLING INCENTIVES

Measures to stimulate recycling markets could include subsidies paid for the collection of materials for recycling (or direct public provision of collection facilities), subsidies paid to reprocessing firms, or subsidies to users of recycled materials. The use of recycled materials could also be encouraged by regulations requiring minimum recycled-materials content in certain products, or by taxes on virgin materials.

DISPOSAL DISINCENTIVES

Taxes on landfill disposal or incineration may act to influence both the choice of disposal option (e.g. may influence the choice between landfill and incineration) and may also discourage disposal in any form, compared with recycling and waste-reduction. However, such taxes will normally only influence the disposal choices of waste management organisation (e.g. municipal waste management agencies), and unless supplemented by other measures will not influence consumer or producer decisions that affect the quantity or characteristics of waste generated.

CONCLUSION

Our findings show that there is too much plastics—particularly low-value, disposable plastics—contaminating all of our habitats, from the mountains to the coasts. A cohesive, holistic and sustainable waste management framework is required—one that not only includes management of products and packaging at their end-of-life, but more importantly, has at its core a singular and committed effort towards a materials economy that designs waste out of the system. While plastic waste management should be seen as part of this larger management framework and the roles of producers, manufacturers, governments and consumers should be clearly identified within this framework, it is crucial that we address primarily the production, and not merely the disposal of waste.

BASED ON THIS EVIDENCE, WE MAKE THE FOLLOWING RECOMMENDATIONS:

1. Drastically reduce plastic production, particularly of single-use, low-value, disposable plastics. Recycling has been used as a crutch by the plastics and manufacturing industries to divert attention from the increasing production of plastics, but recycling will never be enough to solve the plastic crisis. The Indian government must rescind the recent amendment to the Plastic Waste Management Rules 2016 that allowed for recoverability, and reinstate the target to phase out multi-layer packaging by 2018. It must be steadfast in its mandate to protect public health and the environment and not be swayed by industry pressure.

2. Redesign products and delivery systems to ensure that materials and packaging can be fully reused and are toxic-free, and that products and packaging are readily re-absorbed into existing production processes with little or no toxic by-products.

3. Support and strengthen the existing, invisible, unsupported, and unregulated recycling sector that currently operates on the fringes with appropriate policy and financial instruments from the government and private sector.

4. Implement a comprehensive Extended Producer Responsibility (EPR) policy that will clearly identify accountability and responsibility all through the life of a product. Interventions at different stages of the production and waste management systems will influence the value and quality of plastics and determine its reusability and recyclability.

EPR can be executed through a variety and combination of different policy instruments, a lot of which are being implemented successfully in other countries. These instruments range from product take-back schemes, “pay-as-you-throw” or waste users’ fees, advance disposal fees, deposit refund schemes, and recycling and composting incentives. Inappropriate and unsustainable technologies, such as cement co-processing and waste-to-energy, should not be considered as solutions for reducing plastic waste.

The success of any waste management programme depends on the distribution of responsibility across all involved actors, such as the consumer (responsible purchase and consumption, source segregation); policy makers (craft holistic policies with inputs from all stakeholders); local bodies (provide the required infrastructure support for setting up recycling and collection facilities); regulators (ensure strict and impartial law enforcement); waste management companies (ensure efficient collection with zero dumping/leakage); recyclers and waste processors (follow all environment and safe work conditions norms); and others. However, since the producer has maximum influence on how a product is designed, packaged, delivered, consumed, and discarded, their role in preventing plastic pollution is paramount.

Global Anti-Incinerator Alliance
Global Alliance for Incinerator Alternatives

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SWMRT

Stree Mukti Sanghatana
(Womens Liberation Organization)

CEE

CHINTAN
Environmental Research and Action Group

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Hasiru Dala

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