FROM AWARENESS TO ACTION

LESSONS FROM THE PERCEPTION SURVEY IN CITIES ALONG THE GANGA

COUNTERMEASURE PROJECT
SUPPORTED BY UNITED NATIONS ENVIRONMENT PROGRAMME

Counter MEASURE FOR PLASTIC FREE RIVERS

From the People of Japan

chintan environmental research and action group

iFOREST INTERNATIONAL FORUM FOR ENVIRONMENT, SUSTAINABILITY & TECHNOLOGY

About CounterMEASURE

The CounterMEASURE project has been funded by the Ministry of Foreign Affairs (MOFA), Government of Japan, and executed by the United Nations Environment Programme (UNEP) and its partners. The CounterMEASURE project works to identify sources and pathways of plastic pollution in river systems in Asia, particularly the Mekong and the Ganges. The project has developed plastic leakage models for localities in 6 different countries using an innovative and replicable approach. Deploying technologies like GIS, machine learning and drones has allowed the CounterMEASURE team to augment groundlevel research in an efficient and scalable way. This scientific knowledge can then be used to inform policy decisions and actions to beat plastic pollution and ensure rivers are free of plastic waste. To learn more about the CounterMEASURE project, please refer to https://countermeasure.asia/about/.

Technical briefs in this series:

1. Microplastics in the Ganga: Measuring and developing countermeasures for microplastics
2. Macroplastic pollution in the Ganga: A citizen science approach to measure and map macroplastics
3. Countermeasures for plastic leakage: Identifying and mapping hotspots along the Ganga River
4. From awareness to action: Lessons from the perception survey in cities along the Ganga

Acknowledgment

This technical brief series presents research findings, analysis and policy recommendations from the CounterMEASURE project aiming to examine riverine plastic pollution along river Ganga. The CounterMEASURE project has been funded by the Ministry of External Affairs, Government of Japan, and executed by the United Nations Environment Programme (UNEP) and its partners. This brief was written by Apurupa Gorthi and Chandra Bhushan and designed by Raj Kumar Singh.

Special thanks to the Ms Bharati Chaturvedi and team at Chintan Environmental Research and Action Group for sharing data and insights from perception studies on stakeholders in Agra and Patna, in 2019-20 and 2021. We also acknowledge the use of data and insights from the perception surveys by Development Alternatives in Haridwar and Prayagraj in 2019-20.

About the brief

INDIA HAS imposed a single-use plastic ban while simultaneously regulating plastic waste under the Plastic Waste Management (Amendment) Rules 2021. These measures aim to phaseout non-essential plastic products and encourage businesses to recycle plastic waste under the extended producer responsibility (EPR) framework. Stakeholders in the plastic value chain play an important role in the success of these efforts. To this end, stakeholders have an active role to play - from complying with plastic bans to segregating waste for recycling - households, businesses and municipalities have specific and significant functions to perform. Often, however, these activities such as waste segregation or use of cloth bags instead of plastic, can deviate from the daily routine or habits of the stakeholder thereby requiring additional effort and/or motivation to perform them. It is therefore imperative to examine the motivation, challenges and capacity needs of stakeholders along the plastic value chain to facilitate a successful plastic phaseout in India.

A key focus of the CounterMEASURE project has been to enhance the level of outreach in order to increase stakeholder interest and participation in plastic waste management. Perception surveys, interviews and focus group discussions were used to as tools for developing actionable outreach strategy, including, assessing capacity building and training needs of stakeholders. This report presents the perceptions, motivators, and capacity building needs of stakeholders across the plastic value chain – households, businesses, religious groups, waste pickers, plastic aggregators, recyclers, and municipalities. Given that the cities considered in this study - Haridwar, Agra, Prayagraj, and Patna - are well-known tourist and pilgrimage sites, the tourism sector was also a part of the perception survey.

The three major themes that emerged from this analysis were:
(1) Current practices and awareness towards plastics;
(2) Willingness, barriers, and motivation to move away from plastics; and,
(3) Regulatory and capacity building needs for plastic waste management

Recommendations from this brief can aid in developing grounded, holistic, and context-specific policies and interventions to limit plastic litter, prevent leakage of plastics into riverine ecosystems and, in turn, reduce marine plastic pollution.

It is imperative to examine the motivation, challenges, and capacity needs of stakeholders along the plastic value chain to facilitate a plastic phaseout in India.

Introduction

PERCEPTION SURVEYS measure respondents' beliefs, thoughts, and feelings and offer insights about:[1]

(1) **Knowledge**, like levels of awareness on plastic waste

(2) **Experiences** regarding a specific service like waste collection

(3) **Belief and value systems** such as norms, beliefs, and levels of tolerance of certain behaviours like littering

(4) **Attitudes, behaviour, and opinions** about plastic waste management

(5) **Expectations from authorities and agencies** such as municipal authorities and private players

Figure 1: Insights from a perception survey

Source: iFOREST (2022)

Perception surveys aim to capture how respondents acquire and interpret information while simultaneously measuring the extent to which such perceptions affect individual behaviours and attitudes.[2] A key strength of perception surveys is that they can measure intangible information (for example, understanding littering behaviour). Moreover, they are among the few tools available for rebalancing information asymmetries that modelling or experimental methodologies are unable to capture. Finally, perception surveys offer a scientific, statistically significant means to collect data on citizen views.[3]

As a part of the CounterMEASURE project, perception surveys were carried out across the plastic value chain. The perception surveys were conducted in 2019-20 in Haridwar, Prayagraj, Agra and in 2021 in Agra and Patna. In each of these cities, key stakeholders were identified and surveyed through interviews, focus group discussions (FGD), and questionnaire surveys. Insights from these surveys provide unique and contextualised information on views and perceptions of the stakeholders on plastic waste management.

Perception surveys can be an important tool to evaluate the successes and gaps in current plastic waste management systems

Data collection using perception surveys

THE PERCEPTION survey was designed and carried out in four steps as depicted below. While the first three stages pertain to the survey design and implementation, in the fourth and final stage, the collected data was analysed and countermeasures for plastic waste management were developed. In addition to a questionnaire survey to collect quantitative data, FGDs, and interviews were used to collect qualitative data from stakeholder groups. Thus, findings in this brief have been presented as both quantitative and qualitative data. The survey, interviews, and FGDs happened in two phases - first in 2019-20 in Haridwar, Agra, and Prayagraj and then in 2021 in Agra and Patna. Ad-hoc sampling, which is a non-probabilistic sampling method, was used for the perception survey.[4]

1 Drafting

- Development of survey questionnaire.
- Identification and mapping of key stakeholders across the plastic value chain, namely:
  (1) Religious institutions
  (2) Households
  (3) Academic institutions
  (4) Local businesses (shops, boatmen/boatwomen)
  (5) Tourism and hospitality industry
  (6) Civil society organisations (CSO)
  (7) Urban Local Body (ULB)
  (8) Informal sector (waste pickers, aggregators, recyclers)

2 Piloting

Pilot testing of the draft survey questionnaire to refine the questionnaire and improve the methodology.

3 Data collection

The following types of data were collected:

- Quantitative data: A face-to-face survey with key stakeholders were conducted in 2019-20 and 2021.
- Qualitative data: FGDs and interviews with key stakeholder groups were conducted in 2019-20.

Some of the themes used for the interviews, FGDs, and survey questionnaires aimed to examine stakeholder perceptions on current plastic use, motivation and willingness for moving away from plastic use, regulatory and capacity building needs.[5]

4 Drawing inferences and linking outcomes

Analysis and interpretation of data to produce meaningful and insightful recommendations suitable to be used for policy and practice design.

For this brief, data collected from the surveyed stakeholders was analysed and inferences were drawn under the following themes:

(1) Current practices and awareness towards plastics;
(2) Willingness, barriers, and motivation to move away from plastics; and,
(3) Regulatory and capacity building needs for plastic waste management.

Figure 2: Stages of perception survey

Source: iFOREST (2022)

Insights from the perception survey

CURRENT PRACTICES AND AWARENESS ON PLASTIC USE

1 **Plastic carry bags, PET bottles, milk packets, and edible oil packets were identified as the most commonly used plastic products.**

- In Agra, plastic water bottles milk packets and edible oil packets were identified as the most used plastic packaging items. Ice cream cups and use-and-throw plastic glasses were identified as the next most used plastic items.
- In Patna, plastic carry bags were identified as the most used plastic item followed by plastic water bottles and milk and edible oil packets.
- In Prayagraj and Haridwar, plastic carry bags, PET bottles, and medicine boxes were identified by the respondents as the most used plastics.

2 **Awareness about commonly used plastic products is high, but very few respondents could identify products like PPE (Personal Protective Equipment) kits or syringes as plastic products.**

- When asked to name single-use plastics (SUP), only the most obvious plastics, such as carry bags and PET bottles, were recognised by households across cities as plastics; single-use masks, gloves, and other plastics were overlooked. For instance, only 1% of respondents across stakeholder groups surveyed in Agra identified syringes as single-use plastics; in Patna PPE kits, gloves and masks were recognised as plastic products only by 6% of the respondents.
- When presented with four sample objects – a polyester saree, thermocol decorations, shampoo sachets, and sanitary napkins, only shampoo sachets were recognised as plastic products by respondents; very few respondents across stakeholder groups recognised the other three objects as plastic-containing products.

3 **A majority of respondents showed a willingness to carry their own shopping bags, but forgetfulness was cited as a major impediment to this practice.**

- Over 75% of household respondents surveyed in both Agra and Patna claimed to carry their own carry bags for shopping.
- Between choosing to carry their own shopping bag and the ‘free’ bag offered at the shop, 76% of the respondents in Agra chose to carry their own, but an opposite preference was displayed in Patna where 80% of the respondents preferred free plastic bags offered by the shops.
- Stakeholders in Agra attributed forgetfulness rather than unwillingness as the major reason for not carrying their own shopping bags.

4 Awareness regarding waste segregation is high, but the practice varies widely from city to city.

- Most households in Prayagraj were aware of waste segregation, but the practice was poor. Religious organisations in Prayagraj stated they did not practice waste segregation due to the absence of separate bins.
- In Haridwar, there was a unanimous demand to provide training on better disposal practices. This was echoed by boatmen/boatwomen, shopkeepers, and households surveyed in Prayagraj too.[6]
- Only 16% of respondents in Agra reported using the correct bin to dispose of plastics in public spaces. About 40% claimed that while they are aware of blue and green bins, they are not able to practice segregation as the infrastructure is not available.
- Most ULB respondents in both Agra and Patna reported there being source segregation in their respective cities. Responses from the informal sector painted a slightly different picture. While 70% of informal sector respondents in Agra reported that they received segregated waste from households, only 48% in Patna reported the same.

5 Short-time reuse of certain plastic products is widely practiced, but most plastics are discarded quickly.

- Households surveyed in Agra reused carry bags as bin liners (24%) and shopping bags (50%).
- Households in Agra, Haridwar, and Prayagraj reused plastic water bottles, plastic bags, and storage containers. Households also sold plastic products to the informal sector.[7]
- Most households discarded other plastics after use; a small fraction of households in Patna and Agra practiced burning of plastics as a disposal practice.

WILLINGNESS, BARRIERS, AND MOTIVATION

1 There is a willingness in all stakeholders to reduce plastic use.

- Almost all the households in Agra (97%) and Patna (99%) showed willingness to move to cloth bags instead of plastic bags for shopping.
- Both ULB and civil society representatives strongly supported the need to reduce the use of plastics. More than 80% of ULB representatives in Agra and Patna believed that reducing the use of plastics was necessary for sound waste management.
- Among respondents working in the tourism sector in Agra, almost all believed that tourism contributed to plastic pollution, and this could harm their business in the future. In Patna three-fourths of the stakeholders from the tourism sector believed tourism contributed to plastic pollution, however, less than half believed this would impact their business. But there was a general consensus to reduce the use of plastics.

2 **Despite the motivation, households of Agra, Patna, Prayagraj, and Haridwar reported continued use of plastics due to their wide availability and because they are economical.**

- More than 75% and about 50% of surveyed households in Agra and Patna respectively used plastics due to wide availability and affordability.
- About 40% of boatmen/boatwomen in Prayagraj used plastic products due to their lightweight and durability.
- All stakeholders surveyed in Haridwar used plastic products due to their wide availability.
- Further, in pilgrimage cities like Prayagraj and Haridwar, religious groups surveyed remarked that the lack of alternatives for packaging religious offerings (such as sacred food and water) hindered their move away from plastics.

3 **Improving the aesthetics of the city is the biggest motivator.**

- Levels of understanding on plastic pollution and its impact on the environment were limited across cities.[8] In Agra, Prayagraj, and Haridwar most respondents had little to no understanding of plastic pollution and its impacts. About half the respondents in Patna, however, claimed substantial understanding on plastic pollution, while the remaining claimed limited to no understanding.
- Notably, across cities, concerns related to plastic pollution were with respect to its impact on city aesthetics. Close to half the households surveyed in Agra and Patna said that clogged drains and ugly landscape were their top concerns with plastic pollution. In addition, stakeholders such as students in Prayagraj and Haridwar, religious organisations in Prayagraj and about one-third of surveyed households in Patna attributed cattle death as a major concern from plastic pollution.

REGULATORY NEEDS

1 **There is a general perception that bans have reduced plastic waste, especially carry bags, but many respondents believe that charging for the use of plastic bags will further reduce their demand.**

- More than 80% of the informal sector respondents from Agra and Patna believed that the generation of plastic waste had decreased over the years.
- A ban on plastic carry bags was supported by half of all the households surveyed in Agra and Patna respectively.
- About 70% of households from Agra and Patna thought charging for the use of plastic bags was a good idea to reduce their demand.
- Penal provisions to ensure that people do not litter were also stated as important to prevent leakages by ULBs as well as CSOs.

2 Information and knowledge on Extended Producer Responsibility (EPR) are low across the cities. Stakeholders are not aware of the operational aspects of EPR.

- Very few ULB and informal sector respondents were aware of the EPR.
- In Patna, 10% of the informal sector respondents said that producers, importers, and brand owners (PIBOs) have contacted them to sell the segregated plastics, indicating that EPR is happening in a small way in the city.
- ULB representatives from Patna believed EPR for low-value plastics is important to stop the leakage of plastic waste into the environment.
- Households in Agra and Patna believed that municipalities are mainly responsible for the management of plastic waste, and not companies.

CAPACITY ENHANCEMENT

1 There is a need to use diverse mediums to increase awareness.

- ULBs in Agra and Patna indicated that hoardings and public announcements were the most common means to spread awareness on plastic waste management. However, a limited number of households (less than 30% in Patna and Agra) listed hoardings as a source of information on waste management for them.
- In Patna, TV/Radio (47%) followed by social media (22%) were used as sources of information.
- Majority of households and boatmen/boatwomen in Prayagraj cited TV and radio as their preferred source of awareness.
- Social media, while currently not extensively used, was recognised as an emerging and important medium for awareness by ULBs respondents in Patna and Agra.
- Among respondents from the tourism sector, hotels and guesthouses, tour company brochures, and tourism websites were seen as viable media to create awareness among tourists on plastic pollution.

2 Training is required for ULBs, the informal sector, and households.

- In Prayagraj, almost all respondents indicated the need for training on the proper disposal of plastic waste. Interest to learn more about the proper disposal of plastics was displayed by respondents in Haridwar and Agra too.[9]
- Similarly, almost all respondents from ULBs in Agra and Patna stated that they would like training and capacity building in order to operate materials recovery facilities (MRFs) in the city.
- The informal sector in Patna showed interest in training in areas such as EPR (engaging with companies in the long term, 'plastics that are demanded by PIBOs') and regulatory requirements (registration, financial aspects etc.).

3 While formal infrastructure exists, support to the informal sector is lacking.

- Both the ULBs and informal sector stated that sufficient infrastructure was available in Patna and Agra for waste management.
- While the majority of ULB respondents (80% in Agra and 67% in Patna) saw a critical role for the informal sector and the need to handhold the sector to carry out plastic recycling, they have not been able to integrate them into the formal waste management system.
- Infrastructure gap exists for the informal sector, including:
  - » A majority of the informal sector actors needed access to MRFs for waste segregation.
  - » In Agra, the informal sector actors stated that getting access to rickshaws to collect waste was the most important infrastructure need.
  - » In Patna, the informal sector demanded uniforms so that there is recognition of their livelihood as waste pickers. They also demanded health cards, ID cards, and safety gears (like gloves and masks).

Recommendations

THE ABC OF COUNTERMEASURES

1 Affordable and accessible alternatives for plastics

All stakeholders showed a willingness to move to sustainable alternatives, however, a key barrier is the lack of easily accessible and inexpensive alternatives. The continued availability of inexpensive plastic products is a big deterrent to the development and use of alternatives.

Interventions thus need to create accessible and affordable alternatives to plastics and provide regular reminders to stakeholders to move away from plastics where possible. There is also a need to identify applications where plastics may not be easily replaced and devise appropriate interventions whether it is to conduct R&D to find suitable alternatives or incentivise the use of an existing but expensive alternative.

2 Bans and penal provisions as a regulatory approach to limit plastic use

Most stakeholders across the board indicated that bans are an important tool to reduce plastic use. To this end, while bans may be necessary to regulate plastic use due to their wide application, it is important to acknowledge that bans alone will never suffice in eliminating plastic use. Penal provisions that enable punitive action on those that violate bans were promoted by ULBs and CSOs as an important need for plastic waste management. Finally, households perceived that ULBs were mainly responsible for plastic waste management, indicating a collective recognition of the role of municipalities in managing waste.

3 Capacity enhancement through training, awareness, and infrastructure

Three aspects of capacity enhancement emerged from the analysis. First, sources or mediums used for awareness need to be diverse as respondents rely on not just hoardings (a common source used by ULBs) but also on mass media and social media for information on plastic waste management. Second, interventions by the government need to look beyond awareness drives as a capacity building activity. ULBs have stated a need for training in MRF operation. Households have stated interest in knowing more about the proper disposal of plastics. Informal sector training needs pointed to their interest in EPR and autonomy (or formalisation). Third, infrastructure needs largely focused on equipping the informal sector such as access to MRF centres, rikshaws to carry collected waste and safety gear.

References

1 Herbert, S. (2013). Perception surveys in fragile and conflict-affected states. GSDRC. http://www.gsdrc.org/docs/open/hdq910.pdf

2 Lavrakas, P. J. (2008). Encyclopedia of survey research methods (Vols. 1-0). Thousand Oaks, CA: Sage Publications, Inc. doi: 10.4135/9781412963947. https://methods.sagepub.com/reference/encyclopedia-of-survey-research-methods/n374.xml

3 Herbert, S. (2013). Perception surveys in fragile and conflict-affected states. GSDRC. http://www.gsdrc.org/docs/open/hdq910.pdf

4 This method is suitable for pilot testing but is not representative of the entire population and may have inaccuracies due to bias in the sampling size. Details on the sampling strategy and data collection can be found in the reports on the perception surveys for 2019-20 and 2021 under the CounterMEASURE project. Reports available on reasonable request.

5 The various themes used for data collection as determined in Phase 1 are listed in the table below. The themes used in Phase 2 remained the same although there were changes to the survey questionnaire. The perception reports for both the Phases will be shared upon reasonable request.

Sr. No.	Category
1	Demographics
2	Knowledge about polymers
3	Knowledge of products and packaging made in part or whole with plastics
4	Reasons for preferring products and packaging with plastics
5	Knowledge about plastic waste management
6	Knowledge about effects of plastic on environment and health
7	Perception about what needs to be done to reduce plastic pollution
8	Steps taken to manage plastic waste at individual, community of government level
9	Awareness about alternatives to products and packaging using plastics
10	Willingness to forego plastic products and packaging
11	Perception about impediments to effective action on reducing plastic production consumption and management
12	Sources of information about plastics

6 This question was asked in Phase 1 through a series of interviews and FGDs in Haridwar and Prayagraj.

7 This question was asked in Phase 1 of data collection, thus there is no data on this for the city of Patna.

8 Respondents understanding on the impact of plastic pollution on the environment was measured in Phase 1 using the following question:
How much would you say that you know about the impact of plastic carry bags on the environment?

9 This question was asked in Phase 1 of data collection, thus there is no data on this for the city of Patna.