

# Impact Assessment Report - Alag Karo: A Ward-Level Waste Management Program 2020-2023

August 2023





**Impact Assessment Report -  
Alag Karo: A Ward-Level  
Waste Management Program  
2020-2023**

As a federally owned enterprise, GIZ supports the German government in achieving its objectives in the field of international cooperation for sustainable development.

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**alag karo**  
Har Din Teen Bin

**IF NOT US, WHO?  
IF NOT NOW, WHEN?**



**START SEGREGATING  
YOUR WASTE NOW!**

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# List of Abbreviation

Abbreviation	Description
BPO	Business Process Outsourcing
CRR	Cash reserve ratio
CSR	Corporate Social Responsibility
FGD	Focused Group Discussions
GHG	Greenhouse gases
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GOI	Government of India
HDPE	High density Polyethylene
HH	Households
IEC	Information Education Communication
IRECS	Inclusiveness, Relevance, Effectiveness, Convergence, Sustainability
IT	Information technology
KABP	Knowledge, Attitude, Behavior and Practices
KII	Key Informant Interviews
MCD	Municipal Corporation of Delhi
MCG	Municipal Corporation of Gurgaon
MOU	Memorandum of understanding
MSWM	Municipal solid waste management
OECD-DAC	The Organization for Economic Co-operation and Development- Development Assistance Committee
PET	Polyethylene Terephthalate
POGs	Points of Generation
PVC	Polyvinyl chloride
RWA	Residents Welfare Association
SDGs	Sustainable Development Goals
SROI	Social return on investment
SWM	Solid Waste Management

# Definition of Key Terms

Below are a few key terms (often used in the project) and their definitions. The definitions provided are as per the usage of the terms in the project and are also generally acceptable.

Term	Explanation
<b>Composting</b>	A controlled process involving microbial decomposition of organic matter.
<b>Condominiums</b>	A condominium (also known as a “condo”) is a big property/ high rise complex designed for various apartments, each of which is individually owned - Flats, apartments within a closed gated campus.
<b>Disposal</b>	The final and safe disposal of post processed residual solid waste and inert street sweepings and silt from surface drains on land as specified in Schedule I to prevent contamination of groundwater, surface water, ambient air and attraction of animals or birds.
<b>Door to Door Collection</b>	Collection of waste from the doorstep of households, shops, commercial establishments, offices , institutional or any other nonresidential premises and includes collection of such waste from entry gate or a designated location on the ground floor in a housing society , multi storied building or apartments , large residential, commercial or institutional complex or premises.
<b>Dry Waste</b>	Waste other than bio-degradable waste and inert street sweepings and includes recyclable and non-recyclable waste, combustible waste and sanitary napkin and diapers, etc.
<b>Hazardous Waste</b>	Waste with properties that make it dangerous or capable of having a harmful effect on human health or the environment like – Hygiene products, blood, needles, batteries etc.
<b>Horizontal Households</b>	Individual Houses/ Row house/Plotted Colony.
<b>Incineration</b>	An engineered process involving burning or combustion of solid waste to thermally degrade waste materials at high temperatures.
<b>Local Body</b>	Includes the municipal corporation, Nagar Nigam, municipal council, nagarpalika, Nagar Palikaparishad, municipal board, Nagar panchayat and town panchayat, census towns, notified areas and notified industrial townships with whatever name they are called in different States and union territories in India.
<b>Municipal Solid Waste</b>	Defined as trash, are a highly nonhomogeneous mixture of residential, commercial, and industrial sectors/ institutes.
<b>Points of Generation (POG)</b>	The locations where waste is generated, for example from households and markets.

Term	Explanation
<b>Processing</b>	Any scientific process by which segregated solid waste is handled for the purpose of reuse, recycling or transformation into new products.
<b>Recycling</b>	The process of transforming segregated non-biodegradable solid waste into new material or product or as raw material for producing new products which may or may not be similar to the original product.
<b>Residents</b>	This includes kids, youths, adults, senior citizens, males, females and all socio-economic sector people residing in the ward/ area of programme intervention.
<b>RWA</b>	Resident Welfare Associations' primary intention is to work towards the overall welfare of all residents of a particular residential society.
<b>Solid Waste Management</b>	The collecting, treating, and disposing of solid material that is discarded because it has served its purpose or is no longer useful.
<b>Sorting</b>	Separating various components and categories of waste such as wet waste, dry waste and hazardous waste from mixed waste as may be appropriate to facilitate recycling.
<b>Source Segregation</b>	Segregation of waste at the point of generation.
<b>Tipping Fee</b>	A fee or support price determined by the local authorities, or any state agency authorised by the State government to be paid to the concessionaire or operator of waste processing facility or for disposal of residual solid waste at the landfill.
<b>User Fee</b>	A fee imposed by the local body/ authorised entity on the waste generator to cover full or part cost of providing solid waste collection, transportation, processing and disposal services.
<b>Waste Entrepreneur</b>	Entrepreneurship model that addresses waste management using cost effective processes. They could be engaged in waste collection, recycling, upcycling or reusing of wastes etc.
<b>Waste Worker</b>	A person employed/ under informal contract by a public or private enterprise to collect and dispose of waste and recyclables from collection sites for further processing and waste disposal.
<b>Wet Waste</b>	Organic waste generated in a household or eating establishments and are heavy in weight due to dampness.





# 1. Executive Summary



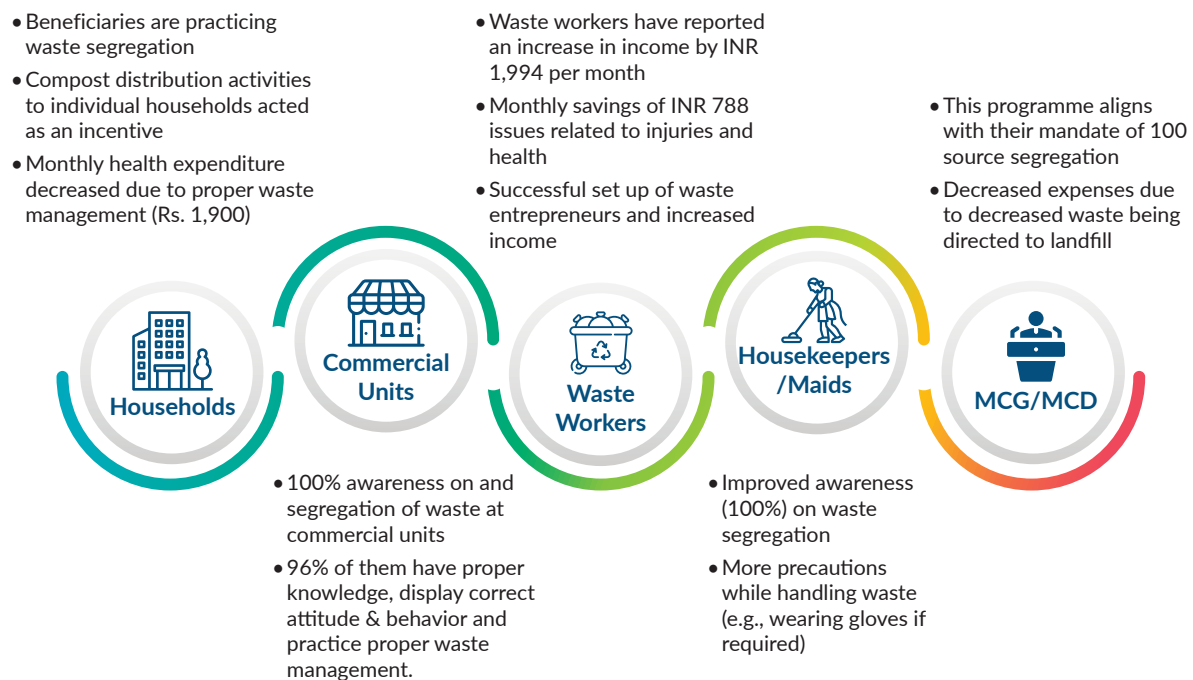
The “Alag Karo” programme is a municipal solid waste management project in Gurugram, and Delhi aimed at catering to the problem of improper waste management and promoting waste segregation in the programme geography. The programme is supported under the DeveloPPP.de program of Federal Ministry for Economic Co-operation and Development (BMZ) with Coca-Cola Foundation, TetraPak India Private Limited and Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) as co-operation partners and Saahas an NGO working on waste management as its implementing partner<sup>1</sup>. The first phase of the programme, executed through the years 2017-19, was implemented in 22,000 houses spread across 42 residential societies in the city resulting in 34 tons of waste being segregated daily. Also, the programme catered to 412 offices and 87 restaurants in DLF Cyber City and Cyber Hub in Gurugram, resulting in 15.6 tons of waste being segregated daily from these establishments. An SROI assessment of Phase 1 conducted by a third-party agency estimated a social value of INR 2.66 being created for every rupee invested in the programme.<sup>2</sup>

Moving forward, Phase 2 of the programme was started in the year 2020. As part of the second phase, it was envisioned to build a Model Ward for the Sustainable Waste Management programme by covering Ward 32 in Gurugram. A pilot was also conducted in Vasant Kunj with the idea to replicate the findings and learnings from Gurugram in another geography. As part of the programme activities, a total of 28,609 POGs (out of a total of 34,011 units in the entire programme geography) were reached out by Saahas for awareness and capacity building sessions around source segregation across Gurugram and Delhi. These included 15,235 condominium households, 11,752 horizontal households, 697 commercial units, and 925 market units. Apart from this, a total of 308 waste workers have also been trained across both the locations on best practices around proper handling of the waste along with facilitation in setting up 3 waste enterprises (waste processing units) in Gurugram.

Through these efforts, the programme has been able to divert an estimated 13 tonnes of wet waste and 19 tonnes of dry waste daily (from Gurugram) and 2 tonnes of waste daily (from New Delhi) from the landfill along with reducing the expenses around healthcare for the stakeholders involved in the waste value chain (POGs, waste workers, maids, and housekeeping staff). It has also brought about a positive change in terms of awareness around waste management and segregation practices amongst these stakeholders

This report assesses the impact and reports the SROI value of the 2nd phase of the programme on various stakeholders till date and provides recommendations for this or any such programme in future.

The figure below provides a snippet of key findings of this study\*.



\*All findings are based only on the sample surveyed during the course of the study

<sup>1</sup> As per MoU signed between Saahas and Municipal Corporation of Gurugram – provided by Saahas

<sup>2</sup> Data as provided by Saahas

The summary of the stakeholder-wise key findings of the study are as follows:

## Residents

- During the study, all the respondents (100%) agreed that they have started source segregating waste. The RWA representatives and the waste workers have also agreed that close to 95% of the residents have started practicing waste segregation in the programme geography. The residents have also opined that the hygiene related issues in their areas and its vicinity have reduced since the programme began along with an increase in the frequency of the door-to-door waste collection.
- The compost distribution activities to individual households by Saahas have also acted as an incentive to the households which has motivated them to segregate waste at their households. A few of the households have also started home composting of wet waste resulting in waste diversion from landfills.
- The residents also reported a monthly savings of INR 1,900 (on an average) on health-related expenditure due to improved hygiene and waste management.

## Waste Workers and Waste Entrepreneurs

- The waste workers have reported an increase in income by INR 1,994 per month (on an average) due to better recovery percentage attributed to segregation of waste at source. This is coupled with monthly savings of INR 788 (on an average) by the waste workers on issues related to injuries and health. This has resulted in an increase of total disposable income of waste workers by INR 2,782/month.
- The waste workers have also reported that the residents in the areas where they serve are now more aware of waste segregation and a majority of them provide 3-way segregated waste to the collector.



- Saahas, as part of their project mandate, has also facilitated setting up of 3 dry waste collection centres (DWCCs) as enterprises with selected waste entrepreneurs at the helm of operations. The initiative taken by Saahas has facilitated the easy segregation of dry waste (in further categories) which they are able to now sell for a higher price. As a result, these entrepreneurs have reported a monthly increment in income of INR 50,000. As an outcome of segregating and selling the dry waste, the waste is not being sent to a landfill and hence environment pollution has reduced.

## Commercial Establishments/ Market-units

- The programme also aimed to empower and impart knowledge to the commercial/ market units in the programme geography around waste segregation and proper waste management. 100% of the respondents from this category of stakeholders reported that they have been practicing waste segregation within their establishments.
- These awareness sessions were also given to market representatives, ensuring the proper segregation of waste at a central collection point (wherever applicable) in the markets. The research team also noted the same, during their visit to the markets.
- The KABP assessment of these respondents shows that 96% of them have proper knowledge, display correct attitude & behavior and practice proper waste management.

## Maids and Housekeeping Staff

- The programme has empowered the maids and the housekeeping staff adequately, as a result 100% of them are aware of the waste management/ segregation processes.
- The maids and housekeeping staff have witnessed several positive changes in their work and personal lives since the training. They include precautions in waste handling (wearing gloves if required).

The programme also compliments the government's efforts in achieving 100% source segregation and efficient management of waste. Based on interactions with stakeholders (Saahas, MCG/MCD) some reduction in GHG emission can be attributed to this programme as the waste is being diverted from the landfills. This has been accounted for in the SROI estimation.

As the programme is close to its completion, Saahas has been imparting awareness sessions to all the stakeholders. They have also increased the frequency of such awareness sessions in the last 6 months (from the start of this study i.e., since June 2023). This has been done so to ensure the sustainability of the intervention even after the programme is concluded and the team exits.

For detailed stakeholder-wise findings of the study, please refer to the section titled “**Key findings of the study**” in this report.

**THE SROI ANALYSIS OF THE PROGRAMME SHOWS THAT THE PROGRAMME HAS CREATED A SOCIAL VALUE OF INR 2.95 FOR EVERY RUPEE INVESTED IN THE PROGRAMME. FOR DETAILED CALCULATIONS, PLEASE REFER TO THE SECTION TITLED “SROI ESTIMATION” IN THIS REPORT.**

For detailed IRECS analysis of the programme, please refer to the section titled “**IRECS Analysis**” in this report.

For recommendations to improve the programme delivery and maximize the impact, please refer to the section titled “**Recommendations**” in this report.

## 2. Background of the Study



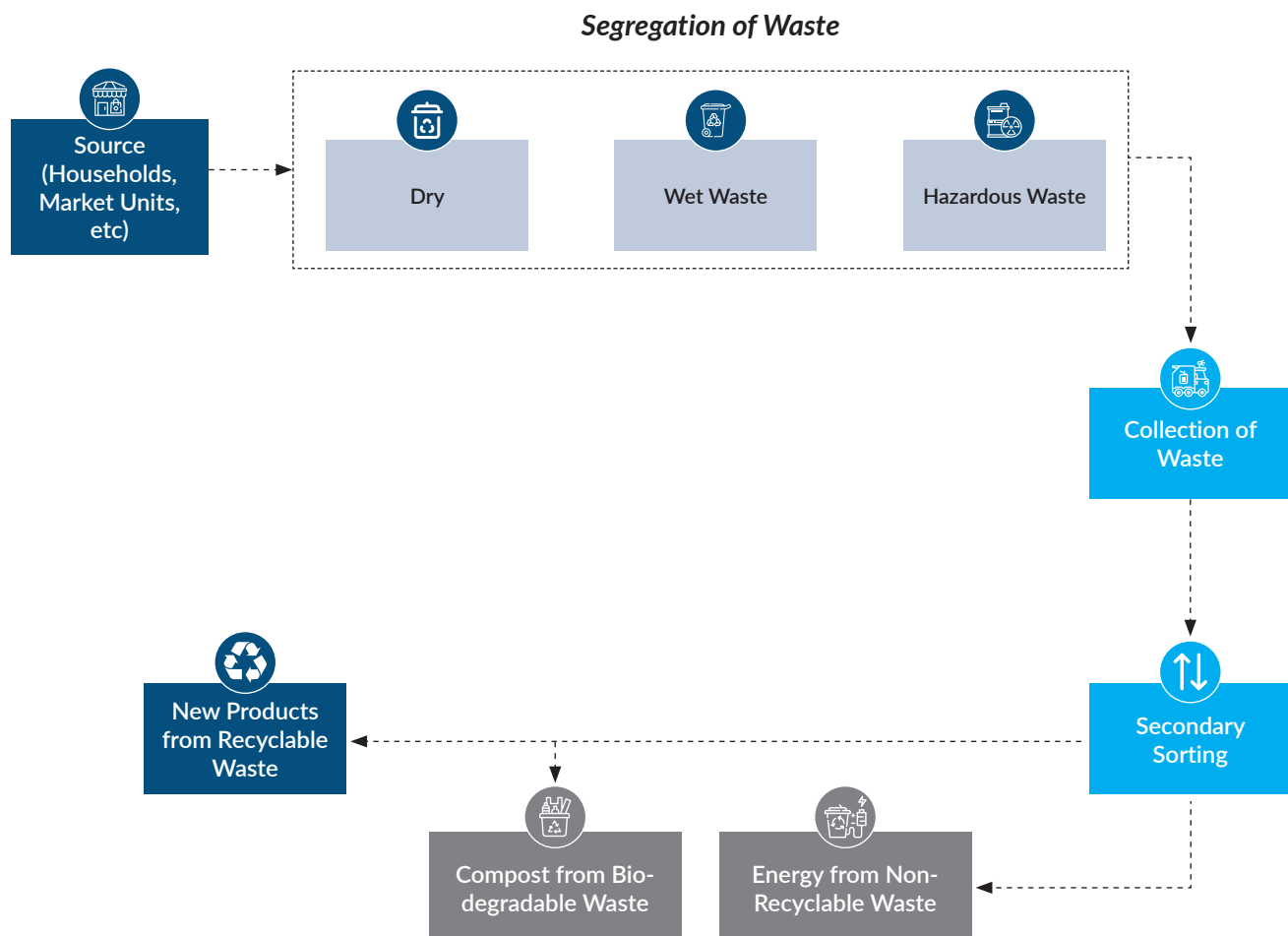
Compost Distribution Activity at Park

## 2.1. About the Programme – Alag Karo

The Alag Karo programme is a ward-level initiative that aims to create sustainable waste management systems through a multifaceted approach that

included the implementation of source segregation, raising awareness about various types of wastes, promoting recycling, composting, and proper waste disposal, and ultimately reducing the burden of landfills..

**Figure 1 : Steps for Creating Sustainable Waste Management Systems**



The overall goal of the programme was to convert a ward (namely Ward no. 32 in Gurugram) into a zero-waste ward. The programme's broad objective was twofold<sup>3</sup>:

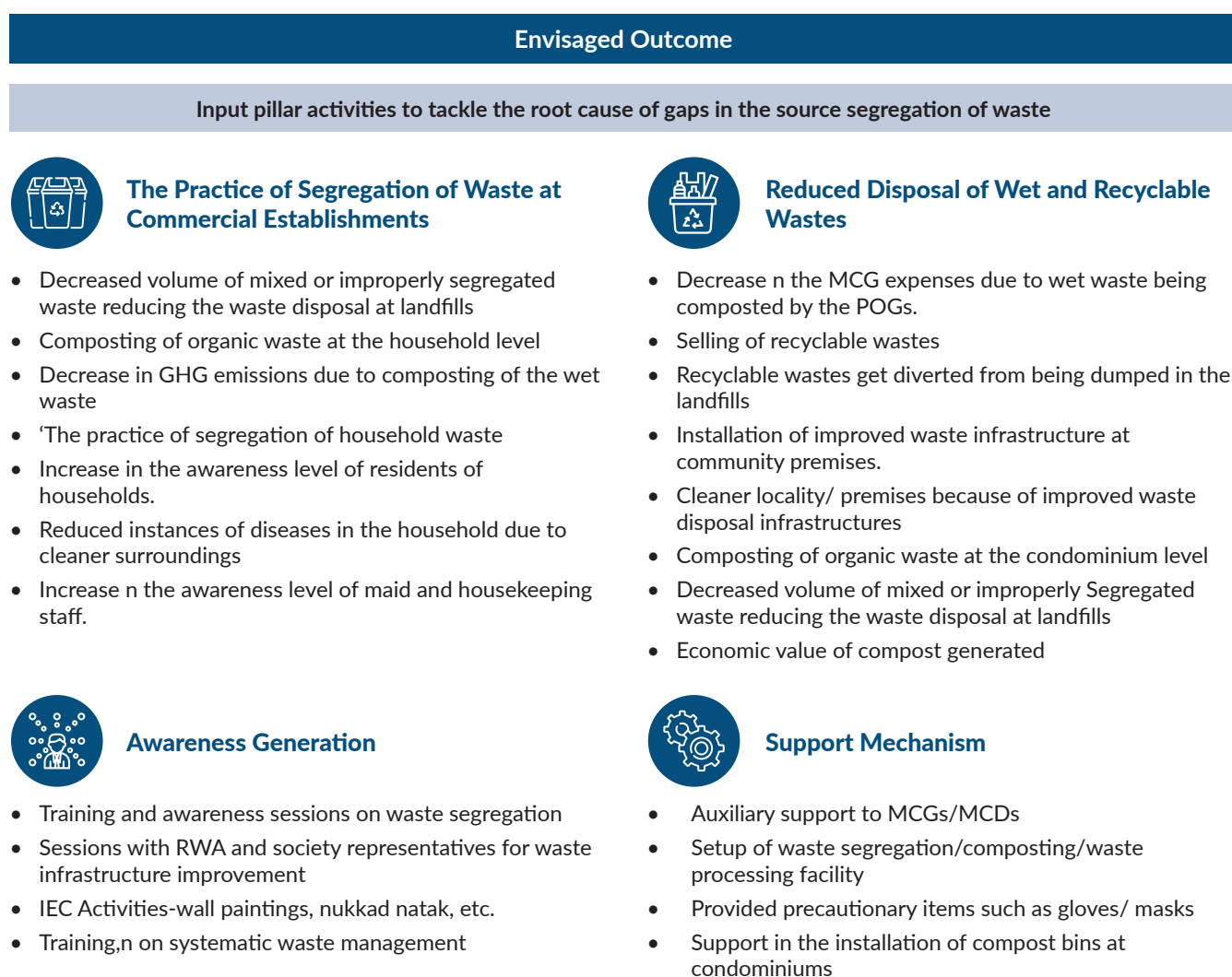
1. To encourage, support, and implement source segregation of waste in apartment buildings, educational institutions, and commercial communities,

2. To build the skills of waste workers, to improve waste recycling and lessen waste disposal and waste burning throughout Ward no. 32 in Gurugram.

Figure 2. Depicts the various mechanisms/processes (input pillars) of the programme and their envisaged outcomes.

<sup>3</sup> As mentioned by Saahas

Figure 2 : Input Pillars and Envisaged Outcomes



## 2.2. Key Aspects of the Project

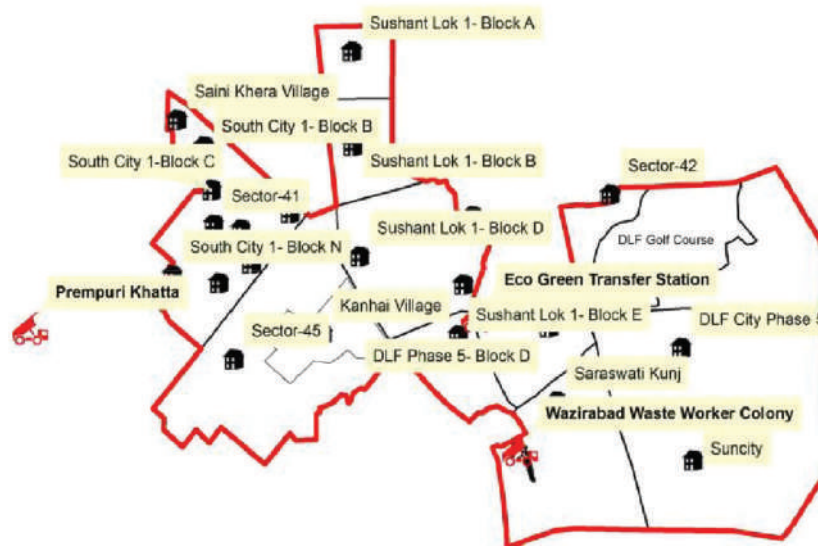
The following are the key objectives of the Alag Karo programme:

Figure 3 : Key Objectives of the Project



The following figure shows the Gurugram intervention areas reached under the Alag Karo programme:

**Figure 4 : Intervention Area: Ward 32, Gurugram (Map Not Drawn to Scale)**



The following figure shows the number of beneficiaries that Saahas has reached via the Alag Karo programme:

**Figure 5: Overall Project Reach (Stakeholder Unit-wise)**

Type of Stakeholder Unit	Total Units in Area of Implementation	Number of Beneficiaries Reached
HH - Condominiums	19,142	15,235
HH - Horizontal	12,406	11,752
Commercial Units	767	697
Market Units	1,696	925
Waste Workers	-	308
<b>Total Units - 34,011*</b>		<b>Total Reach - 28,917</b>

\*Does not include waste worker number

The above project data has been provided by Saahas.



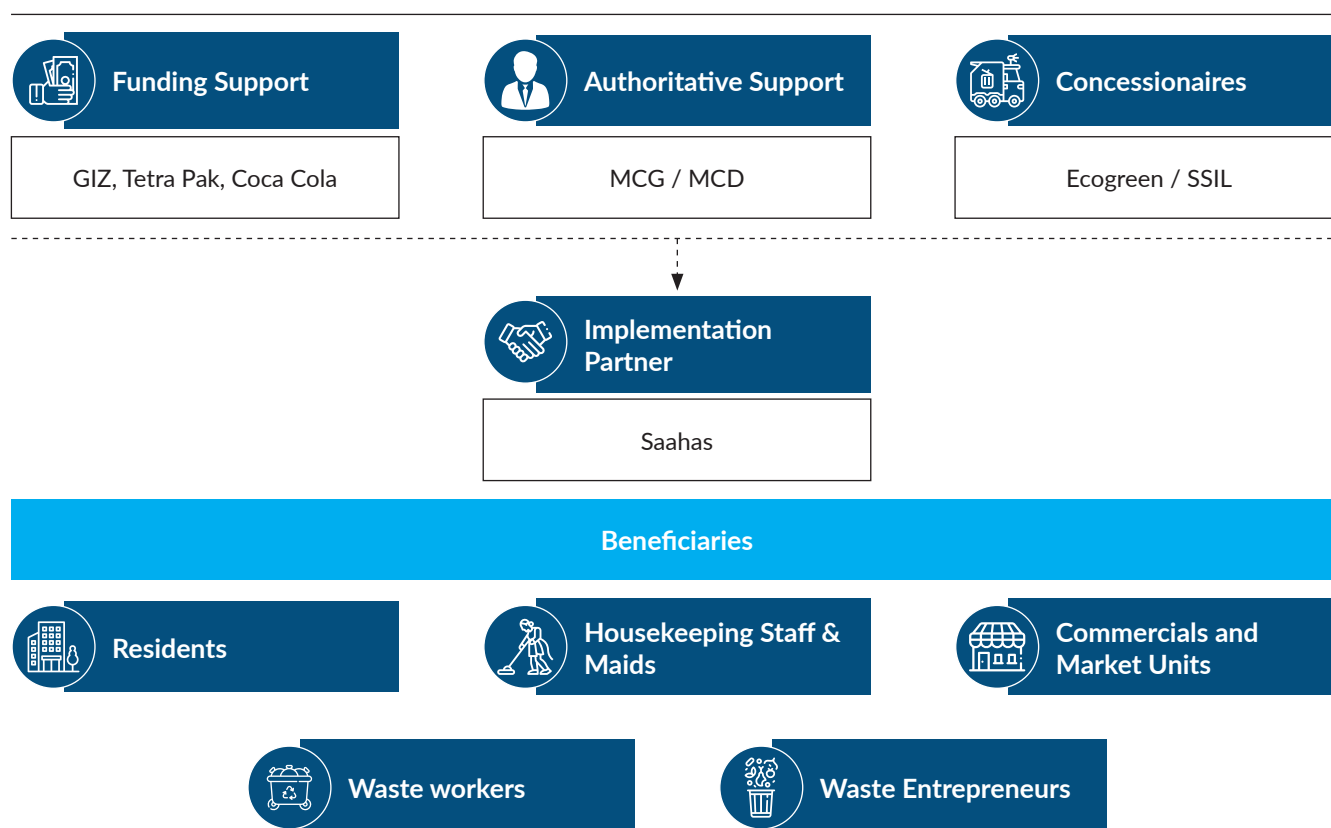
The following are a few of the key activities conducted via the Alag Karo programme:

- Training and awareness sessions on waste segregation with households, business owners, maids/housekeeping staff and waste workers.
- Session with RWA and society representatives (community volunteers) for waste infrastructure improvement.
- IEC activities – wall paintings, nukkad natak, plog run etc.
- Training to waste workers on systematic waste management
- Setup of waste segregation/ composting/ recycling facility at key locations.
- Capacity building of waste entrepreneurs
- Provision of precautionary items such as gloves and masks.
- Support in installation of compost bins at condominiums

## 2.3. Stakeholder Mapping

Figure 6. shows the stakeholders associated with the programme.

**Figure 6 : Alag Karo Stakeholders**



### Supporters

- **Municipal Corporation of Gurugram (MCG)** - MCG is the civic body responsible for overall solid waste collection and management in Gurugram.
- **Municipal Corporation of Delhi (MCD)** - MCD is the civic body responsible for overall solid waste collection and management in Delhi.
- **Ecogreen** - Ecogreen Energy Pvt. Ltd. is a company which has signed a contract with the MCG as the concessionaire for waste management in Gurugram. The company is responsible for door-to-door waste collection and segregating and processing the same by setting up waste-to-energy plant.



Credits: Saahas

- **Swayam Sahayata Swachatta Initiative Limited (SSIL)** – SSIL is the authorised vendor to collect and transport Municipal Solid Waste in South Zone for MCD with focus on community behaviour change for waste segregation at source.

## Targeted Beneficiaries

- **Residents** - The residents of Ward 32 (Gurugram) and Vasant Kunj (New Delhi) were imparted trainings and knowledge dissemination was done to create awareness on importance of source segregation. Awareness sessions, Information, Education, and Communication (IEC) activities such as wall paintings, posters, flyers and plog run were conducted, along with regular follow-ups and feedback. The beneficiary households fall into two categories:
  - **Horizontal Households:** Located in row house colonies such as Sector 45, Sushant Lok, and South City - 1.
  - **Condominiums:** High-rise societies with active and well-managed Resident Welfare Associations (RWAs) or Society Management.
- **Commercial and Market Units** - Commercial establishments (medium and large business units in malls and shopping complexes) and market units (independent units in open markets) in Ward 32 were also made aware of waste segregation practices. Awareness was created among these points of waste generation (POGs) through puppet shows, one-on-one sessions, distribution of pamphlets, and wall paintings.
- **Maids and Housekeeping Staff** - To achieve the highest levels of source segregation, it was recognized that training the maids (household

helps) and housekeeping staff (responsible for waste management, cleanliness, and hygiene in the society) is essential. Separate training sessions were conducted by Saahas for maids and housekeeping staff in Ward 32 (Gurugram) and Vasant Kunj.

- **Waste Workers** - The programme also aims to bring dignity to the profession of waste workers. In addition to training them on best waste management practices, support was provided to waste workers, including gloves, masks, safety boots, and identification cards.
- **Waste Entrepreneurs** - The programme focused on promoting selected waste workers to become waste entrepreneurs. By providing them training and facilitating infrastructure, it equipped them with knowledge and skills to start their own waste related ventures. The objective was to empower the selected waste workers and promote sustainable waste management practices.

## 2.4. Objective of the Study

The objective<sup>4</sup> of the study is:

- To provide support for an independent review and impact assessment of the Alag Karo programme for the period from 1<sup>st</sup> December 2020 to 31<sup>st</sup> May 2023.
- To evaluate the programme and assess the benefits provided under the programme using the IRECS Framework and SROI methodology.
- To provide recommendations for the project's consideration and evaluation.
- The study focussed its assessment on the impact created by Phase 2 of Alag Karo Programme.

<sup>4</sup> as per the terms in our Engagement Letter

# 3. Approach and Methodology



Photography Contest /Community

Credits: Saahas

### 3.1. IRECS Framework

IRECS is a tool that focuses on gauging the impact of development programmes on parameters of Inclusiveness, Relevance, Effectiveness (and efficiency), Convergence, and Sustainability and is an adaptation

of the OECD-DAC framework. The tool is designed to give an overall assessment of the programme in terms of producing the intended project outcomes. It also helps in gaining a qualitative understanding of the impact created, stakeholder perception, and the extent of collaboration with other partners.

**Figure 7 : IRECS Framework**



The evaluation study has been designed around the IRECS framework. The Framework consists of assessment criteria that provides feedback to the processes followed in the design and implementation

of the programme. Description of the framework parameters and the specific indicators for the evaluation are listed below:

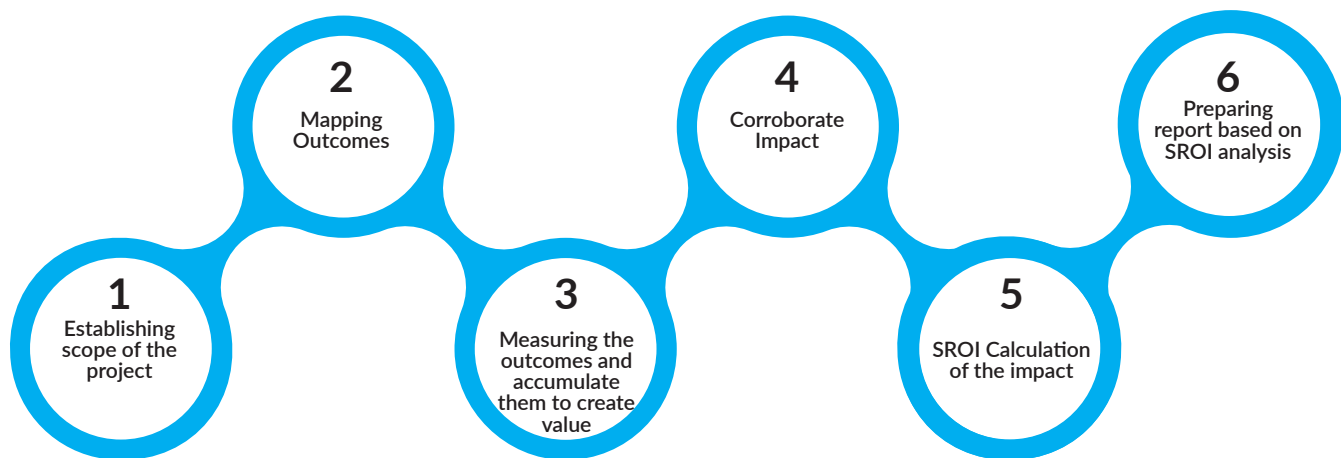
**Table 1 : IRECS Description**

Parameter	Description
Inclusiveness	The extent to which communities equitably access the benefits of assets created and services delivered.
Relevance	The extent to which project is geared to respond to the 'felt' needs of the communities
Effectiveness	The extent of intended and unintended positive (benefits), socio-economic, and cultural changes have accrued for beneficiaries
Convergence	Judging the degree of convergence with government/other partners; the degree of stakeholder buy-in achieved
Sustainability	How will the projects help beneficiaries sustain in the longer run?

### 3.2. SROI Framework

The Social Return on Investment (SROI) Framework design helps us measure and account for value in a broad sense. SROI framework quantifies the social, environmental, and economic value generated by a project and helps in assessing the costs and benefits we overlook because their impacts are not

upfront or visible in nature. This framework allows us to improve well-being by incorporating social, economic, and environmental costs and benefits with an aim to reduce economic inequality and environmental degradation. SROI Framework of analysis serves as a tool for strategic planning, to maximise the social value of a programme that is brought into implementation.



### ***SROI - Approach and Principles***

Since SROI originates from social accounting and cost-benefit analysis its principles involve:

- Stakeholders' involvements
- Understanding what is getting impacted through a programme
- Value things that matter
- Pragmatic estimation
- Transparency and result verification

### ***SROI: Purposes***

- To target appropriate resources to manage unexpected outcomes and externalities, both positive and negative.
- To identify common ground between what an organization wants to achieve and what its stakeholders want to achieve, helping to maximize social value through a programme.
- To create a formal dialogue with the stakeholders thus enabling them to hold the service to account and involving them meaningfully in service design

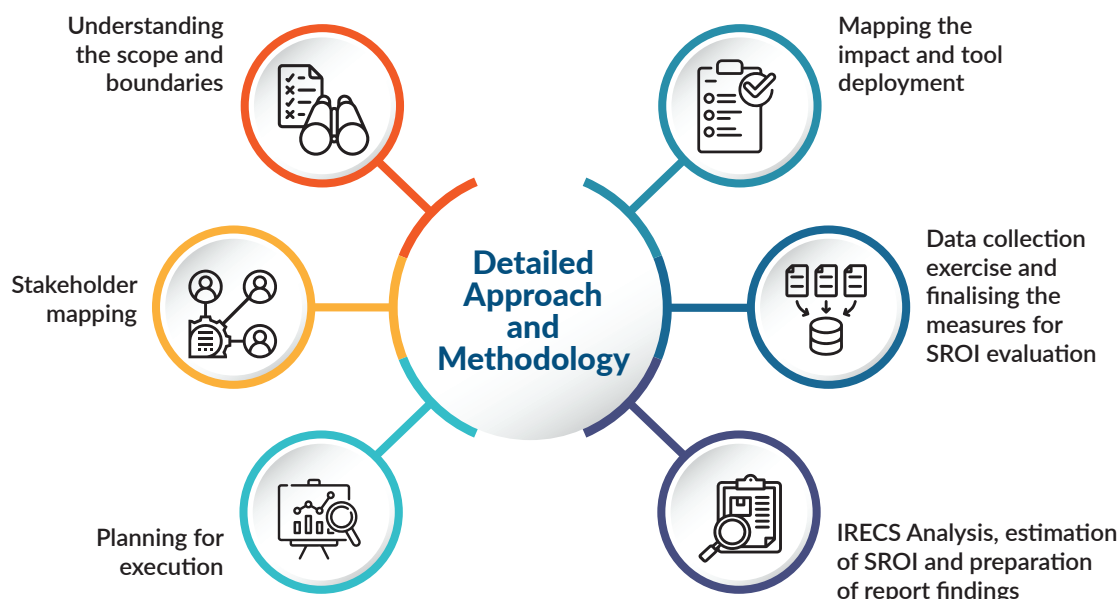
### ***Benefits of SROI Evaluation***

- **Impact Focus:** The SROI framework emphasises on the measurement of impact rather than just output or activities of a project. It assesses the actual changes experienced and monetized that would have occurred regardless of the circumstances or result from the exclusion of other factors.
- **Advocacy of the Project:** it helps in articulating the project's value and impact created supported by

effective communication of the project's brief to the stakeholders, funders, policymakers, and wider audience.

- **Suggests Scope of Improvement:** The SROI framework suggests scope of improvement by identifying areas where the project can enhance its impact. It is helpful in designing strategies and making adjustments for overall effectiveness of future interventions or replicability of existing ones.
- **Comprehensive & Transparent Framework:** potential to be a transparent tool to objectively assess/help quantify the CSR performance of different Indian companies using an industry-sector specific approach.
- **Foster Positive Competition:** Corporates can be rated/ranked on a SROI thermometer, thus facilitating peer benchmarking. This may help foster a feeling of positive competition.
- **Facilitate Cross-learning Among Peers:** The good practices (those impacting the SROI index positively), when documented adequately, shall help peers learn from each other's successes / failures.
- **Enhance Corporate Reputation:** For the discerning, a unique logo of appreciation maybe considered, (like CRR), and this can help enhance reputation amongst its consumers/communities.
- **Incentivise Social Investment:** The SROI index, by way of projecting a 'business case' for social investment, may encourage Corporates to step up their CSR Spending and Commitments, thus, facilitating an increase in 'responsible' welfare spending - a "penny" judiciously spent.

### 3.3. Detailed Approach and Methodology



#### 1. Understanding the Scope

The foremost step in the study was to delineate the scope and boundary of the project, to a temporal and spatial extent. It was essential to have clear boundaries on what the analysis will cover and the concerned stakeholders, who would be involved in the process and how.

- **Project Briefing:** Detailed discussions were held with the project team to understand the objectives of the project, project related documents, types of beneficiaries involved, and specific outcomes that were to be achieved.
- **Review of Project Documents:** Desk review and study of the project documents.

#### 2. Stakeholder Mapping

Engagement of several stakeholders is the primary component of an SROI evaluation study. Desk reviews were conducted for the initiatives to evaluate the results and any potential financial and measurable benefits. The research team identified the targeted stakeholders in the various geographies with support from the project team.

#### 3. Planning for Execution

After the understanding of the scope of the project and identification of the stakeholders, the study's execution strategies were prepared in consultation with the project team. This included defining the research methodology and establishing timelines.

#### 4. Mapping the Impact and Deployment of Tools

In consultation with Saahas, the impact map was prepared which outlines the link between the project activities, output, and outcomes. The qualitative and quantitative tools were prepared in consultation with the project team to capture relevant data on ground.

#### 5. Conducting the Onsite Data Collection Exercise and Finalizing the Measures for SROI Evaluation

After the finalization of data collection tools, the study was commenced to collect data as per the field plan developed with support from the implementing partner. Teams were deployed to various locations to collect the data from the identified stakeholders where project was implemented.

Quantitative surveys were conducted for a sample of residents, waste workers, and commercial establishments in Delhi and Gurgaon locations. Qualitative interactions, including Key Informant Interviews (KII) and Focused Group Discussions (FGD) were conducted for the RWA representatives, community volunteers, MCD /MCG officials, Eco green/SSIL officials, waste workers, maids, housekeeping staff and waste entrepreneurs. For information about sampling methodology used, refer to section 3.4 in the report.

## 6. IRECS Analysis and Estimation of SROI

The IRECS analysis and SROI estimation was done based on the data collected.

### 3.4. Sampling Approach

A mix method sampling approach was adopted to conduct the study via sampling a population of approximately 29,000 stakeholders (Residents of households, commercial units, market units and waste workers) to gain insights into composition and characteristics of each stakeholder group. The process involved selecting a range of sources, including residential areas, commercial establishments, and waste workers to ensure representation of different stakeholder groups.

#### 3.4.1. Sampling Estimation

A confidence level of 90% and a margin of error of 5% was taken for calculating the sample size.

##### Calculation of the sample size

The following formula has been used to estimate sample size.

$$ss = \frac{[Z^2 * (p) * (1-p)]}{c^2}$$

Where,

Z = Z value for 90% (1.645)

p = percentage picking a choice, expressed as decimal, it is taken as 0.5 (assuming 50% of respondents have been impacted via the programme)

c = confidence interval, expressed as decimal, it is taken as 0.05

The study sample size estimated from the above formula comes out to be 270 (from households, commercial units) + 30 (waste workers sampled 10% of 300\*). Overall, the final sample was estimated at **300 beneficiaries**.

\*As per the data provided by the implementing partner during contracting/initial stage, 300 waste workers were associated with the programme. This number was taken for sample calculation of 30 waste workers as discussed above. Basis discussion with Saahas, latest data shows that 308 waste workers have been associated with the Alag Karo programme. However, since this updated number was provided at a later stage, the final sample is based on initial data provided.

The below table gives the overall project reach among the various stakeholder groups.

Table 2 : Project Reach vs Sample

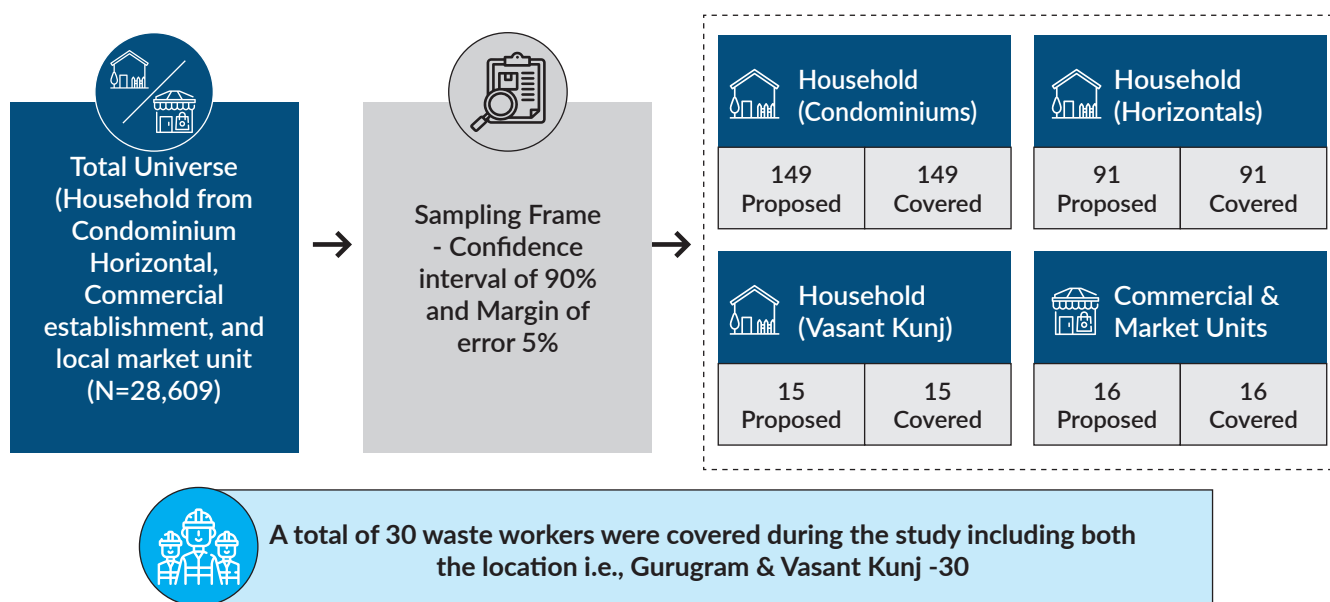
Beneficiary Group	Project Reach	Sample Estimated
Condo HH	15,235	270
Horizontal HH	11,752	
Com. Units	697	
Market Units	925	
Waste Workers	308	30
<b>Total</b>	<b>28,917</b>	<b>300</b>

Based on discussion with Saahas, a qualitative sample of 25 was estimated. The distribution of this sample

among the various stakeholder groups are attached below:

## Quantitative Sample

Figure 8 : Quantitative Interaction



## Qualitative Sample

Table 3 : Sample Interactions Qualitative

Tool	Type	Gurugram	Delhi	Totals
Housekeeping/maid	FGD	3	1	4
Waste workers	FGD	2	1	3
Community representatives	KII	3	1	4
Eco green /SSIL	KII	1		1
RWA representative/estate managers	KII	5	2	7
Waste entrepreneurs	KII	3		3
Saahas	KII	1		1
MCG/MCD	KII	1	1	2
<b>Total</b>		<b>19</b>	<b>6</b>	<b>25</b>



Credits: Saahas



## 4. Key Findings of the Study



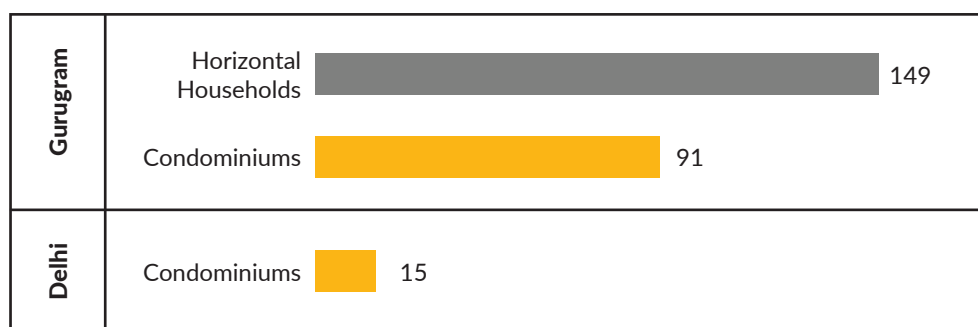
IEC - Banner / Wall Art

Stakeholder-wise key findings from the survey are depicted in this section. Please note that the insights and figures derived below are accordant with the responses recorded from the sample beneficiaries who participated in the survey exercise only.

## 4.1. Households

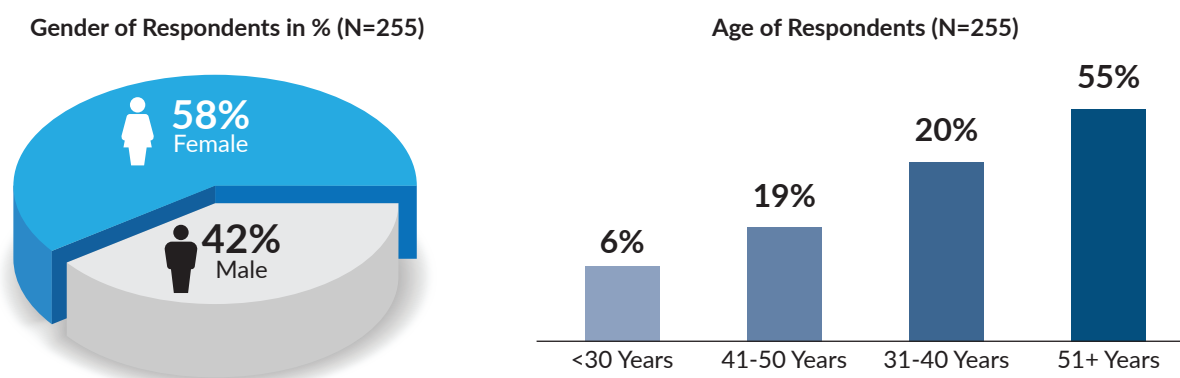
A total of 255 households were surveyed across the intervention geography, i.e., Ward 32 (Gurugram), and Vasant Kunj (Delhi). An overview of the insights from sampled set of stakeholders is as depicted below.

**Figure 9 : Households Covered (N=255)**



The 255 households covered consisted of **149 horizontal households** and **91 condominium households** in Ward 32 (Gurugram) along with **15 condominium households** in Vasant Kunj (Delhi).

**Figure 10 : Demographic Details (N=255)**

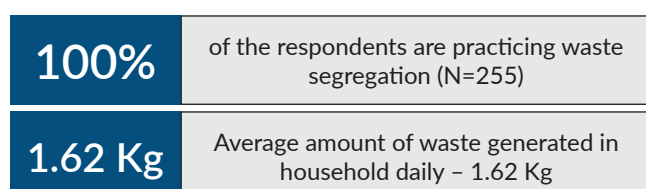


During the quantitative study, a majority of the respondents (58%) from the households constituted females with almost 55% of the respondents from age bracket of more than 50 years (as seen in the figure 12). The average age of these respondents was observed to be 52 years.

During the survey, 100% of the respondents interacted with claimed to practice source segregation, segregating the waste into dry, wet, and hazardous waste categories. This can be corroborated with findings from the qualitative survey. According to the representatives from Resident Welfare Associations (RWA) and society management, while residents had some prior knowledge about source segregation, it was due to the impact of the Alag Karo programme that the residents, housekeeping staff and maids developed a sophisticated understanding about the different types of waste, how to categorise them and segregate them effectively.

### 4.1.1. Waste Segregation Practices

**Figure 11: Average Waste Generated Daily (N=255)**



On probing further, the representative mentioned how essential it is to practice waste segregation. Furthermore, as stated by one of the community

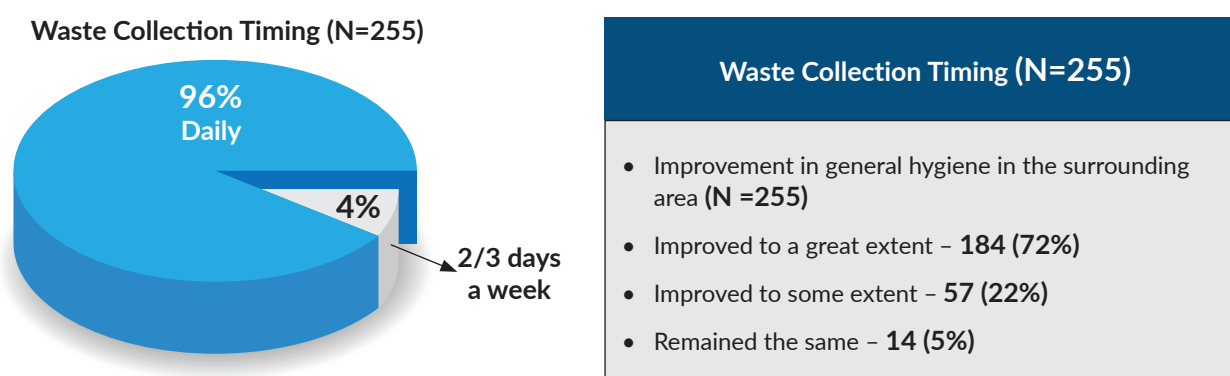
volunteers in ward 32 earlier (before the Alag Karo programme) waste segregation was practiced by only 20% of the households in their community. Presently, **around 95% of the households in the same community are segregating waste.**

The daily average waste generation from the sampled households is 1.62 Kg. This waste is segregated into wet waste (0.87 Kg), dry waste (0.65 Kg) and hazardous waste (0.10 Kg). There were instances where the

respondents did not report any hazardous waste coming out of their households during the survey. Consequently, the numbers given above are an average across all the responses.

While all the respondents had agreed that they are practising source segregation at home, **majority of the respondents (53%) have started source segregation within the last 2 years**, i.e., within the programme implementation period.

**Figure 12 : Waste Collection Time and the Overall Hygiene in the Surrounding (N=255)**



**96% of the households that have been surveyed reported that the frequency of waste collection from their areas is daily<sup>5</sup>** (responses are depicted in figure 12). During the survey, it was found that earlier (before the intervention), the frequency of waste collection in general, was much lower, often every alternate day or 2-3 days in a week. This indicates an overall improvement in the frequency of waste collection which may be attributed to the Alag Karo programme.

As mentioned by the RWA representative from Orchid Garden (during qualitative interaction), earlier (before the programme) none of the residents used to put in efforts to segregate their waste but post the Alag Karo programme there has been a prominent change in the practice of waste disposal. Now, **95% of the households segregate the waste**; the remaining 5% are floating population (households who are constantly shifting in ownership). The RWA is making efforts to sensitize the defaulters as well through circulars and messages on society groups.

#### 4.1.2. Health and Hygiene

Majority (94%) of the respondents agreed that the **general hygiene in the area has improved** since the

programme's inception. 72% of the respondents stated that hygiene has improved to a great extent, while 22% of the respondents stated that there has been some improvement in the hygiene. 5% of the respondents opined that the state of hygiene has remained the same.

#### 4.1.3. Composting Practices

As reported by households, approximately **5% of households are currently composting waste at home** (attributed to Alag Karo Programme). Daily about 0.56 Kg of wet waste is being composted on an average at these households. From this composted wet waste, an average of 1.92 Kg of compost is being obtained per month.

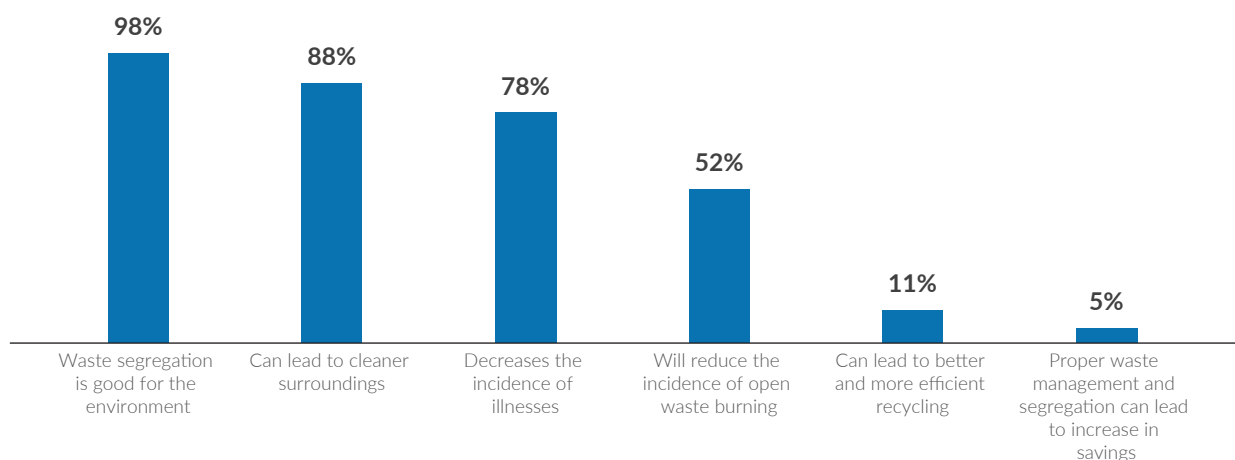
At a community/society level, it was reported during the survey that **82% of respondents were aware of the various compost distribution initiatives** (example Thela Mela) being conducted by Saahas. However, these initiatives have only been provided at Horizontal Households in Ward 32 of Gurugram (where N=149). On an average 2.3 Kg of compost is being provided to the households via these initiatives. As part of the quantitative interaction, household respondents

<sup>5</sup> This change can be attributed to improved waste collection/disposal processes in open layouts.

were asked about what according to them are the advantages of segregating waste (Multiple responses were possible). Based on the survey it was reported that a majority of respondents are aware of the importance

of proper waste management. The following graph depicts the percentage of respondents who are aware on each important aspect concerning proper waste management:

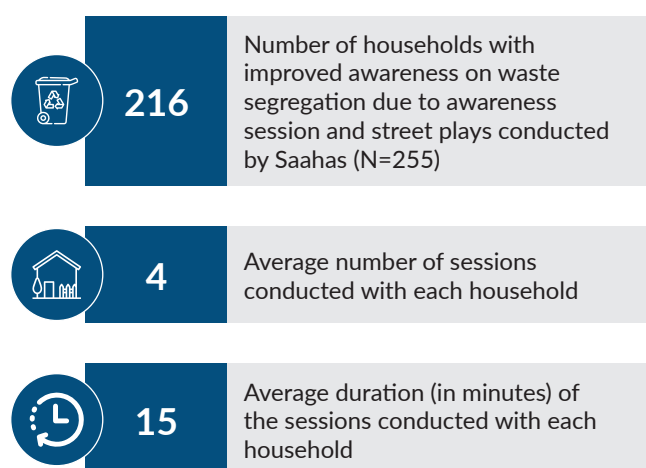
**Figure 13: Importance of Waste Segregation According to Household Respondents (N=255)**



*“Practicing home composting by the residents have also helped them (the residents) save monthly on the amount spent to buy compost from external sources” – RWA representative from Gurugram*

#### 4.1.4. Training and Awareness Sessions

It was reported by households that Saahas has conducted awareness building activities and training sessions with the respondents. Based on the survey, below are some specific findings from these sessions:



The RWA representative from Vasant Kunj reported that there has been a positive change in the waste management practices in their community as the awareness level on waste segregation and its importance has increased. The maids and the housekeeping staff are now well informed about

how to sort the different categories of waste. It was observed basis the interactions that compared to the maids and housekeeping staff of Vasant Kunj, the staff in Gurgaon displayed a better understanding of the waste segregation, emphasizing its benefits in reducing the landfill waste and promoting recycling and composting.

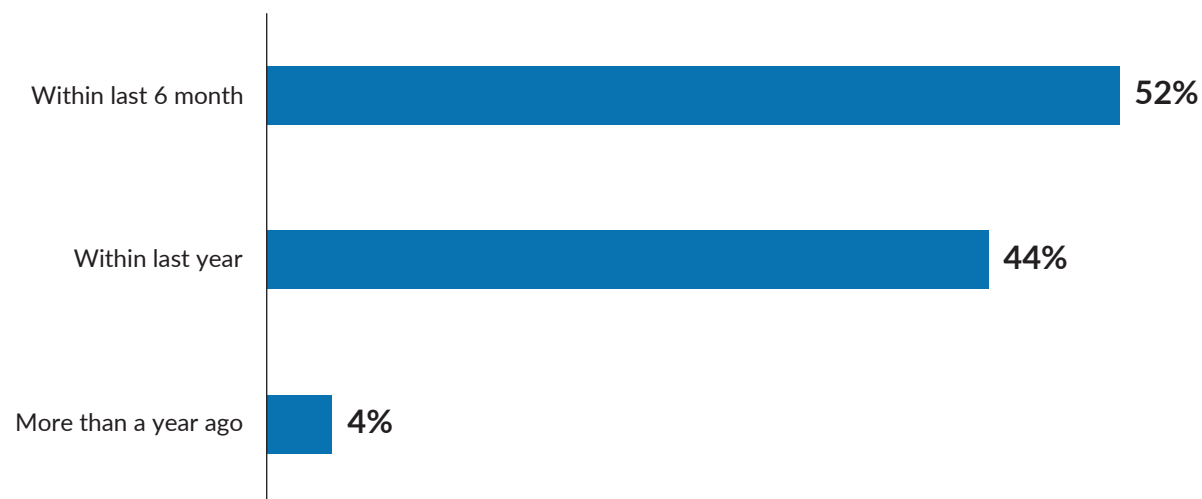
It was mentioned that maids/housekeeping staff and residents from households found the recent plog run activity in Gurugram to be crucial in generating increased awareness on efficient waste management.

Furthermore, Saahas has also facilitated formation of a monitoring body in the form of an Eco-club in certain condominiums of Gurgaon constituting residents from the society who are not associated with the RWA or society management. This Eco-club functions as an overall body which tracks and monitors the waste management process in these respective societies.

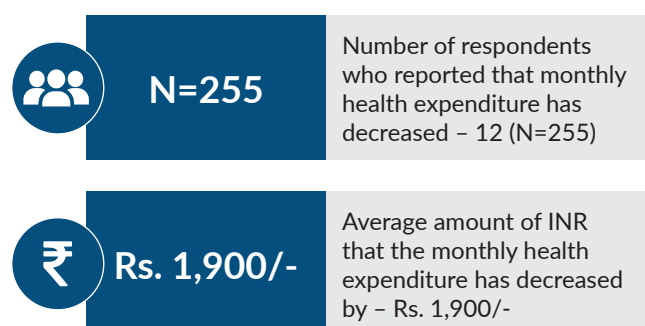
*“The most effective form of awareness creation has been door to door interaction and plog run followed by training sessions.” – RWA representative from Gurugram*

As seen in the following graph majority of the respondents (52%) reported that the most recent training/awareness sessions from Saahas were conducted within the last 6 months.

**Figure 14 : When was the Last Session Conducted? (N=216)**



A few respondents reported that their **monthly health expenditure** also showed a decrease as compared to before the programme, as seen below



#### 4.1.5. Knowledge, Attitude, Behaviour and Practice (KABP)

The Knowledge, Attitude, Behaviour and Practice (KABP) is a framework commonly used in various fields to understand and analyse the factors that influence human behaviour and the adoption of specific practices. In this instance, a KABP survey was conducted with the households to understand their perspective on the importance of waste segregation.

- **Knowledge** - this refers to the information or understanding that individuals (households) possess about waste segregation. It encompasses theories and ideas that these households may have acquired through the awareness sessions/trainings or via other informative means (TV, newspaper etc.). The table below represents the knowledge attribute of these households by asking 5 key questions about waste segregation/management.

**Table 4 : Knowledge of the Respondent**

Knowledge	Agree	Neutral	Disagree
Good hygiene and surroundings are important to ensure good health	99.6%	0.4%	0%
Wet waste can be used for making compost	98.4%	1.6%	0%
Burning garbage is not a good practice	98.8%	1.2%	0%
Garbage should not be thrown out in the open	100.0%	0.0%	0%
Waste should be segregated into wet, hazardous & dry before throwing in the bins	99.6%	0.4%	0%

- **Attitude** – refers to the predisposition that the households have towards waste segregation/management. It involves their feelings and personal beliefs and opinions on the topic of proper waste management. The below table represents the attitude attribute of these households by asking 4 key questions about waste segregation/management.

**Table 5 : Attitude of the Respondents**

Attitude	Agree	Neutral	Disagree
Burning waste and litter is not okay	98.4%	1.6%	0%
Every household should segregate waste	99.6%	0.4%	0%
We can use wet waste for composting	97.6%	2.4%	0%
Proper mechanism of disposing hazardous waste should be followed	98.4%	1.6%	0%

- **Behaviour** – refers to the actions demonstrated by the households, including sharing of important information on waste segregation with others. The table below represents the behaviour attribute of these households by asking 4 key questions about waste segregation/management.

**Table 6 : Behaviour of the Respondents**

Behaviour	Agree	Neutral	Disagree
I teach my family members about the importance of waste segregation	98.0%	2.0%	0%
I actively encourage my fellow friends/community members to practice proper waste management	94.1%	5.9%	0%
I actively encourage my family members & community members to not litter and burn waste	95.3%	4.7%	0%
I actively encourage my family & community members to use separate bins to throw garbage	96.5%	3.5%	0%

- **Practice** – refers to the application of knowledge on waste segregation/ proper waste management in day-to-day life by the households. The table below represents the attitude attribute of these households by asking 4 key questions about waste segregation/management.

**Table 7 : Practice of the Respondents**

Practice	Agree	Neutral	Disagree
I always dispose of the waste by handing it over to designated waste workers	99.2%	0.8%	0%
I always segregate wet and dry waste before throwing in the bins	98.8%	1.2%	0%
I keep my surroundings clean by not littering/ burning waste	98.4%	1.6%	0%
I always throw garbage in the designated bins	99.6%	0.4%	0%

As per findings from the KABP assessment, it was reported that **~98% of respondents** have proper knowledge, display correct attitude & behaviour and practice proper waste management.

When asked about the change in knowledge, attitude, behaviour, and practices pertaining to waste management and segregation over the past two years, the maids and housekeeping staff reported a significant increase. The maids and housekeeping staff

have observed that 95% of the residents now provide segregated waste.

## 4.2. Maids and Housekeeping Staff

### 4.2.1. Training and Awareness Sessions

The qualitative interactions showcased that through the Alag Karo initiative, maids and housekeeping

staff were trained on the steps involved in waste management, including segregation of waste into categories such as wet waste, dry waste and hazardous waste. Additionally, a relevant IEC aid (chart) was also provided to them which has been helpful in enhancing their understanding. The maids and housekeeping staff expressed satisfaction with the programme stating that it met their expectations.

#### 4.2.2. Perceived Benefits of Alag Karo

As per discussion with the housekeeping staff, prior to the intervention, **collecting and on spot segregation of waste from all the households would initially (before the training) take approximately 4 hours. However, after the training**, the housekeeping staff reported that it takes them **2 hours** to collect the waste from all the households, since they don't have to dedicate time to segregate the waste. This reduction in time not only eases their workload but also simplifies the process of waste segregation.

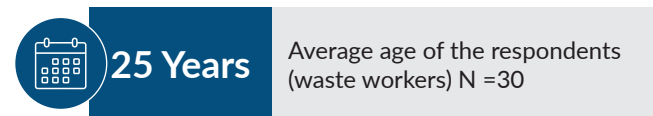
The maids and housekeeping staff have witnessed several positive changes in their work and personal lives since the training. They include precautions in waste handling (wearing gloves if required) resulting in less instances of illness and injuries.

However, when asked about the requirement of refresher trainings, the housekeeping staff and maids expressed the need for periodic refresher sessions. They acknowledged that such sessions are conducted to reinforce their knowledge and ensure they stay upskilled on the best practices in waste management.

### 4.3 Waste Workers

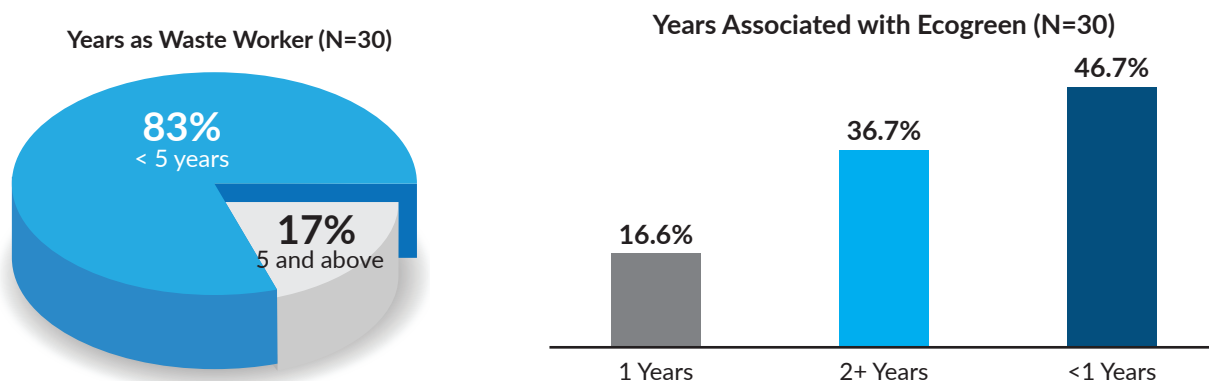
As per the study methodology, 30 Waste workers were sampled from the total population of 308 (discussed earlier in sampling section). The sample was further split between Gurugram (Ward 32 – 25 waste workers) and New Delhi (Vasant Kunj – 5 waste workers) regions.

The survey found that the average age of waste workers on the project sites was 25 years.



As reported by the waste workers, a majority have spent less than 5 years in the profession. The following graph depicts the period of service as a waste worker.

Figure 15: Respondents Details (N=30)



As per the graph above majority of the waste workers (46.7%) have been associated with Ecogreen or Swayam Sahayata Swachatta Initiative Limited (SSIL) for less than one year. The waste workers are primarily responsible for picking up waste from the designated collection areas and transporting waste to the disposal sites, landfills or recycling centres/composting pits using large vehicles (garbage trucks).

#### 4.3.1. Waste Segregation Practices

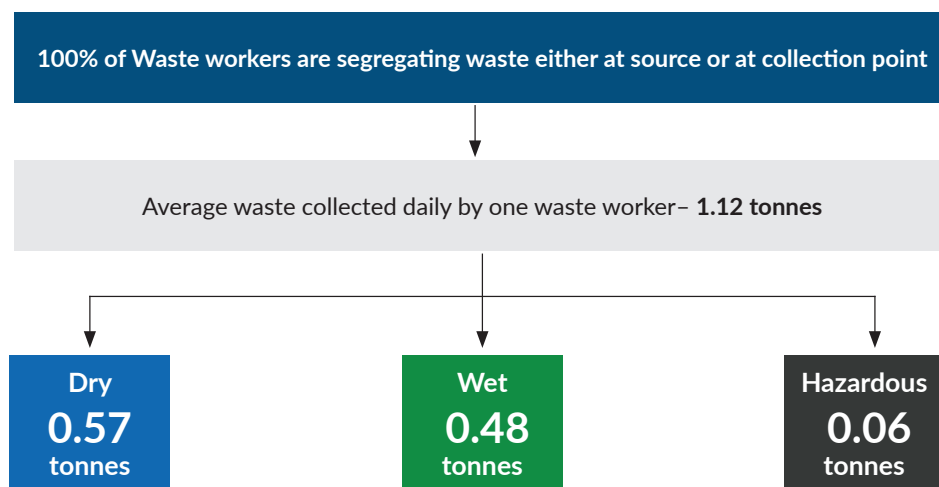
Based on findings from the quantitative survey, these waste workers collect waste from households and commercial units on a predefined route daily. These locations are termed as Points of Generation (POG's) which are locations where waste is generated, for example from households and markets.

As mentioned by the waste workers during the course of the interaction, in instances where unsegregated waste is being generated at the respective POG, the waste workers are responsible for segregating the waste prior to transporting to the landfills/ composting pits/ recycling facilities etc. Due to the lack of awareness and training of the households, this segregation was not done at POG level earlier and therefore waste workers had to put in much more

effort and time in segregating the waste. As reported by the waste workers, since the initiation of the Alag Karo programme and post the training/awareness sessions, there has been a **100% positive change in the waste segregation practices at the POG level. This change has decreased the effort involved (by waste workers) in waste segregation.**

The following graph portrays the average amount of waste collected daily (in tonnes) by waste workers.

**Figure 16 : Percentage of Segregation (N=30)**



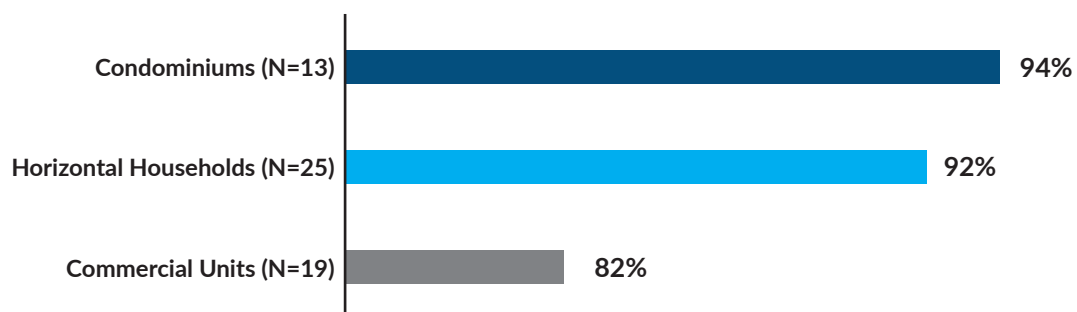
As seen above, on **average 1.12 tonnes of waste is being managed on a daily basis by the waste workers.** Majority of the waste is dry waste (52%), consisting of cardboard, paper, and other recyclable materials. Wet waste constitutes 41% and consists of food, garden, and other organic material. Hazardous waste constitutes 7%, consisting of batteries, paints, stains, pesticides etc.

The qualitative interactions with the waste workers aimed to capture the impact of Alag Karo programme

focusing on the understating of waste management. The waste workers explained the importance of segregating dry waste and wet waste as the dry waste can be sold at better prices. The waste workers stated that hazardous waste constitutes a small proportion of the overall waste collected and is disposed once or twice a week by the households.

The following graph portrays the percentage of households under each POG that are segregating waste as reported by waste workers.

**Figure 17 : Percentage of Household that Segregate Waste**



\*The overall N for each POG is dependent on the waste workers from our sample who are servicing that particular POG, hence numbers are different.

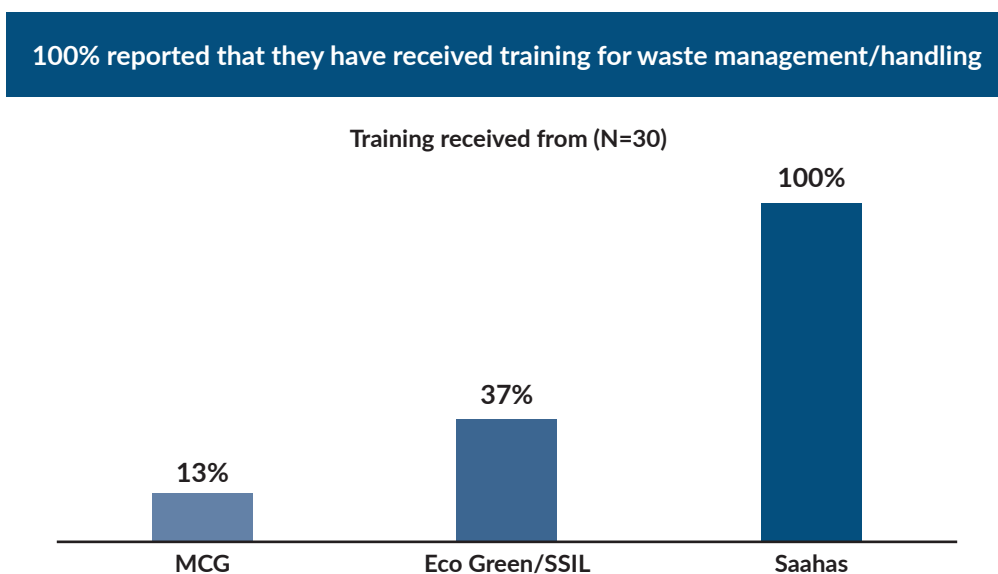


### 4.3.2. Training and awareness sessions

As per the findings from the study, all 30 of the waste workers interacted with were provided/ involved in training and/ or awareness building sessions conducted

by Saahas through the Alag Karo programme. The graph below represents percentage waste workers who received information and training via the MCG, EcoGreen/SSIL and Saahas team:

**Figure 18 : Training Received (N=30)**



The survey pointed out that, on an average 20 sessions were conducted with the waste workers during the programme period, each session of approximately 50 minutes. Based on waste-worker testimonies, 100% of the respondents, reported an increase in the level of awareness/knowledge on waste management through these sessions (as depicted in the below figure).

<b>Average duration of training – 50 mins</b>
Average number of sessions conducted during the project period - 20
<b>100% reported</b> increase in the level of awareness/ knowledge on waste management through these sessions

The waste workers mentioned that they first came to know about the Alag Karo programme about a year ago, through representatives from Saahas and subsequently attended the trainings conducted to have a better understanding of waste management practices. The benefits of these training and awareness sessions were corroborated via the qualitative interactions.

During the training imparted by Saahas as part of the programme, the waste workers were taught various

topics including the importance of wearing gloves, waste segregation into dry, wet, and hazardous waste categories. They found these topics highly useful as this provided practical guidance to them for their daily work. Furthermore, on asking the waste workers about the challenges they faced prior to the Alag Karo programme they mentioned that a lot of time was spent on separating and collecting waste at the waste dumping area (Dhalao). However, after the training, the waste that they receive is already segregated and this saves their time. The saved time allows the waste workers to get adequate rest and spend quality time with their families, resulting in improved physical well-being and work efficiency.

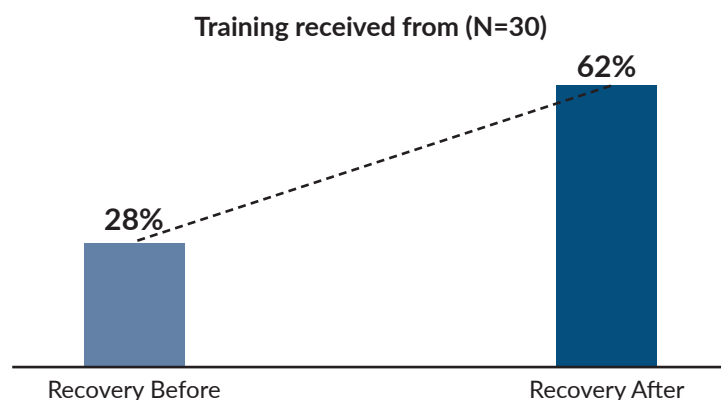
### 4.3.3. Perceived Benefits of Alag Karo Programme

Recovery<sup>6</sup> is defined as any waste management operation that diverts a waste material from the waste stream and which results in a certain product with a potential economic or ecological benefit.

Based on findings from the survey the average recovery percentage has improved by a margin of 34% (see the following graph).

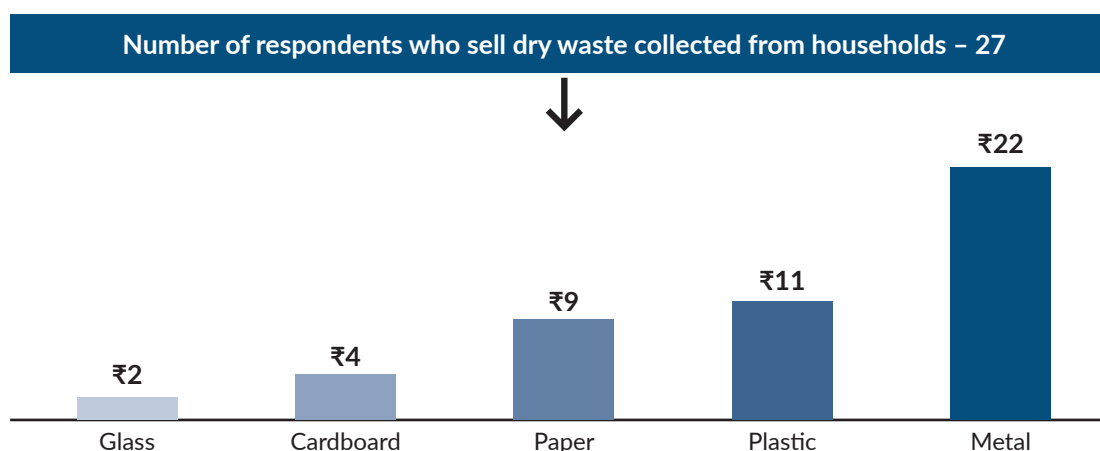
<sup>6</sup> Data retrieved on 1<sup>st</sup> July 2023 <https://www.tariffnumber.com/info/abbreviations/3318>

**Figure 19 : Recovery Percentage (N=30)**



As per the findings from the survey, majority of the waste workers are selling dry collected waste from households. The average costs of each category of waste (INR/Kg) can be seen in Figure 20.

**Figure 20 : Average Amount of INR that Different Dry Waste Types are Sold [INR/Kg] (N=27)**



To ensure recovery of dry waste, Dry Waste Collection Centres (DWCCs) were set up. All the dry waste collected, could be further segregated within these centres. An example being plastic waste, which can be divided to into different categories of plastic (Polyethylene Terephthalate – PET, High density Polyethylene – HDPE, PVC, Low Density Polyethylene – LDPE etc.<sup>7</sup>).

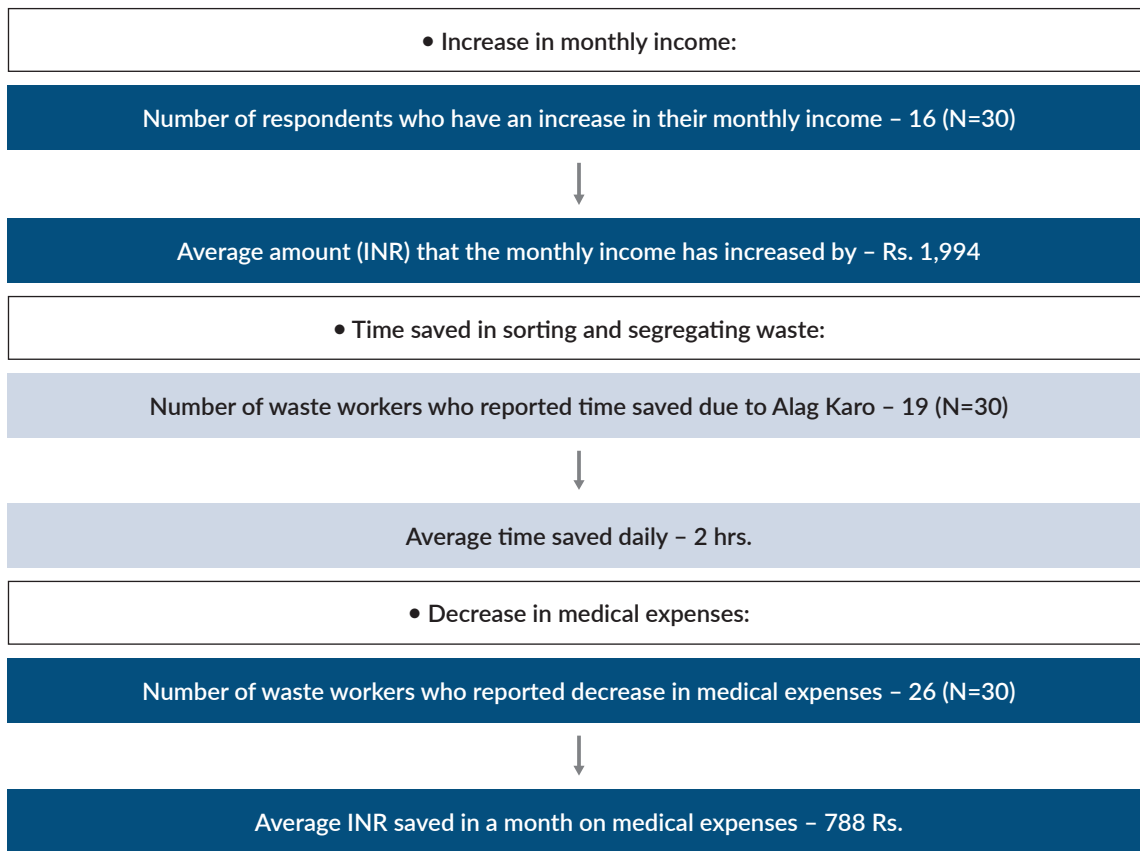
Earlier, the waste workers were not able to segregate the types of plastic efficiently and when selling it further, they used to get a nominal cost for overall plastic sold (irrespective of the cost difference between types of plastic). To cater to this problem, the project has also facilitated setting up of infrastructure, like conveyor belts (which would help sorting and picking of dry waste and is more time efficient) in the collection centres. Now due to the infrastructure support the waste workers can sell the high value plastic separately for a higher cost. Three such centres have been set up

in the form of enterprises under the project and are run by a waste entrepreneur at each centre (who are waste contractors selected after a careful selection process). During the survey, it was found that the selection of entrepreneurs was done considering their investment capacity, and the availability of necessary resources along with the relevant work experience to run these centres.

During the interaction with these waste entrepreneurs, it was found that properly sorted high quality plastic waste generates a higher income for them. After adjusting for operational expenses (INR 7,000 to INR 10,000 electricity bills and a rent expense of approximately INR. 25,000), **the waste entrepreneurs have mentioned an increment of INR. 50,000/- per month in their income.** This increase has also trickled down the ladder to waste workers (who are operating under the entrepreneurs).

<sup>7</sup> Different types of plastic waste - <https://www.plasticsforchange.org/blog/different-types-of-plastic> - retrieved on 07/07/2023

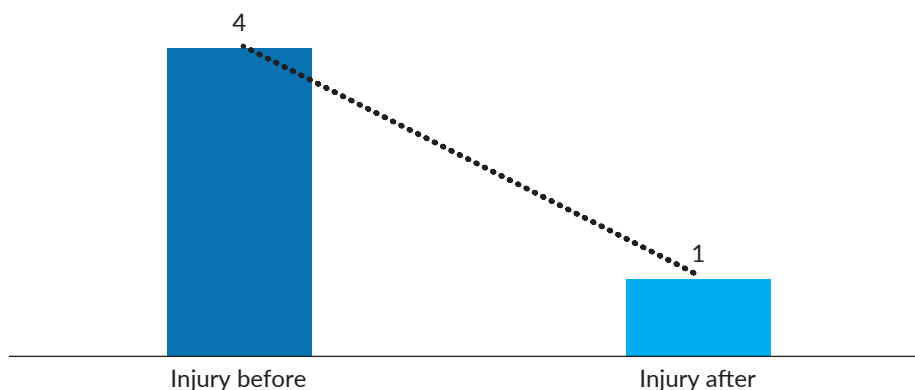
Additionally, the waste workers interviews reported an:



Also **100% waste workers** who were a part of the survey, report a decrease in **the work-related injuries and accidents**. On average the number of injuries /

months has decreased by a factor of 3, as seen in the following graph.

**Figure 21 : Average Injury Reduction (N=30)**



The waste workers acknowledged that as a part of the awareness generation activity they were provided with safety items such as gloves, bins, and jumbo storage bags (for collection of dry waste) to enhance their safety while performing their daily tasks. Further, introduction to jumbo storage bags for collection of waste has reduced the drudgery experienced by the waste workers.

The project also introduced IT tools (provided to the waste workers) to assess and monitor the segregation levels in some societies of Gurugram.

Overall, the Alag Karo programme has positively transformed the lives of waste workers and has equipped them to work with a sense of dignity, recognizing it as a noble and respectable endeavour.

## 4.4. Ecogreen

### 4.4.1. Waste Segregation Practices

As the concessionaire for waste management in Gurugram, Ecogreen is responsible for door-to-door waste collection, segregating and processing the same by setting up waste-to-energy plant. As mentioned by the Ecogreen representative during the qualitative interaction, the waste collection route is mapped based on the density of the population. Based on this, the number of vehicles and number of trips are assigned. On average waste collection from each route per day is around 700-800 kgs per trip. 1,400-1,500 kgs of waste is collected in a Bolero waste collection vehicle and 2-2.5 tons of waste is collected in a tractor trolley. The representative from Ecogreen felt that the awareness sessions and campaigns through Alag Karo have been helpful in changing the mindset of the residents. Waste collectors/ Drivers also feel better when the waste is segregated thereby avoiding unnecessary injuries due to unsegregated waste.

### 4.4.2. Association with Alag Karo Programme

During the interaction, the representative conveyed that Ecogreen also communicates the need to segregate waste to the residents and participates in awareness campaigns held by the project implementation partner Saahas. A material recovery centre has been set up in Sector 44, Gurugram with technical support from the Alag Karo project, from where the wet waste is used to prepare compost and dry waste is further segregated and sent to intermediary buyers. The compost

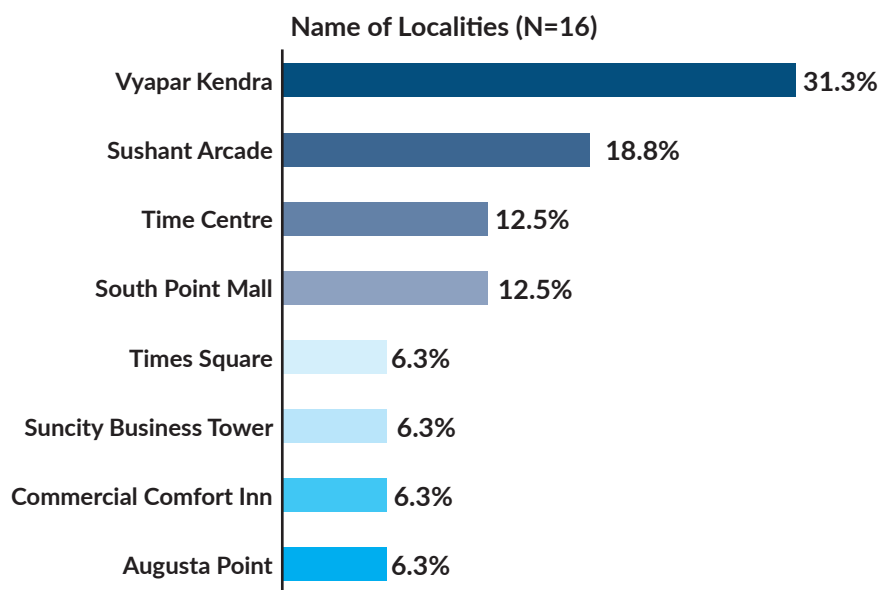
prepared through the composting units is given back to the residents (via Alag Karo Thela Mela initiative in association with Saahas) to further motivate them to segregate waste. **The door-to-door awareness sessions, compost distribution and wall paintings have been the effective mode of awareness leading to more segregated waste from households on route.**

**A monitoring and reporting mechanism** has been put in place to track the daily waste collection progress in areas covered under the Alag Karo programme similar to the other areas where Ecogreen has been operating. Daily records of vehicles assigned for waste collection are tracked and waste collection data along with the levels of segregation are recorded. It was reported by Ecogreen that the waste collection pattern is the same as it was before the programme and the frequency of trips to the colonies/ societies has remained the same. The Ecogreen representative also highlighted that one of the key challenges towards successful implementation of the segregation initiatives are the unauthorised waste collectors. These collectors charge less amount and collect unsegregated waste, which leads to a lot of residents deviating from the practice of segregating wastes due to less efforts as well as reduced costs.

## 4.5. Business Owners (Commercials/ Market Units)

The study sampled 16 Business Owners from the total population/reach (as described in the sampling section). The following localities in Gurugram were visited for interaction with the business owners.

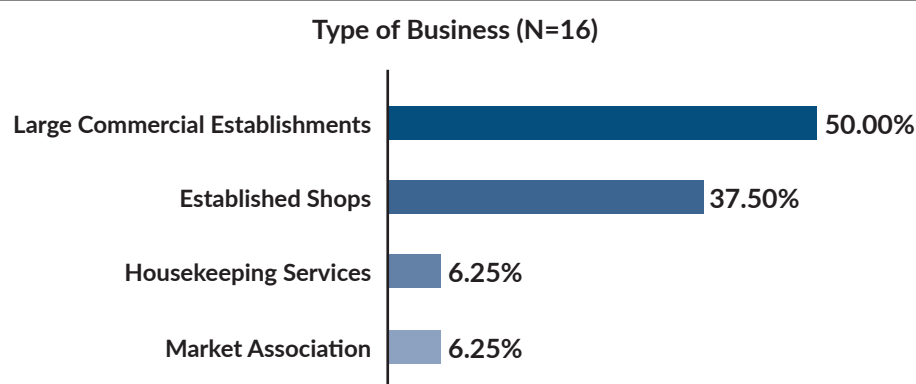
**Figure 22 : Name of the Localities (N=16)**



The average age of the business/shop owners is 32. The types of establishments range from large commercial establishments (Restaurants, Hotel)

in markets, small established shops (Juice corners, sweet corners) to Housekeeping services and market associations.

**Figure 23 : Type of Business (N=16)**

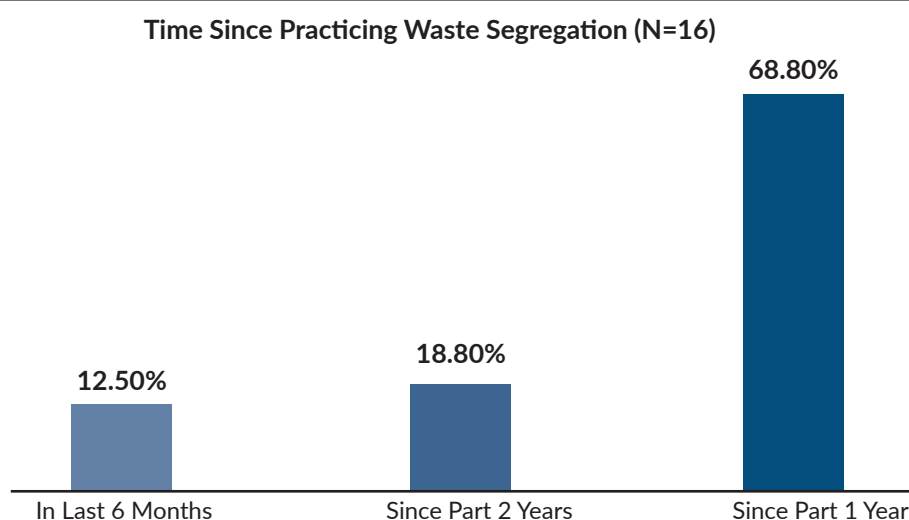


#### 4.5.1. Waste Segregation Practices

On average these establishments have 16 employees working with them. 100% of the business owners practise waste segregation. The time frame since

when these units have been segregating their waste ranges from 6 months to one year i.e., during the implementation of the Alag Karo programme.

**Figure 24: Time Since Practicing Waste Segregation (N=16)**

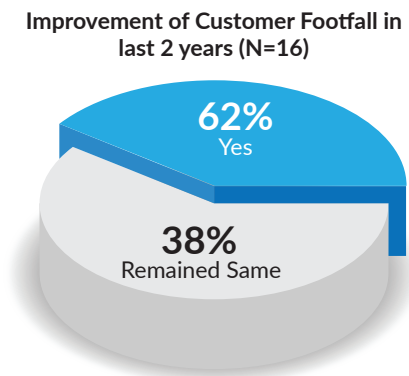


As reported by the business owners, the average amount of waste generated across the sampled units is 87 Kg. Further, the amount of waste generated in each category is as depicted below:

Average amount of wet waste	-	45.46 Kg (52.2%)
Average amount of dry waste	-	36.54 Kg (42%)
Average amount of hazardous waste	-	5.06 Kg (5.8%)

As reported by 62% of the respondents, there has been a slight improvement in customer footfall in the last 2 years as seen in the figure below. However, this improvement cannot be attributed to the improvement in hygiene in general, and several other factors such as improved standard of living and easier access may have also played a role here.

**Figure 25 : Improvement of Customer Footfall in Last 2 Years (N=16)**

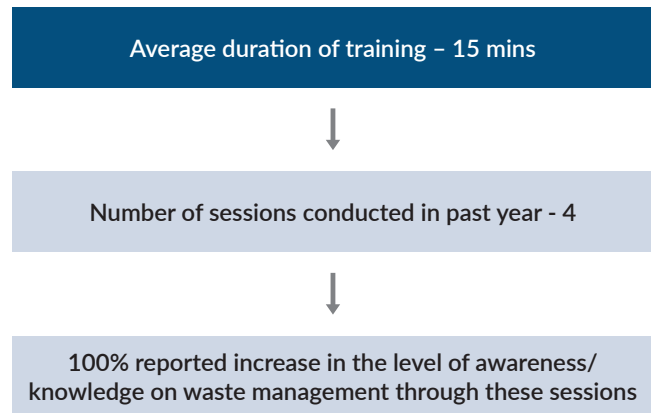


### 4.5.2. Training and Awareness Sessions

Training/awareness sessions on the importance and methods of source segregation of waste have been conducted with the business/shop owners. These awareness sessions were also conducted with market representatives, ensuring the proper segregation

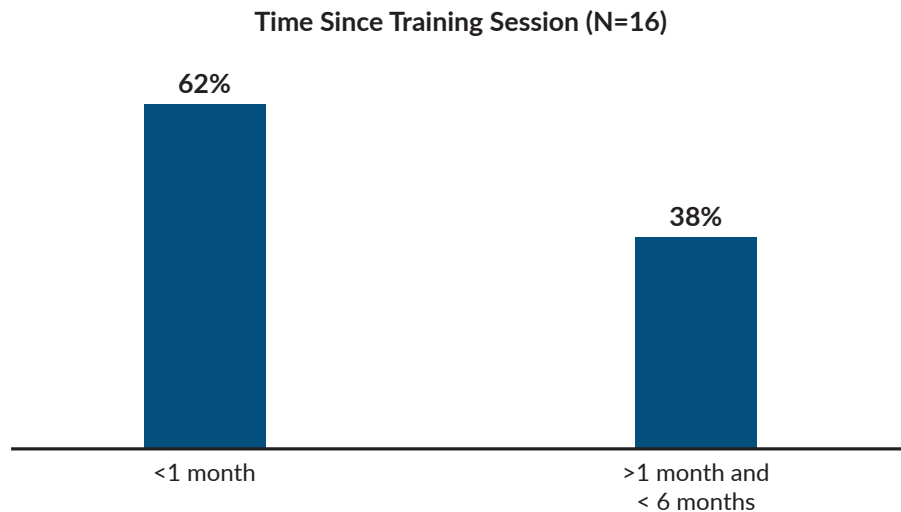
of waste at a central collection point (wherever applicable) in the markets. This was also observed during the survey for this study.

The figure below shows the average duration of these sessions along with the number of sessions conducted in the past 1 year. 100% of the respondents reported an increase in the level of awareness/knowledge on waste management through these sessions.



The following figure gives an approximation of when the last training sessions were held.

**Figure 26 : Time Since Training Session (N=16)**



### 4.5.3. Knowledge, Attitude, Behaviour and Practice (KABP)

In this instance a KABP survey was conducted with the business owners to understand their perspective on the importance of waste segregation.

- **Knowledge** –Table 8 represents the knowledge attribute of these business owners by asking 5 key questions about waste segregation/management.

**Table 8 : Knowledge of the Respondents**

Knowledge	Agree	Neutral	Disagree
Good hygiene and surroundings are important to ensure good health	100%	0%	0%
Wet waste can be used for making compost	100%	0%	0%
Burning garbage is not a good practice	100%	0%	0%
Garbage should not be thrown out in the open	93.8%	6.3%	0%
Waste should be segregated into wet, hazardous & dry before throwing in the bins	100%	0%	0%

- **Attitude** – The table below represents the attitude attribute of these business owners by asking 4 key questions about waste segregation/management.

**Table 9 : Attitude of the Respondents**

Attitude	Agree	Neutral	Disagree
Burning waste and litter is not okay	93.8%	6.3%	0%
Every household should segregate waste	100%	0%	0%
We can use wet waste for composting	100%	0%	0%
Proper mechanism of disposing hazardous waste should be followed	100%	0%	0%

- **Behaviour** – The below table represents the attitude attribute of these business owners by asking 4 key questions about waste segregation/management.

**Table 10 : Behaviour of the Respondents**

Behaviour	Agree	Neutral	Disagree
I teach my family members about the importance of waste segregation	93.8%	6.3%	0%
I actively encourage my fellow friends/community members to practice proper waste management	75%	25%	0%
I actively encourage my family members & community members to not litter and burn waste	87.5%	12.5%	0%
I actively encourage my family & community members to use separate bins to throw garbage	93.8%	6.3%	0%

- **Practice** – The below table represents the attitude attribute of these business owners by asking 4 key questions about waste segregation/management.

**Table 11 : Practice of the Respondents**

Practice	Agree	Neutral	Disagree
I always dispose of the waste by handing it over to designated waste workers	100%	0%	0%
I always segregate wet and dry waste before throwing in the bins	100%	0%	0%
I keep my surroundings clean by not littering/ burning waste	100%	0%	0%
I always throw garbage in the designated bins	100%	0%	0%

As per findings of the KABP assessment, it was reported that **~96% of respondents** have proper knowledge, display correct attitude & behaviour and practice proper waste management.

## 4.6. Government Stakeholders

As part of the study, qualitative interactions were conducted with representatives from the Municipal Corporation of Gurgaon (MCG) and the Municipal Corporation of Delhi (MCD). Interviews were held with the Joint Commissioner of Sanitation (from the MCG) and Junior Engineer (from MCD). They expressed that the Alag Karo programme incorporates unique activities such as door-to-door awareness creation and compost distribution etc. that are crucial for increasing awareness on segregation and efficient waste management.

### 4.6.1. Support Provided to the Alag Karo Programme

As noted during interaction with the government stakeholder, the MCG had a pivotal role in the initial phases of the Alag Karo programme. As stated by the official, the MCG had liaised to establish a rapport between the team from Saahas with the residents of the societies in Gurugram, they aided the team members with necessary support and linkages, and they have also provided administrative support such as providing NoC from different bodies. The MCD supported Saahas in liaising with the RWA members for smooth implementation of the programme. The programme was initiated after the approval of scope of work from the District Commissioner. As mentioned by the official, they have also taken actions against defaulters (those not segregating waste, especially those who generate waste in bulk) by penalising them for non-adherence to waste management practices as per the Solid Waste Management Rules, 2016.

The official added that representatives from MCG have attended various awareness events organised

by Saahas to motivate the residents towards practising source segregation of waste and the associated benefits. It was also recommended that although the current programme has helped in furthering their efforts around waste management and segregation in Gurugram, **similar programmes should also be carried out in urban villages in Gurugram to cater to the peculiar waste problem there.**

**The official also mentioned that due to the project, waste going to the landfills has been diverted and this has resulted in a reduction in the costs incurred (INR 3,000 per ton) by MCG in managing waste at the landfill.**

The MCD official highlighted that prior to the Alag Karo programme people had a negligent approach towards waste segregation and without regular follow-up the condition would revert to the way it was earlier. The Alag Karo programme has ensured regular follow-ups and has put continuous efforts towards awareness creation of the target group leading to behavioural change among the residents of the societies, waste workers, maids and housekeeping staff.

### 4.6.2. Perceived Benefits of the Programme

Further, the MCD official shared that improving the waste management system is one of the primary concerns and the government has been working in the same direction to inculcate proper waste management. The Alag Karo programme has played a significant role in increasing the level of awareness of the residents about the waste management practices and importance of source segregation. Furthermore, there has been a decrease in the amount of waste collection as the wet waste is being used for composting at household level, which has also reduced the quantity of waste being dumped in the landfills. It is because of the less waste being diverted to landfills, that the tipping fees to the concessionaire has also decreased.



# 5. SROI Estimation



Happy Picture with Handing Over Compost

The SROI estimation helps in understanding the broader impact and value generated for the stakeholders and the society by going beyond the traditional financial metrics.

## 5.1 Establishing the Impact

The foremost step for calculating the SROI value was to prepare the impact map. The impact map was prepared after careful analysis of the project documents, discussions with Saahas, and other relevant stakeholders. Post this, the specific benefits (from the programme) for each beneficiary stakeholder of the programme were identified. The benefits were then assigned the appropriate financial proxies, which were arrived at using the survey results or the secondary research, for calculating the overall impact of the programme from a period of 31 months, starting from December 2020<sup>8</sup>. The overall impact is calculated after adjusting the dead-weight, displacement, attribution (by others), and drop-off factors from the year-wise benefits.

### Dead Weight

Dead-weight is the estimation of the benefits which would have occurred even in the absence of the programme. For calculating the impact of Alag Karo programme, a dead-weight of 17.5% has been considered. The rationale behind considering this particular dead-weight is the HSPCB annual report for the year 2018-19, which states that only 17.5% of the waste is successfully treated and recycled, while 78% is sent to the landfills. The remaining 4.5% waste is not collected.<sup>9</sup>

### Displacement

Displacement is the component which informs the assessor on how much one outcome of the project may influence any other outcome. During the assessment and research for this particular programme, there was no evidence of any displacement noted or reported. Hence, the displacement factor is taken to be 0% for the calculations.

### Attribution (by others)

Attribution (by others) is an estimate of what proportion of the impact may be attributed to the

efforts of other stakeholders involved. During the assessment and the survey, it was found that for a majority of the benefits, a 50% attribution (by others) factor may be applied. For a few, however, the attribution (by others) has been assigned a slightly higher value (75%) in line with the information provided by various stakeholders and the subsequent estimates made by the research team on the contribution of external factors on those particular benefits.

### Drop-off

Drop-off is factored in as in the subsequent years, the benefit or the impact would be slightly less than the previous year or may be attributed to other external factors as well. During the qualitative interactions it was found that a sizable portion of the population residing in the programme implementation area is floating population, which results in 4-6% of the beneficiaries dropping out of the programme every year. Hence, a drop-off of 5% is considered from the 2<sup>nd</sup> year onwards.

### Calculating the Impact

The impact of the project has been arrived at based on the following calculations:

<b>Impact value for first year</b>	Quantity of change or Number of unique beneficiaries or Number of unique benefit units x Financial Proxy (FP) value x (1 - deadweight) x (1 - displacement) x (1 - attribution)
<b>Impact value for subsequent years</b>	Quantity of change or Number of unique beneficiaries or Number of unique benefit units x FP value x (1 - deadweight) x (1 - displacement) x (1 - attribution) + [impact of previous year] x (1 - drop-off)]

Based on the above calculations, the cumulative benefit or impact generated by the project from the year 2020-21 till the end of the financial year 2023-24 comes out to be INR 8,32,94,670.

<sup>8</sup> Certain benefits have been envisaged to continue throughout the year 2023-24, i.e., till March 2024

<sup>9</sup> Annual Report under Solid Waste Management Rules for the year 2018-19: <https://www.hspcb.org.in/content/MSWSAB/ARSWM18-19/ARSWM18-19.pdf>

Table 12 : Impact Map

Stakeholder(s)	Inputs/ Activities	Output	Expected Outcome	Envisioned Impact
Residents of households (Horizontal Households/ Condominiums)	<p>Conduct training and awareness sessions on waste segregation through community engagement activities (Plogrun, “Chai pe charcha”, IEC Activities- wall paintings, car parking stickers, badges etc.)</p> <p>Awareness, support, and technical guidance on Solid waste management rules and installation of compost units at condominiums/ community level.</p> <p>Awareness sessions with RWA and society representatives for waste infrastructure improvement, supplemented by follow-ups with MCG.</p> <p>Compost distribution initiatives (Thela mela/ stalls at parks etc.)</p>	<p>26,987 individual households (both horizontal and condominiums in Delhi and Gurugram) sensitised around proper waste management practices.</p> <p>Individual households start home composting because of increased knowledge.</p> <p>Composting of 13 tons of organic/ wet waste per day at community levels.</p> <p>Installation of improved waste infrastructure at community premises resulting in waste being managed on-site.</p> <p>Distribution of compost to individual households.</p>	<p>Increase in awareness level of residents of households.</p> <p>Reduced instances of diseases in the household due to cleaner surroundings.</p> <p>Decrease in GHG emissions due to composting of the wet waste.</p> <p>Decreased volume of mixed or improperly segregated waste reducing the waste disposal at landfills.</p> <p>Economic value of compost generated/ distributed.</p> <p>Cleaner locality/ premises because of improved waste disposal infrastructures with less waste being dumped in the landfills.</p> <p>Motivated residents to promote segregated waste.</p>	<p>Empowered community members, waste workers, maids, and housekeeping staff due to the improved KAP on waste segregation.</p>
Commercials/ Market units	<p>Conduct training and awareness sessions on waste segregation through IEC Activities- wall paintings, nukkad natak etc.</p>	<p>1622 market units sensitized around proper waste segregation and management practices.</p>	<p>Increase in awareness levels of the market units'/ commercial units' staff/ owners.</p> <p>Decreased volume of mixed or improperly segregated waste reducing the waste disposal at landfills.</p> <p>Reduced instances of illness amongst the staff members.</p>	<p>Improved economic benefits (livelihood/ income level), and satisfaction level of waste workers.</p>

Stakeholder(s)	Inputs/ Activities	Output	Expected Outcome	Envisioned Impact
Maids and Housekeeping Staff	Awareness and training sessions with maids and housekeeping staff in the intervention geography.	2117 maids trained in the intervention area as part of 40 training sessions throughout the programme duration. 1044 housekeeping staff trained in the intervention area as part of 53 training sessions throughout the programme duration.	Increase in awareness levels of the maids and housekeeping staff around waste management/ segregation.	Increased social acceptance and quality of life of the waste workers.
Waste workers (collectors, contractors, entrepreneurs)	Trainings on systematic waste management. Distribution of precautionary items such as gloves/ masks etc. Setup of waste segregation/ composting/ recycling facility for waste entrepreneurs.	308 waste collectors/ workers trained on proper waste management. Waste workers provided with personal protective equipment to ensure safety on job. 3 waste enterprises set-up in the form of dry waste collection centres with an aim to boost the income of the entrepreneurs/ waste worker's, improve recycling rates and improve the waste worker's working conditions.	Increase in awareness levels of the waste workers around waste management/ segregation. Reduced health related issues such as injuries, infections, and other diseases. Savings in the form of time-cost due to less time being spent on segregation. Increase in income of waste entrepreneurs and waste workers.	Improvement in environmental conditions and cleanliness due to less dumping and lower GHG emissions because of on-site composting/ sorting spaces.
Municipal Corporation of Gurugram (MCG) and Municipal Corporation of Delhi (MCD)	Auxiliary support to the MCG/ MCD's efforts to promote source segregation as part of the Solid Waste Management Rules (2016).	13 tons of wet waste and almost 19 tons of dry waste being diverted from the landfills due to source segregation in Gurugram.	Reduced cost for MCG along with less GHG emissions and reduced pressure on the landfills.	Improvement in the Municipal Solid Waste Management (MSWM) systems and processes

*Note: The data points (pertaining to reach of the project) used in this impact map have been provided by Saahas as part of their monitoring reports/ audit reports. As this report has been prepared to assess the social impact and calculate the social return on investment of the project only hence, verification or validation of these data points has not been conducted as part of the study.*

Table 13 : Impact Values

Stakeholder	Benefits	Dead Weight	Displacement	Attribution (by others)	Drop-off	Total Value Created in 2020-21 (INR)	Total Value Created in 2021-22 (INR)	Total Value Created in 2022-23 (INR)	Total Value Created in 2023-24 (INR)	Cumulative Benefit Till 2024 (INR)
Residents of households	Economic value of the compost generated through home composting	17.50%	0%	50%	5%	4,153	41,323	76,635	82,147	2,04,258
	Decrease in GHG emissions through in-house composting of waste and reduced waste being dumped at the landfill (because of home composting)	17.50%	0%	50%	5%	6,928	68,933	1,27,837	1,37,033	3,40,731
Commercial units	Economic value of the compost generated through community composting	17.50%	0%	75%	5%	2,94,649	29,31,759	54,37,014	58,28,124	1,44,91,547
	Decrease in GHG emissions through condominium level composting and reduced waste being dumped at the landfill (because of community composting)	17.50%	0%	75%	5%	1,83,423	18,25,062	33,84,619	36,28,091	9,02,1195
	Increase in awareness levels of the households	17.50%	0%	50%	5%	42,585	1,68,211	2,87,556	3,05,117	8,03,471
Commercial units	Decreased medical expenses due to cleaner surroundings	17.50%	0%	50%	5%	5,13,726	51,11,573	94,79,528	1,01,61,435	2,52,66,263
	Increase in awareness levels	17.50%	0%	50%	5%	3,022	11,935	20,404	21,650	57,010

Stakeholder	Benefits	Dead Weight	Displacement	Attribution (by others)	Drop-off	Total Value Created in 2020-21 (INR)	Total Value Created in 2021-22 (INR)	Total Value Created in 2022-23 (INR)	Total Value Created in 2023-24 (INR)	Cumulative Benefit Till 2024 (INR)
Maids and Housekeeping staff	Increase in awareness levels of the maids	17.50%	0%	50%	5%	2,426	16,655	46,242	74,494	1,39,817
	Increase in awareness levels of the housekeeping staff	17.50%	0%	50%	5%	1,169	8,835	21,762	35,747	67,514
Waste workers	Increase in awareness levels of the waste workers	17.50%	0%	50%	5%	2,391	11,834	27,977	45,107	87,309
	Decrease in medical expenses due to less instances of falling ill and getting injured	17.50%	0%	50%	5%	44,783	5,79,937	14,91,379	24,58,010	45,74,110
	Time saved in sorting and collection of waste	17.50%	0%	50%	5%	48,452	6,27,454	16,13,574	26,59,405	49,48,886
Waste entrepreneurs	Increase in monthly income due to better recovery %	17.50%	0%	50%	5%	69,736	9,03,081	23,22,382	38,27,624	71,22,823
	Increased income due to waste enterprise	17.50%	0%	75%	5%	0	0	0	3,71,250	3,71,250
Municipal corporation of Gurugram	Reduced fees for processing the waste at landfill due to reduced volume of waste	17.50%	0%	50%	5%	3,21,259	31,96,172	59,27,339	63,53,716	1,57,98,486
<b>Total impact created (in INR)</b>						<b>15,38,701</b>	<b>1,55,02,766</b>	<b>3,02,64,250</b>	<b>3,59,88,952</b>	<b>8,32,94,670</b>

Table 14 : Financial Proxy Logic

Stakeholder	Benefits	Financial Proxy Explanation	Source(s)
Residents of Households (Horizontal Households and Condominiums)	Economic value of the compost generated through home composting	The proxy is calculated by assuming price per kg of compost to be Rs. 8 and multiplying it with the average amount of compost generated in a month as per the survey findings. To calculate the total number of unique beneficiaries reached out to each year, the total no. of beneficiaries of the programme, i.e., 26987 (apart from the commercials and market units) is divided by 31 (total no. of months for which the programme has run) to get monthly unique beneficiaries. This no. is then multiplied by 4, 12, 12 and 3 to get the unique no. of beneficiaries reached out to in the four financial years respectively.	India mart link for the price of 1 Kg compost
	Decrease in GHG emissions through in-house composting of waste and reduced waste being dumped at the landfill (because of home composting)	The respondents who are practicing home composting generate around 0.56 Kg of wet waste every day. It is assumed that around 35% of this waste is being composted. Now, to calculate the GHG emission reduction, the reference is taken from the Department of Environment, Food and Rural Affairs (DEFRA), Government of UK emission factors sheets. This gives us the value of the CO <sub>2</sub> e that is being saved due to home composting. This value is then multiplied by the estimated social cost of carbon in India (~86 USD) which is again converted to INR by multiplying by the current rate of conversion. The unique beneficiaries are calculated as per the logic detailed above.	Link for the DEFRA sheet Link for research paper on estimated social cost of carbon
	Economic value of the compost generated through community composting	The proxy is calculated by assuming price per kg of compost to be Rs. 20. This is higher, since the quality of compost being generated is better than what is being generated through home composting. The amount of wet waste being composted through community composting is 13 tonnes per day in the intervention geography. This figure has been shared by Saahas as part of their monitoring report along with waste audit reports. An assumption has been taken that the weight of the compost coming out of the composting unit is only 35% of the weight of the wet waste going into it. The number of beneficiaries for this activity is calculated by the same logic as the first benefit. The only exception being the total number of beneficiaries (which are calculated by considering only those condominiums or the horizontal colonies where community composting is being practiced), which is equal to 25,939 in this case.	Secondary research, records from Saahas, waste audit reports India mart link for the price of 1 Kg compost
	Decrease in GHG emissions through condominium level composting and reduced waste being dumped at the landfill (because of community composting)	13 tonnes of wet waste is being composted on a daily basis in the intervention geography (please refer the above explanation for the source). The GHG emissions saved due to composting are calculated using the DEFRA emission factors. The number of beneficiaries is calculated using the logic described above.	Secondary research, records from Saahas, waste audit reports Link for the DEFRA emission factors sheet

Stakeholder	Benefits	Financial Proxy Explanation	Source(s)
	Increase in the awareness level of the residents of the households	As per the NSDC norms, the average hourly rate of training is Rs. 35 for a category 3 role (There is already a QP named waste worker and picker). We have considered same as the reference for this proxy. On an average, we considered a single interaction with household lasts for around 15 mins and 4 interactions with every unique household benefitted every year.	NSDC QP search link Ministry of Skill Development and Entrepreneurship notification link
	Decreased medical expenses due to cleaner surroundings	During our survey, a certain number of respondents said that on an average INR 1,900 is saved every month due to increased hygiene and clean surroundings. This was considered as proxy and the benefit was calculated by extrapolating the sample beneficiaries on the unique beneficiary numbers every year and multiplying it with the proxy and the no. of months in the year.	Survey findings
Commercial units	Increase in awareness levels	As per the NSDC norms, the average hourly rate of training is Rs. 35 for a category 3 role (There is already a QP named waste worker and picker). We have considered same as the reference for this proxy. On an average, we considered a single interaction with household lasts for around 15 mins and 4 interactions with every unique market unit/ commercial benefitted every year.	NSDC QP search link Ministry of Skill Development and Entrepreneurship notification link
Maids and Housekeeping Staff	Increase in awareness levels of the maids Increase in awareness levels of the housekeeping staff	As per the NSDC norms, the average hourly rate of training is Rs. 35 for a category 3 role (There is already a QP named waste worker and picker). We have considered same as the reference for this proxy. On an average, we considered a single interaction with maids and housekeeping staff lasts around 1 hour and the training is repeated with the previous year's beneficiaries as well. The number of unique maids and housekeeping staff covered under the programme every year is shared by Saahas as part of their monitoring sheets/ reports.	NSDC QP search link Ministry of Skill Development and Entrepreneurship notification link
Waste Workers	Increase in the awareness level of waste workers on waste segregation	As per the NSDC norms, the average hourly rate of training is Rs. 35 for a category 3 role (There is already a QP named waste worker and picker). We have considered same as the reference for this proxy. On an average, we considered a single interaction with waste workers lasts around 50 min and 5 interactions in a year with them and the training is repeated with the previous year's beneficiaries as well. The number of unique beneficiaries is calculated using the logic for benefit 1. The total number of beneficiaries in this category is 308.	NSDC QP search link Ministry of Skill Development and Entrepreneurship notification link
	Decrease in medical expenses due to less instances of falling ill and getting injured	During our survey, certain number of waste workers reported monthly savings due to less instances of falling ill. The savings on health-related issues (Injuries/Illness) was reported as INR 788. The same has been taken as a proxy. The unique beneficiaries each year have been calculated using the logic above.	Survey findings



Stakeholder	Benefits	Financial Proxy Explanation	Source(s)
	Time saved in sorting and collection of waste	On an average, certain waste workers reported time of 2 hours being saved in a day due to the improvement in waste segregation practices. Since a monthly salary of Rs. 7,000 was reported by the waste workers, using this value we calculated an hourly salary, considering daily working hours to be 12 hours. If the time saved in sorting has decreased by 2 hours on average, then the time cost saved in $(7000/(12*30))*2*30*12$ . Unique beneficiaries every year are calculated using the logic above.	Survey, Qualitative interactions
	Increase in monthly income due to better recovery %	Certain number of respondents have reported the increase in their monthly income by INR 1,994 on average. The same has been used as a proxy. Unique beneficiaries every year have been calculated using the logic above.	Survey findings
Waste entrepreneurs	Increased income due to waste enterprise	3 waste enterprises have been setup through the project. During the interaction with the 3 entrepreneurs managing the enterprises, they reported an increase in the monthly income by INR 50,000 on an average. The value derived from these enterprises have been calculated for the last year only, as the enterprises were setup within this year.	Survey findings, Qualitative interactions
Municipal Corporation of Gurugram	Reduced fees for processing the waste at landfill due to reduced volume of waste	As reported by Saahas, 13 tonnes of wet waste/ day is being composted at the community level along with a small amount of waste that is being home composted, and almost 19 tonnes of dry waste/ day is being either processed or recovered. Hence, it is assumed that this waste is not going to the landfill. Municipal Corporation of Gurugram pays a tipping fee to the concessionaire as INR 1,000* per ton of waste which is dumped in the landfill. Further, as per the report titles "Swachh Bharat Mission - Urban 2.0 - Operational Guidelines (2021)" the land remediation cost per tonne of waste is estimated at INR 550/tonne. Hence a proxy of Tipping fee + land remediation cost has been taken for SROI estimation.	Link for proxy value Secondary research, records from Saahas, waste audit reports Link to Swachh Bharat operational Guidelines

*\*During the qualitative interaction with the MCG official, it was conveyed to the research team that every ton of waste diverted from the landfill results in a saving of INR 3,000 for the MCG (tipping fees + operational savings). However, for the calculations of the SROI, we have considered only the tipping fees value (INR 1,000) as the proxy, as there was no documented/ published evidence to corroborate the figure of INR 3,000 in the form of savings per ton of waste diverted.*

## 5.2. Calculating the SROI Value

The SROI value is expressed as a ratio of the return and is calculated by dividing the value of the net present value (NPV) of the total benefits or the impact by the NPV of the total investment or funds utilized.

Total Impact Value = INR 8,32,94,670

Total Utilisation (till the time of utilisation) = INR 2,70,63,103<sup>10</sup>

SROI = NPV of Impact value (or cumulative benefits)/ NPV of the utilisation

The net present value (NPV) of the impact values and the utilisation is taken into account while making the calculations. To calculate the NPV values, a discount rate of 6% per annum, based on average inflation in India within last 3 years i.e., 2022, 2021, 2020, is considered<sup>11</sup>.

<sup>10</sup> As reported by Saahas. No review or validation of the same has been done as part of the study

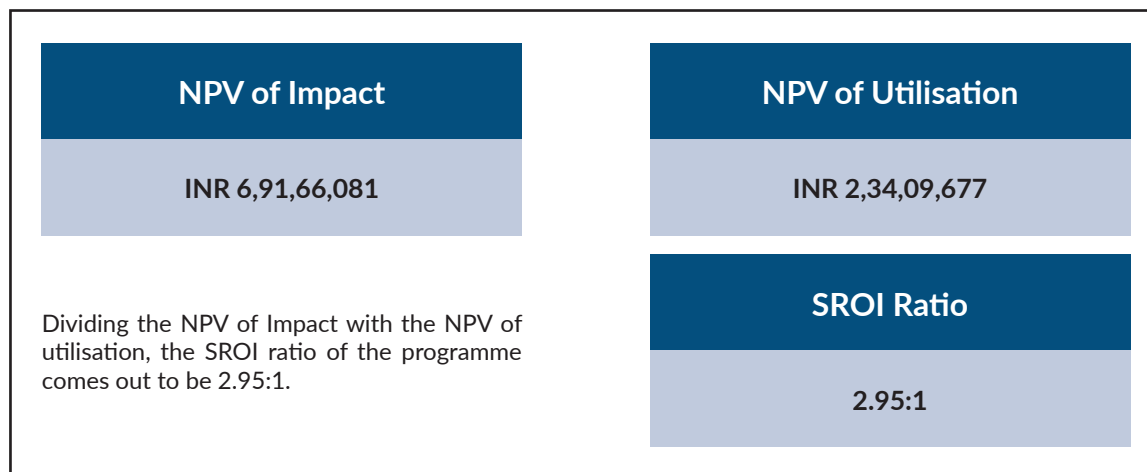
<sup>11</sup> India Inflation rates - [https://www.worlddata.info/asia/india/inflation-rates.php#google\\_vignette](https://www.worlddata.info/asia/india/inflation-rates.php#google_vignette)

NPV can be calculated using the below formula:

NPV of Impact value =  $\text{Impact value (or cumulative benefits)} / (1 + \text{discount rate})^{\text{time}}$

NPV of utilisation =  $\text{Utilisation} / (1 + \text{discount rate})^{\text{time}}$

Following are the values of the NPV of Impact values and Utilisation for the Alag Karo Programme:



The SROI value similarly is 2.95. This means that for every INR 1 being invested in the programme, a social value of INR 2.95 for the stakeholders or beneficiaries is being created in the year 2023-24.

### Assumptions and Limitations to SROI estimation

- The calculations to estimate the SROI value of the programme have made use of either the extrapolation of the quantitative survey results on the total population or the data on the project reach or benefits provided by Saahas as part of its monitoring reports and waste audits. The exact number of beneficiaries or the entire quantum of benefits has not been validated or verified independently on-ground.
- The proxy values (as given in table above) for the calculations have been referred to from websites/sources that are generally acceptable as standard sources. PW does not claim the responsibility for the correctness of data on such websites or documents.
- Although the planned budget for the project is a little higher (INR 3,01,25,468), the utilisation till the time of the calculation of the SROI/ field survey is INR 2,70,63,103. Hence, only this value has been considered for the estimation of SROI. The project utilisation figures have been provided by Saahas and no reviews/ validation has been done of the same as part of the study.
- The GHG emissions/ savings due to processing or recycling of the dry waste have not been considered

in the SROI. The reason being that there is no exact information of the downstream process that is employed to manage the segregated dry waste. There is a chance that the further management of dry waste results in a net positive GHG. However, the cost saved due to the waste being diverted from the landfill has been considered.

- It was agreed in mutual consultation with Saahas that the programme may be divided into 31 months (Dec 2020 – June 2023), considering equal number of unique beneficiaries for each individual benefit every month. The calculations in the SROI have been made accordingly.
- During the qualitative interaction with the MCG official, it was conveyed to the survey team that every ton of waste diverted from the landfill results in a saving of INR 3,000 for the MCG (tipping fees + operational savings). However, for the calculations of the SROI, we have considered the tipping fees value (INR 1,000) and the land remediation cost per tonne of waste (INR 550) as the proxy, as there was no documented/ published evidence to corroborate the figure of INR 3,000 in the form of savings per ton of waste diverted.
- In consultation with the team from Saahas, the interview with SSIL, the designated waste concessionaire in Vasant Kunj, was not held. Moreover, one of the interactions with the “Community Volunteers” and 2 interviews with representatives from the “Resident Welfare Association (RWA)” of societies, were held telephonically due to unavailability of the respective respondents for an in-person interview.

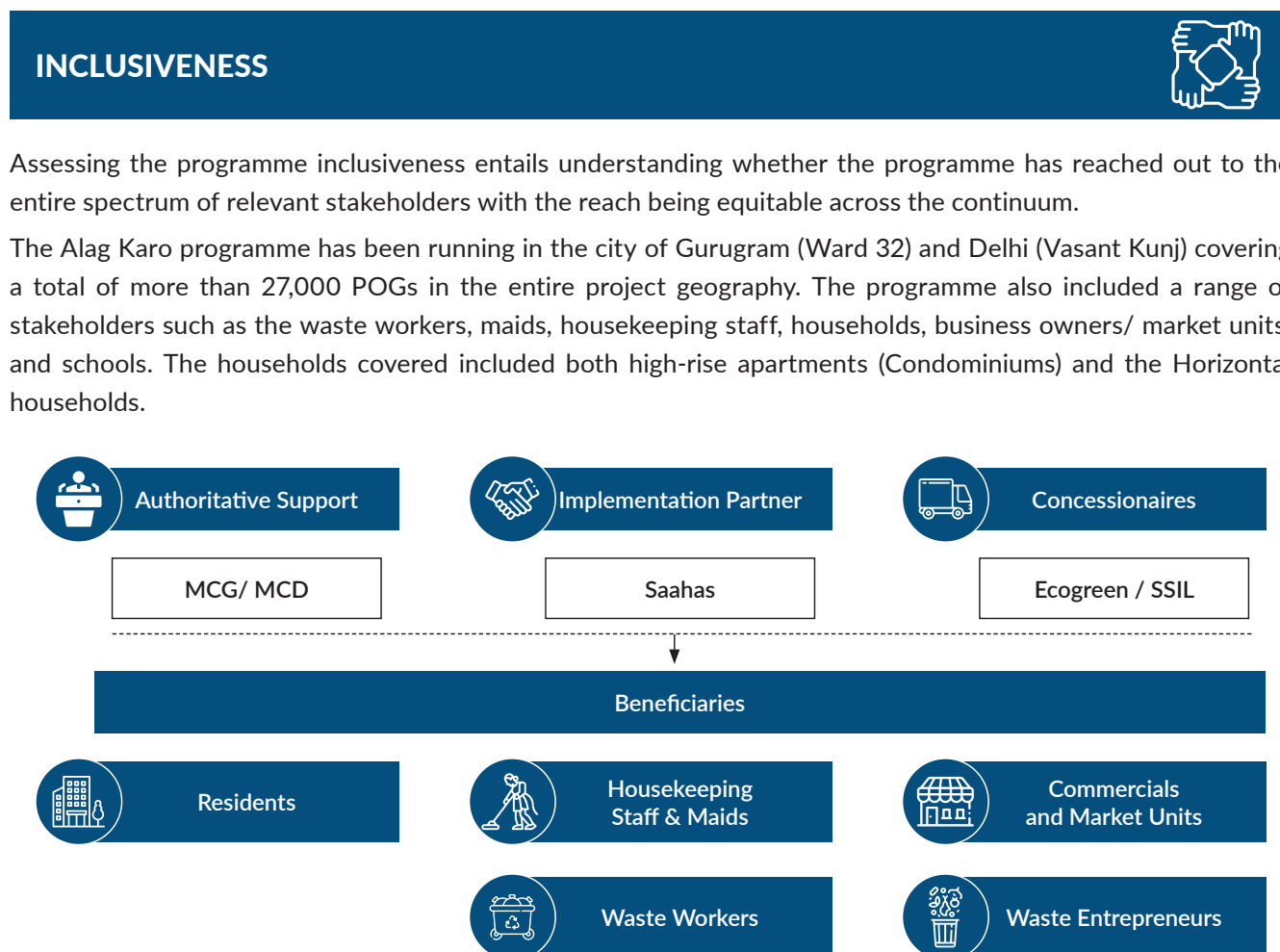
## 6. IRECS Analysis



Three Way Segregation

Following is an assessment of the Alag Karo Programme on the parameters of IRECS Framework:

**Table 15 : IRECS Analysis (Inclusiveness)**



During the qualitative and quantitative survey, it was noted that the team from Saahas had conducted training and awareness sessions with all these stakeholders. This indicates that the programme is inclusive and has reached out to every stakeholder critical to the process.

However, it may be noted that the programme might have been even more effective if it had also covered the urban villages as part of its implementation design. As per Saahas, at the inception of the programme, it was aimed that the programme would also cover 4 urban villages in Gurugram. However, challenges such as multiple covid lockdowns and constrained timelines meant that this target could not be achieved.

Table 16 : IRECS Analysis (Relevance)

## RELEVANCE



Assessing the programme relevance entails understanding whether and how well the programme has been able to cater to the perceived needs of the community and the key stakeholders involved.

The project aims to cater to proper waste management and segregation in Gurugram and Delhi. Gurugram, especially, being an industrial hub, is a place which attracts migrant population in search of opportunities. It is therefore evident that the waste generation in the region will increase in the coming years as well, putting pressure on the existing waste management infrastructure. Programmes such as Alag Karo, are therefore relevant and would be helpful in diverting the waste from the landfills and reducing the environmental impact associated with improper waste management.

As per the findings of the quantitative as well as the qualitative survey, the Alag Karo programme has been able to create awareness and a sense of responsibility around waste management amongst the residents. **A majority of the residents in the households agreed that since the programme has started, the hygiene in and around their locality has improved. This has also been complimented by the fact that the designated waste collectors in the area are now more regular in terms of their frequency of trips.**

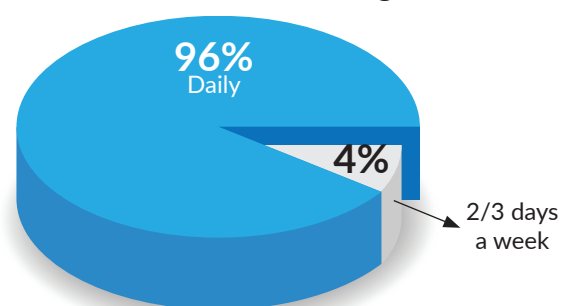
Improvement in general hygiene in the surrounding area (N =255)

Improved to a great extent - **184 (72%)**

Improved to some extent - **57 (22%)**

Remained the same - **14 (5%)**

Waste Collection Timing (N=255)



Also, the objectives and achievements of the programme are also in line with the current waste management objectives of the state and central governments (Swacch Bharat, SWM Rules 2016, etc.), international commitments (SDGs etc.).

All these factors indicate that the programme is relevant to the community and societal needs as far as solid waste management is concerned.

**Table 17 : IRCES Analysis (Effectiveness)**

## EFFECTIVENESS



Assessing the programme's effectiveness entails understanding how well the programme has been able to achieve the objectives intended at the time of the programme's ideation or inception.

As part of the survey exercise, it was found that the programme has been able to create a consistent and conscious change in the perception of the waste generators (POGs) and the waste collectors with regards to proper waste management.

During the survey, 100% of the respondents agreed that they have started segregating their waste, which means that the programme has been able to achieve the targets that were envisaged at the time of the programme inception. Also, a few of the respondents have started home composting, thereby reducing the pressure on the landfills. The programme and the programme team has also acted as a catalyst in motivating the condominiums and horizontal household colonies' RWAs in starting and practicing home composting, which has resulted in diverting 13 tons of wet waste from the landfill every day.

The programme has also been effective in reducing the health-related expenditure related specifically to waste amongst the beneficiaries.

- The residents reported a decrease of INR 1,900 monthly (on an average) on health expenses due to improper waste management.
- The waste workers reported a decrease of INR 788 monthly (on an average) on expenses related to health and injuries.

Moreover, the waste workers also reported an increase in their monthly income by INR 1994 on an average. This, according to the respondents, is due to the fact that their dry recovery has also increased from 28% before the programme to almost 62% since the programme.

Overall, it can be said that the programme has been effective in bringing about a positive change in terms of waste management/ segregation and consciousness of the people around the topic.

There are, however, certain recommendations to further improve the overall effectiveness of this programme, which can be referred to in the recommendations section of this report.

Table 18 : IRECS Analysis (Convergence)

## CONVERGENCE

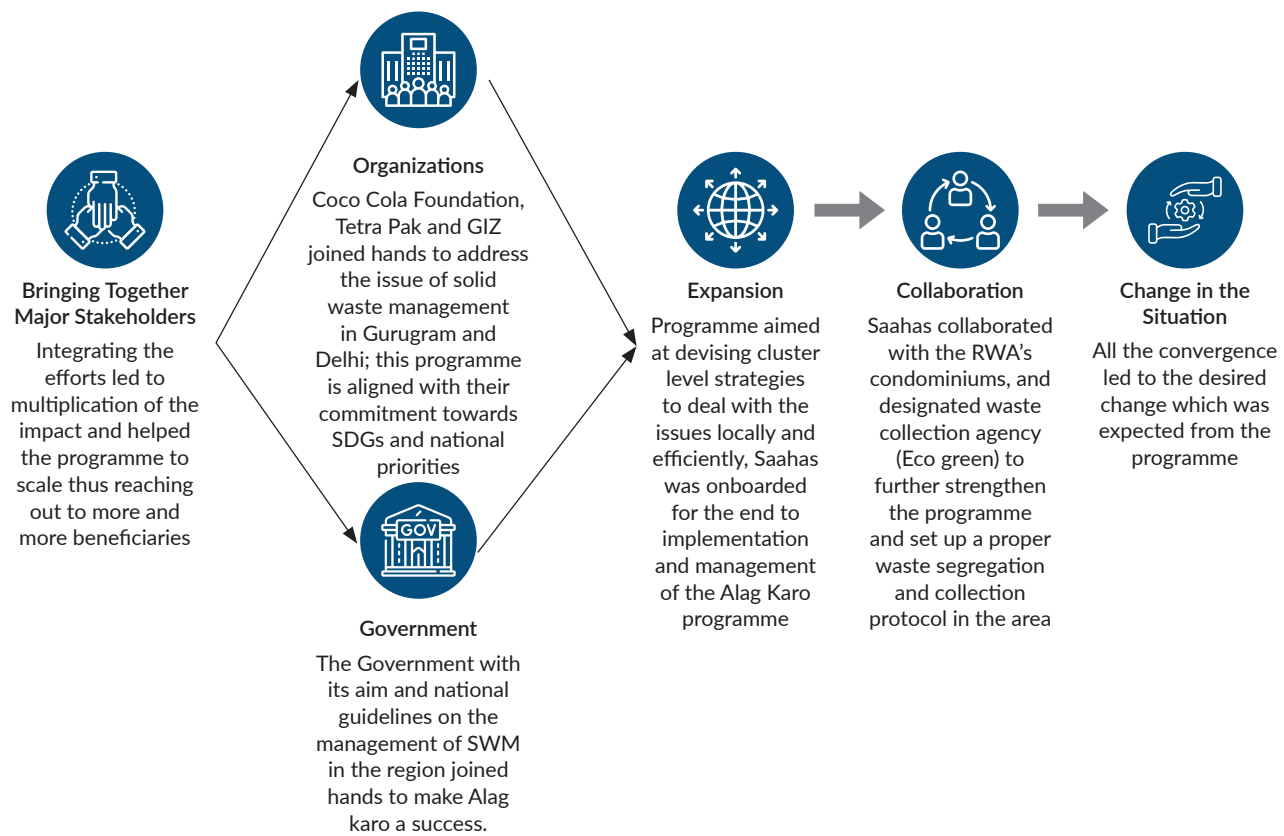


Assessing the programme on the convergence parameter entails understanding how well the programme has been able to form meaningful partnerships with relevant stakeholders to multiply the impact.

As discussed earlier, the implementation of Alag Karo programme has seen multiple stakeholders, with various roles to play, come together to deliver the benefits.

MCG and MCD played an extremely important role in providing support to Saahas in its efforts to reach out to the households with its message of waste segregation. The efforts of Saahas also complimented the Government agencies' existing efforts to promote source segregation in line with the Solid Waste Management Rules (2016).

Saahas also collaborated with the designated concessionaire for waste collection (Ecogreen in Gurugram and SSIL in Delhi) to amplify the impact along with the support and collaboration with RWAs, Society representative, and community volunteers in both the locations.



The programme has, therefore, achieved a substantial degree of convergence in both locations (Gurugram and Delhi), through its collaborative efforts.

**Table 19 : IRECS Analysis (Sustainability)**

**SUSTAINABILITY** 

Assessing the programme on the sustainability parameter entails understanding how well the programme has been able to empower the beneficiaries and create an ecosystem such that the sustainable benefits may flow in even after the implementation period of the programme ends.

Alag Karo has been able to empower the communities and build their capacities around waste management in a manner such that the benefits are reaped even after the programme implementation ends.

The programme has provided technical support to the RWAs and the condominiums resulting in community composting pits, which currently divert close to 13 tons of waste every day from the landfills. This results in improvement in the environment through emission savings. Furthermore, the programme has facilitated formation of a monitoring body in the form of an Eco-club in certain condominiums of Gurgaon constituting residents from the society who are not associated with the RWA or society management. This Eco-club functions as an overall body which tracks and monitors the waste management process in these respective societies.

Moreover, Saahas has facilitated setting up 3 waste enterprises in Gurugram for efficient waste sorting and composting at a centralised unit. These enterprises are being run by identified waste entrepreneurs, which have been working as the waste contractors in the past. These entrepreneurs have reported an average monthly increase in income by INR 50,000. The enterprises are designed in a manner such that this benefit is to be realised post the programme implementation period as well.

The training sessions with the waste workers, maids, housekeeping staff and the households have adequately built their capacities so that they follow and propagate sustainable waste management practices in the future as well.

The programme, through its continued efforts, has been able to contribute towards the fulfilment of the following sustainable goals as well:





# 7. Recommendations



Three Way Collection

Recommendations that may help/ have helped in furthering the impact of this programme or design improved programme delivery in future around similar focus areas are as follows:

- The training and awareness sessions with the households have been conducted in a serial manner. As a result, it was observed on the field that certain specific areas have been targeted in the past few months, while other areas were reached out to during the initial phases of the programme. It is therefore recommended that training and awareness sessions with the entire geography are carried out parallelly and in a continuous manner. Moreover, during the survey, it was found that there is a need to periodically provide trainings to various stakeholders because of the floating population.
- Monitoring protocols for the waste workers must be set at the inception of the programme to continuously check and monitor the levels of segregation. Currently, the team from Saahas monitors the segregation levels through WhatsApp messages floated by the waste collectors. The team has also piloted IT tools to assess and monitor the segregation levels in certain societies. It is recommended that the same shall be replicated in other colonies/ societies of the programme geography as well.

- The programme has been effective in bringing about behavioural and process changes in the geography that it has covered. However, during the discussions with MCG, it was found that a major problem of waste management in the city of Gurugram is due to unplanned dumping of waste in the urban villages. It is recommended that the programme design caters to this specific problem as well.
- Although the waste workers have reported an increase in income along with decreased expenses on illness and injury related issues, it was observed during the survey that the working conditions of these waste workers have not improved considerably. Moreover, even though the waste workers have reported savings in terms of time, they have not been utilising the saved time effectively. It is recommended the programme has specific activities built in its design to target these particular problems.
- During the survey it was found that the recent Plog-run conducted in Gurugram has been effective in bringing about the change in the perception of the stakeholders around waste management. It is recommended that such initiatives are carried out at regular intervals throughout the programme duration to maximize the impact.



Credits: Saahas

# Limitations of the Study



Training of Maids at a Society

- Due to the study design and the types of respondents covered, it was not possible to select the sample and conduct the survey in a completely random manner.
- The data shared by Saahas has been used as such in the report and has not been verified independently by PW.
- The data on budget utilisation has been shared by Saahas in the form of an excel sheet. The same has been used as is by PW for the SROI calculations.
- PW has not been engaged to, nor has PW, provided any management functions, or made management decisions.
- This engagement does not relate to design of financial information systems or accounting or preparation of financial statements. PW did not make or present recommendations in a way that its work amounts to designing a new financial system.
- PW has only provided recommendations for improvements in the select project assessed only for providing options for consideration of clients and not making any management decision for selection, prioritisation, and implementation of the same.
- PW's deliverable in no way should be construed as an opinion, attestation, certification, or other form of assurance. PW has not performed any procedure which can be constituted as an examination or a review in accordance with generally accepted auditing standards or attestation standards. PW has not audited or otherwise verified the information supplied to PW in connection with this engagement, from whatever source.
- PW performed and prepared the Information at client's direction and exclusively for client's sole benefit and use pursuant to its client agreement. PW's report is based on the completeness and accuracy of the above stated facts and assumptions, which if not entirely complete or accurate, should be communicated to PW immediately, as the inaccuracy or incompleteness could have a material impact on PW's conclusions.









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