HDFC BANK | PARIVARTAN
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Impact Assessment Report

Integrated, Sustainable and Environment-Friendly Waste Management Solutions

Project Code: P0295

Executive Summary

HDFC Bank, in partnership with UNDP India, had designed an initiative to minimise the negative impacts and risks of waste on the environment by enhancing sustainable dry waste management practices. This was achieved through a socio-technical model that includes segregation, collection, and recycling, improving material resource efficiency, minimizing waste, and adding value based on circularity principles.

The study has been conducted in 3 states across 4 project locations – Uttarakhand (Rishikesh and Dehradun), Goa (Panaji) and Uttar Pradesh (Greater Noida). Below mentioned is the summary table of the geographic locations –

Sl. No.	States	Locations
1.	Uttarakhand	Dehradun
		Rishikesh
2.	Goa	Panaji
3.	Uttar Pradesh	Greater Noida

The "Integrated, Sustainable and Environment-Friendly Waste Management Solutions" project was assessed as per the OECD-DAC and KAB framework criteria. The relevance, effectiveness, efficiency, impact, coherence, and sustainability of the intervention was assessed and is mapped below:

Relevance

- 82% of the beneficiaries are married and responsible for supporting their families
- A balanced representation of both male and female beneficiaries, indicating equal participation in interactions
- 56% of the beneficiaries are illiterate highlighting the vulnerability and limited awareness of Waste Management initiatives
- 43% of the beneficiaries serve as the chief wage earners in their families, while around 29% are actively engaged in work within their households.
- 56% of the beneficiaries are solely responsible for waste collection within their households.
- 56%, reside in temporary and unauthorised homes and 36% of beneficiaries live as tenants in rented houses
- 51% of the beneficiaries in the absence of project were unaware of proper waste segregation practices
- 42% of the beneficiaries were unaware of the good practice of covering waste collection vehicles
- 44% of the beneficiaries were unaware of essential health and safety practices in the absence of the project
- 90% of the beneficiaries expressed a strong belief in the need for awareness and training sessions on waste management and segregation

Effectiveness

- 95% of the beneficiaries have received training and awareness sessions on waste management through the project
- 91% of Safai Sathis were involved in proper waste segregation after the Project
- After the Project, 95% of Safai Sathis were aware about the practice of capping waste collection vehicles
- 90% of the Safai Sathis got aware about the adoption of Safety Measures while Waste Collection after the project implementation
- There has been complete eradication of several key waste related challenges since the project implementation
- 58% of the Safai Sathis believed that the waste-related challenges have been successfully resolved by the Project
- Significant improvement in the awareness levels of beneficiaries regarding different types of waste after the project
- Increase in Level of Awareness of Beneficiaries about Problems Associated with Improper Disposal of Non-Segregated Waste

Impact

- There has been a 17% decrease in health hazards faced by Safai Sathis since the project implementation
- 87% of the Safai Sathis acknowledged that the project played a role in improving their livelihood opportunities
- A combined 65% of Safai Sathis rated the project as 4 or 5 in improving their personal income
- A combined 53% of Safai Sathis rating the project as 4 or 5 in decreasing their migration for work

Coherence

- The programme is in alignment with Swachh Bharat Mission and National Mission for Waste to Wealth
- The programme aligns with SDG 1,3,5,6,9,11,12,13,14,15 and 17
- The project aligns with BRSR Principles - 2,4,5,6, and 8

Efficiency

- 46% of Safai Sathis cater more than 30 houses for Waste Collection
- 56% of Safai Sathis spend over 5 hours in a day for Waste Collection
- 51% of the Safai Sathis prefer to collect Waste in the Morning
- 66% of Safai Sathis gather more than 5kg of Waste on daily basis

Sustainability

- Replicability and Success of Project's Socio Technical Model
- Introduction of the Self-Help Group (SHG) Model
- Incentive-Based Segregation System
- Individual wards replicating success
- Success of Composting Initiatives
- Positive Life Changes for Waste Workers

Contents

Chapter 1

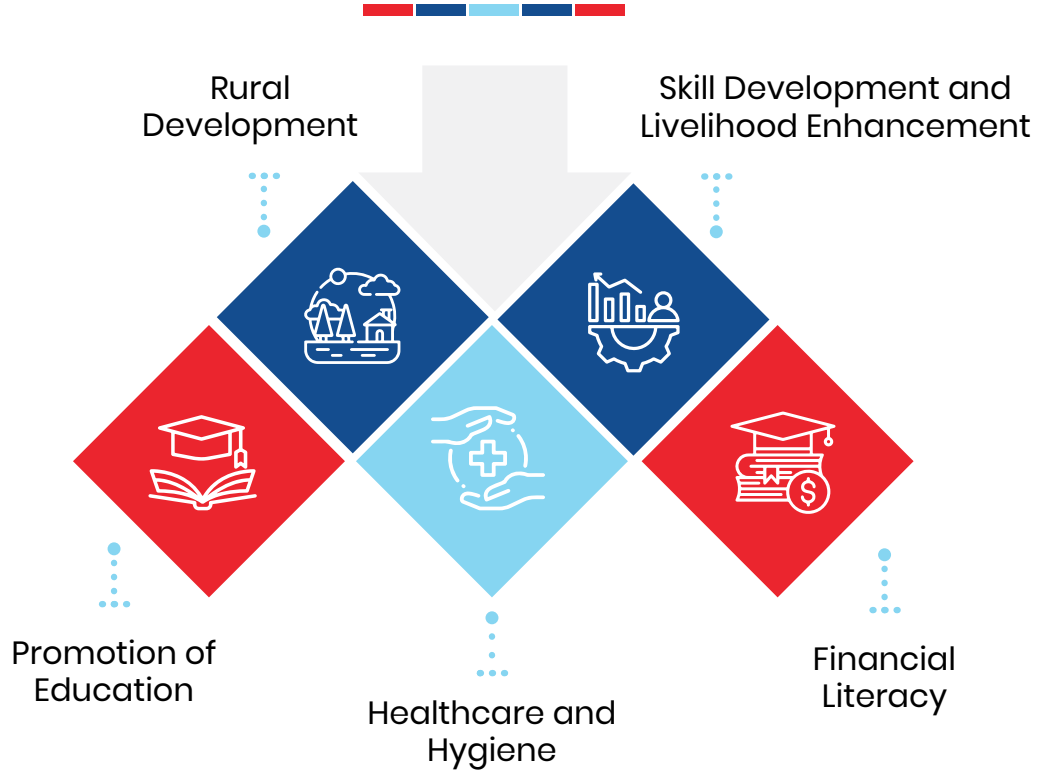
Project Background and Overview

This section provides an overview of the funding organisation, the programme objectives and the interventions.

1.1 CSR Initiatives of HDFC Bank

HDFC Bank is transforming the lives of millions of Indians through its social initiatives. Under the umbrella of 'Parivartan', these initiatives aim to contribute to the country's economic and social development by sustainably empowering communities. Parivartan has made a significant impact through interventions in rural development, education, skill development and livelihood enhancement, healthcare and hygiene, and financial literacy. With substantial progress already achieved, the bank continues to drive change in line with its philosophy of sustainability and innovation.

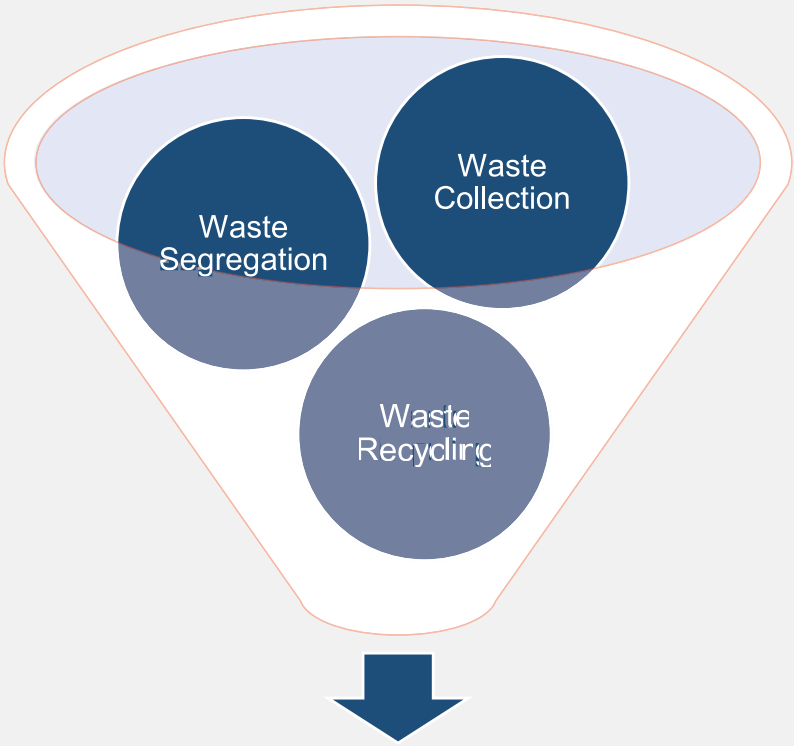
HDFC Bank's drive for positive changes hinges on the following thematic areas



- **Rural Development:** HDFC Bank's Holistic Rural Development Programme (HRDP) addresses village-specific needs through community-driven interventions, impacting 8,590 villages across India.
- **Skill Development and Livelihoods:** Under Parivartan, HDFC Bank supports projects focused on skill training, financial literacy, and entrepreneurship, enhancing agricultural practices and livelihoods for 8.75 lakh women entrepreneurs.
- **Education Promotion:** HDFC Bank fosters quality education by training teachers, integrating smart classes, and improving school infrastructure, benefiting 2.13 crore students and 2.83 lakh schools.
- **Healthcare and Hygiene:** Supporting Swachh Bharat Abhiyan, the Bank conducts health camps, promotes hygiene, provides clean drinking water, and organises blood donation drives, benefiting 1.87 lakh people and collecting over 23 lakh units of blood.
- **Financial Literacy and Inclusion:** HDFC Bank promotes financial literacy as a path to inclusion, educating 1.71 crore people through 5,400 branches nationwide and providing essential financial services and capacity-building programmes.

1.2 Project Context

HDFC Bank, in partnership with UNDP India, had designed an initiative to minimise the negative impacts and risks of waste on the environment by enhancing sustainable dry waste management practices. This was achieved through a socio-technical model that includes segregation, collection, and recycling, improving material resource efficiency, minimising waste, and adding value based on circularity principles. The initiative ensured compliance with Government of India regulations.



Socio-Technical Model adopted for the Project

The project aligned with the Government of India's Solid Waste Management Rules 2016, Plastic Waste Management Rules 2016, and the Swachh Bharat Mission. It aimed to achieve its objectives by institutionalising waste pickers (Safai Sathis) through social and financial inclusion, thereby respecting their dignity. This included providing better and safer working conditions at Material Recovery Facilities (Swachhta Kendras) and fostering greater work efficiency.

The Waste Management project, under the banner of 'Parivartan,' emerged as a response to the pressing challenges posed by inadequate waste management practices. Recognizing these challenges, HDFC Bank, in collaboration with UNDP, initiated the project with a vision to establish sustainable waste management system across project locations. The project aimed to not only address the immediate concerns of littering and hygiene but also fostered long-term solutions that promote resource recovery and environmental stewardship. The prime focus of the project was to develop a socio technical model involving hinging on key pillars – Waste Segregation, Waste Collection and Waste Recycling. The knowledge, awareness and behavioural change of residents and waste collectors as an impact made the project successful and efficient. Setting up of MRF centres were a crucial part of the programme to support waste recycling.

Project Geography

The study has been conducted in 3 states across 4 project locations – Uttarakhand (Rishikesh and Dehradun), Goa (Panaji) and Uttar Pradesh (Greater Noida). Below mentioned is the summary table of the geographic locations –

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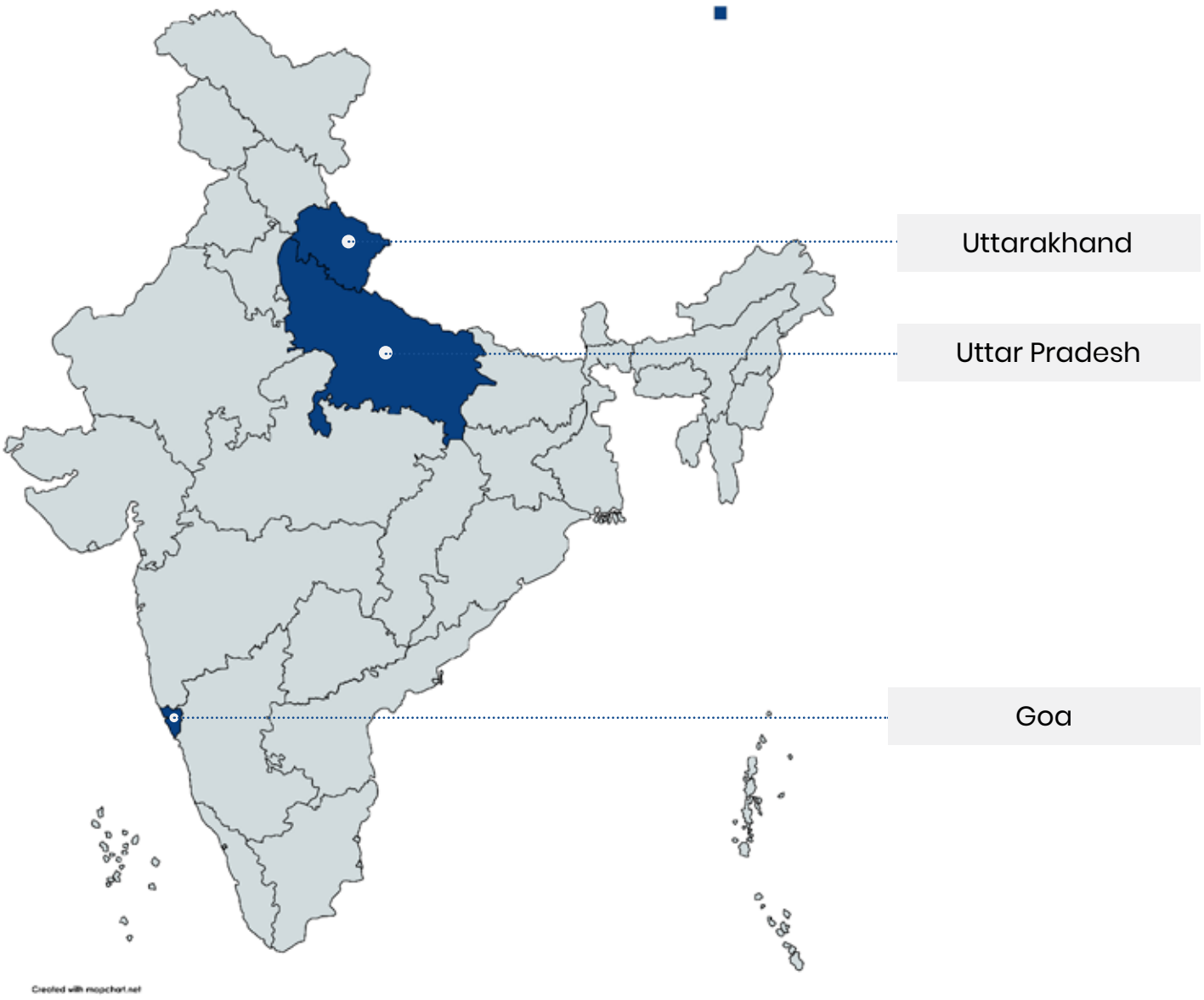


SDG Goal	SDG Target	Alignment
	End poverty in all its forms everywhere	The onboarding of Safai Sathis is creating a reliable job and source of income for the Waste Collectors. In Rishikesh and Panaji, initiatives were taken to open the Bank Accounts of the Safai Sathis.
	Ensure healthy lives and promote well-being for all at all ages.	Proper waste management reduces health hazards associated with open burning and dumping, resulting in improved public health and well-being. This is supported through increased awareness and supporting the onboarded Safai Sathis through Mediclaim and insurance.
	Achieve gender equality and empower all women and girls	The onboarded Safai Sathis are inclusive of gender equality and are provided wages equally.
	Ensure availability and sustainable management of water and sanitation for all.	Effective waste management prevents the contamination of water sources, ensuring access to clean water and sanitation facilities for rural communities.
	Build resilient infrastructure, promote inclusive and sustainable industrialisation and foster innovation.	Effective waste management prevents the contamination of water sources, ensuring access to clean water and sanitation facilities for rural communities.
	Make cities and human settlements inclusive, safe, resilient and sustainable.	By establishing a sustainable waste management model, the project contributes to creating cleaner and more resilient communities, enhancing living conditions, and promoting inclusivity and sustainability.

	Ensure sustainable consumption and production patterns.	The project promotes resource efficiency and waste reduction through initiatives like segregation, collection, and recycling, thereby encouraging responsible consumption and production patterns.
	Take urgent action to combat climate change and its impacts.	By reducing open burning and landfill emissions, the project reduces greenhouse gas emissions and supports climate change adaptation and resilience.
	Conserve and sustainably use the oceans, seas and marine resources for sustainable development.	Through the adoption of Socio -Technical Model, the project helps in the conservation and preservation of life below water and on land.
	Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.	
	Strengthen the means of implementation and revitalise the Global Partnership for Sustainable Development.	Collaboration between HDFC Bank, UNDP, local authorities, and community stakeholders highlights the importance of partnerships in achieving sustainable development goals, fostering collective action, and facilitating knowledge sharing.

1.4 Alignment with National Priorities

Scheme Name	Scheme Details	Alignment
Swachh Bharat Mission	The Swachh Bharat Mission - Urban (SBM-U), launched on 2nd October 2014, aims to make urban India free from open defecation and achieve 100% scientific management of municipal solid waste in 4,041 statutory towns across the country. The second phase of SBM-U was launched on 1st October 2021 for a period of five years. The vision for SBM-U 2.0 is to achieve "Garbage Free" status for all cities by 2026 .	The project aligns closely with the objectives of the Swachh Bharat Mission, which aims to achieve open defecation-free (ODF) status, improve waste management practices, and promote cleanliness and hygiene.
National Mission for Waste to Wealth	The mission aims to identify, develop, and deploy technologies to treat waste for energy generation, material recycling, and resource extraction. The mission will assist and augment the Swachh Bharat and Smart Cities projects by leveraging science, technology, and innovation to create circular economic models that are financially viable for waste management, thereby streamlining waste handling in the country .	The project closely aligns with the objectives of the mission through the installation of MRF centres for processing, recycling and resource extraction from the waste collected through the involvement of technology and innovation.

Swachh Bharat Mission : Ministry of Housing and Urban Affairs, Government of India (mohua.gov.in)

1.5 Alignment with CSR Policy

Schedule VII (Section 135) of the Companies Act, 2013 specifies the list of the activities that can be included by the company in its CSR policy. The below-mentioned table shows the alignments of the intervention with the approved activities by the Ministry of Corporate Affairs.

Activity	Description	Alignment with the Project
(iv)	Ensuring environmental sustainability, ecological balance, protection of flora and fauna, animal welfare, agroforestry, conservation of natural resources and maintaining the quality of soil, air and water.	The project aims to establish a sustainable waste management socio-technical model that directly contributes to environmental sustainability. By implementing proper practices for waste collection, segregation, recycling, and disposal, the project helps reduce environmental pollution and promotes ecological balance.

1.6 Alignment with BRSR Principles

The programme's intervention also aligns with the ESG Sustainability Report of the corporate. Particularly, concerning the Business Responsibility & Sustainability Reporting Format (BRSR) shared by the Securities & Exchange Board of India (SEBI), the programme aligns with the principle mentioned below:

ESG Principle	Alignment with the Project
PRINCIPLE 2. Businesses should provide goods and services in a manner that is sustainable and safe	The project aims to establish a sustainable waste management socio-technical model system, which directly contributes to providing a service (waste management) sustainably (maximising resource recovery, reducing landfill) and safely (preventing environmental pollution and health hazards).
PRINCIPLE 4. Businesses should respect the interests of and be responsive to all its stakeholders	The project demonstrates responsiveness to stakeholders, including local communities, waste workers, residents, and municipalities, by addressing the critical need for proper waste management. This enhances hygiene, cleanliness, and overall well-being in the urban and peri-urban regions of the project geography.

PRINCIPLE 5. Businesses should respect and promote human rights	Implementing a waste management project contributes to human rights by reducing environmental pollution, improving public health, and creating safer and healthier living conditions for individuals in the project locations.
PRINCIPLE 6. Businesses should respect and make efforts to protect and restore the environment	The project focuses on managing waste through source segregation, collection and recycling that minimises environmental impact, promotes resource recovery, and reduces pollution, thereby aligning with efforts to protect and restore the environment.
PRINCIPLE 8. Businesses should promote inclusive growth and equitable development	Through capacity building, employment generation, and community engagement, the project aims to promote inclusive growth and contribute to equitable development. It provides livelihood opportunities to waste workers while promoting environmental sustainability.

National Mission for Waste to Wealth | India Science, Technology & Innovation - ISTI Portal (indiascienceandtechnology.gov.in)

Chapter 2

Design and Approach of the Impact Assessment

This section outlines the study objectives, framework and methodologies employed while conducting the assessment. It details the data collection methods and sampling techniques utilised to gather comprehensive insights into waste generation, segregation practices, infrastructure, and community perceptions.

2.1 Objectives of the Study

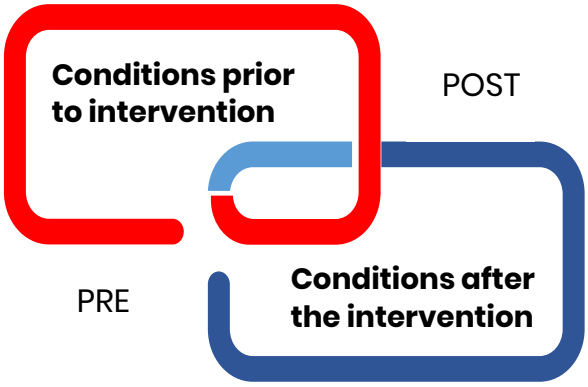
HDFC Bank Ltd. partnered with CSRBOX to conduct a comprehensive Impact Assessment of the Waste Management Project. The study aims to achieve the following objectives:

- To assess the project outcomes based on the OECD-DAC framework parameters of relevance, effectiveness, efficiency, coherence, impact, and sustainability
- To assess the project outcomes based on the KAB framework parameters of Knowledge, Attitude and Behaviour
- Garner feedback and responses – both qualitative and quantitative – from various stakeholders associated with the projects about the performance and the processes involved
- To gather information on experiences and challenges faced by the partner NGO during the implementation of the project
- To document impactful human-interest stories among the end beneficiaries of the project
- To provide suggestions/recommendations based on the study-related findings

The Impact Assessment for the Project aims to provide valuable insights into the multifaceted impact of the initiative. Through a comprehensive examination, the assessment seeks to offer key findings for refining and optimising the project's effectiveness in enhancing Waste Segregation, Collection and Management Practices.

2.2 Approach and Evaluation Framework

Given the objectives of the study and the key areas of inquiry, the method of evaluation focused on learning as the prime objective. This section presents the approach towards developing and executing a robust, dynamic, and result-oriented evaluation framework and design. To measure the impact, a pre-post programme evaluation approach was used for the study. This approach was dependent on the recall capacity of the respondents. . Under this approach, the beneficiaries were enquired about conditions before the programme intervention and after the programme intervention.



The difference helped in understanding the contribution of the programme in improving the intended condition of the beneficiary. This approach commented on the contribution of the programme in improving the living standards though it might not have been able to attribute the entire changes to the programme. Other external factors might have also played a role in bringing positive changes along with the programme. Hence, the contribution was assessed but attribution might not have been entirely assigned to the programme.

For the assessment of the programme, the study employed a two-pronged approach to research and data collection and reviewed secondary data sources and literature and primary data obtained from quantitative and qualitative methods of data collection. The figure below illustrates the study approach that was used in data collection and review.

Secondary Study

Involves review of project-related documents, beneficiary database, educational schemes and guidelines shared on government portals, and benchmark reports by esteemed organisations, available in the public domain to draw valuable insights

Primary Study

Qualitative and quantitative data collected on-field, Qualitative aspects of experiences gathered through IDIs/FGDs with the key stakeholders, Observation of the study area, Quantitative analysis conducted for data gathered through surveys

The secondary study involved a review of annual reports, project reports, and other studies, by research and renowned organisations available in the public domain for drawing insights into the situation of the area. The project implementation-related documents, specifying details of activities carried out, processes undertaken, number of beneficiaries reached, etc were studied. The primary study comprised qualitative and quantitative approaches to data collection and analysis. The qualitative interactions involved the inclusion of in-depth interviews (IDIs), and Focussed Group Discussions (FGDs) with key stakeholders.

In addition to primary data collection, various project documents like project proposals, project log-frame (Logical Framework Analysis), baseline and project cost and other variables (if any), project implementation timelines, communication and documentation products, and other relevant reports/literature related to the projects were studied. Other documents studies were implementation-related documents, specifying details of activities carried out, processes undertaken, number of beneficiaries reached, and details of spent & unspent different budgetary heads.

OECD DAC Evaluation Framework

To determine the relevance, coherence, effectiveness, impact potential, sustainability, and efficiency of the programme, the evaluation used the OECD DAC Framework. Using the logic model and the criteria of the OECD-DAC framework, the evaluation was able to assess the HDFC Bank's contribution to the results, while keeping in mind the multiplicity of factors that might have affected the overall outcome.

Relevance

Extent to which intervention objectives and design responds to beneficiary needs

Effectiveness

Extent to which intervention objectives and design responds to beneficiary needs

Sustainability

Extent to which net benefits of the intervention are likely to continue

Efficiency

Extent to which the intervention delivers, and how well resources were used

Coherence

Compatibility of the intervention with other interventions in a country, sector or institution

Impact

Extent to which intervention has generated significant positive or negative, intended or unintended, higher-level effects

2.3 Sampling Approach

2.3.1 Quantitative Sampling

A simple random sampling approach was used to ensure that the sample was representative of all the strata and divisions. The sample was calculated in a statistically significant way. Any impact reflected by the sample can then be safely assumed to be a reflection of the entire population.

Sl. No.	State	Location	Stakeholders	Universe	Sample Proposed	Sample Achieved	Mode of Data Collection
1.	Uttara-khand	Dehradun	Safai Sathis	202	63	55	On Field Survey
		Rishikesh		412	128	66	
2.	Goa	Panaji		221	69	25	
Total				835	260	146	

2.3.2 Qualitative Sampling

Apart from the quantitative data collection methods, qualitative data was also collected. The list of the secondary stakeholders has been mentioned below: -

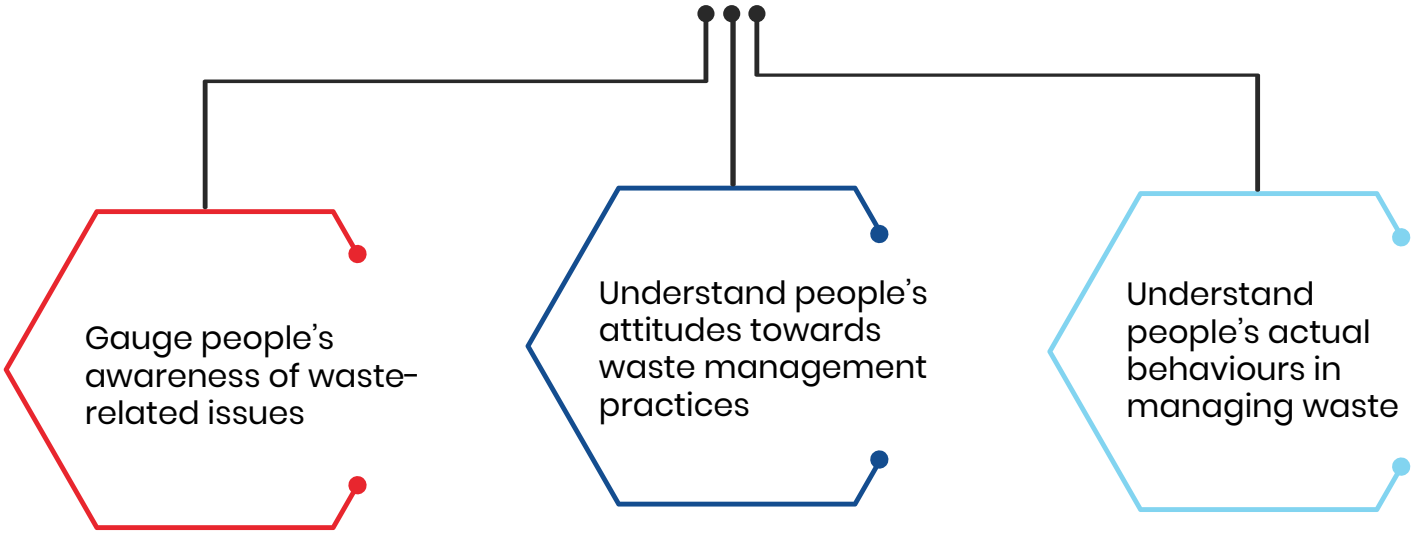
S No.	Stakeholder	Type of Interaction	Mode of data collec-tion	Number of Interactions			
				Panaji	Rishikesh	Dehradun	Greater Noida
Primary Stakeholders							
1	Waste Workers - Waste Pickers/Safai Sathis	FGDs	On Field	1	4	1	NA
2.	Technical Heads and Operators at MRF Centres/ Tem-porary Sites	IDI		2	1	1	NA
Secondary Stakeholders							
3.	Community Mem-bers (RWAs)	IDIs	On Field	1	1	1	1
4.	Commercial Estab-lishments in Proxim-ity - Enterprise own-ers, Restaurants, Hotels, Schools/Col-leges	IDIs		1	1	3	NA
5	Scrap dealers (Buy-ers of Waste), Waste Aggregators	IDIs		1	1	2	NA
6.	Officials from Urban Local Body - Block Officers, Municipal Corporations, State Pollution Control Board	KIIs		1	1	3	NA
7.	Project Manage-ment Team	KII	Virtual/ Hybrid	1	1	1	1

2.4 Other Evaluation Frameworks

Knowledge, Attitude, and Behaviour (KAB) framework

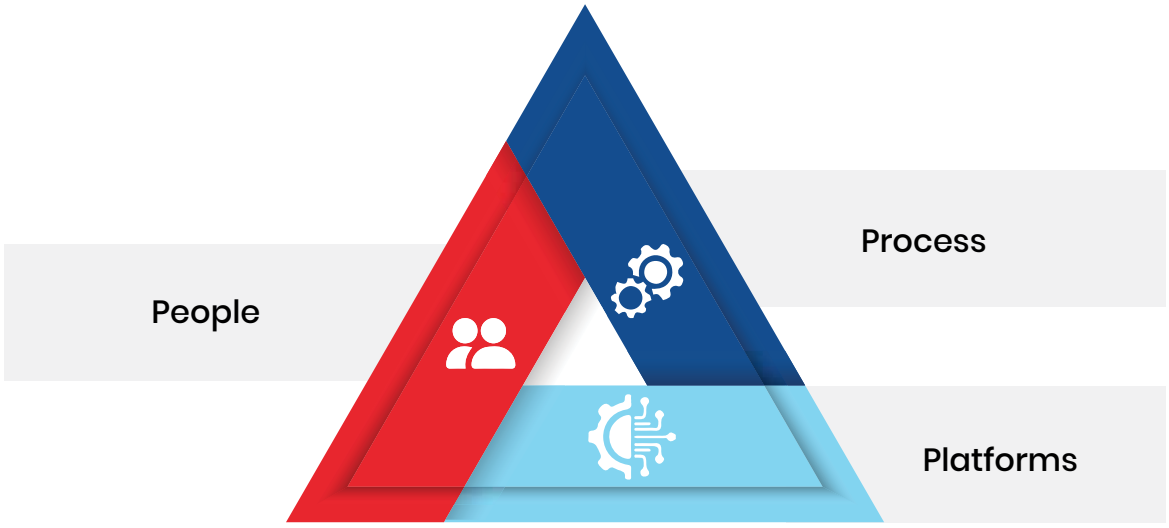
In addition to the OECD-DAC Framework, the evaluation also used the Knowledge, Attitude, and Behaviour (KAB) framework. The impact assessment utilised the KAB framework, which is commonly used in social impact initiatives to understand the influence of interventions on human behaviour. This model emphasised the interconnectedness of knowledge, attitudes, and behaviours in creating social change. The KAB framework suggested that knowledge alone is not sufficient to drive behaviour change. Rather, attitudes play a crucial role in shaping individual behaviour. By influencing attitudes, it becomes more likely to stimulate meaningful behavioural change. From the waste perspective, the KAB framework can help in the following:

Knowledge, Attitude and Behaviour (KAB)



People, Process, and Platforms (PPP) Framework

In addition to the OECD-DAC and KAB framework, the Golden Triangle framework of People, Process, and Platforms (PPP) was used to assess the implementing agency responsible for the execution of the project.



2.5 Challenges encountered while conducting the study

The impact evaluation study aimed to assess the effectiveness of a programme. The challenges faced while conducting the evaluation study are noted below:

- **Discrepancy in Sample Availability -** The ongoing mobilisation of waste collectors occasionally caused inconsistencies in the availability of Safai Sathis for assessment interactions. Consequently, the number of beneficiaries available for engagement was lower than the initially proposed sample size.
- **Challenges in Data Collection -** The data collection tools were designed to capture beneficiaries' perceptions, relying on their ability to recall past events. However, since the project concluded in 2023, many beneficiaries encountered difficulties in recalling key details of the intervention, impacting the accuracy of the data.
- **Involvement of Safai Sathis Staff -** A significant proportion of the Safai Sathis available for interaction were newly onboarded and had no prior knowledge of the project. The staff who were actively engaged during the project's implementation are no longer part of the team, having left their roles some time ago.
- **Changes in the Current Operational Environment -** Most of the available waste collectors are now employed as ragpickers, which presented challenges in their ability to relate to certain aspects of the survey. Additionally, in Rishikesh, the Material Recovery Facility (MRF) is not currently operational, further complicating engagement with the present workforce.

2.6 Ethical Practices for Consideration

- **Ethical Considerations in Data Collection:** As part of the qualitative and quantitative data collection process for the current project, team members adhered to essential ethical protocols by obtaining informed consent from respondents before gathering their responses. Respondents were clearly informed about the purpose of the study, the expected outcomes of data collection, and how their testimonials would be recorded accurately.
- **Sensitivity in Handling Personal Information:** Given that the data collection tools involved gathering personal information that could potentially affect respondents' sentiments if not handled with care, the team took proactive measures to prevent any such issues. A sensitisation session was conducted for all enumerators and team members involved, guiding them on the appropriate procedures for data collection.
- **Assurance of Confidentiality:** Respondents were assured that their personal information would remain confidential and that the data collected would be used strictly for research purposes.

2.7 Theory of Change

Activities	Outputs	Outcomes	Impact
Setting up and Operationalisation of MRF Centres	6 MRF centres were constructed as part of the project	Improved and enhanced management and recycling of waste for supporting waste management initiatives	• Self-awareness, knowledge and behavioural change on waste segregation, collection and recycling among the primary beneficiaries • Improved quality of life for residents through cleaner and healthier living environments. • Empowerment of local communities to sustainably manage waste and promote environmental conservation beyond the project's completion. • Improved quality of life and standard of living of waste workers • Empowerment of local communities to sustainably manage waste and promote environmental conservation beyond the project's completion. • Improved quality of life and standard of living of waste workers
Waste collection, segregation and management practices	14,198 MTs of total dry waste collected and processed from the MRF Centres	Enhanced community ownership, awareness and participation in waste management activities.	
Onboarding of Safai Sathis	1,178 Safai Sathis onboarded and provided with socio-economic benefits from the project	Increase income and better livelihood opportunities for Safai Sathis in waste value chain creation	
Community Engagement and Awareness Activities	More than 14,630 stakeholders reached out through IEC Activities and inspirational zero waste discharge wards were created.	Strengthened collaboration and partnerships between stakeholders involved in waste management initiatives.	

Chapter 3

Impact Findings

The following report section indicates key findings and insights drawn from the impact assessment study based on field interactions and the **OECD DAC + KAB standard** parameters outlined in the study framework. Insights were drawn by adopting a 360-degree approach to data collection by gathering data from the quantitative and qualitative methods by engaging with different programme stakeholders.

3.1 Relevance of the Project

The following section underscores the relevance and necessity of the intervention, detailing socio-demographic indicators and other factors that highlight the need for support:

82% of the Safai Sathis are married and responsible for supporting their families

A balanced representation of both male and female Safai Sathis , indicating equal participation in interactions

56% of the Safai Sathis are illiterate highlighting the vulnerability and limited awareness of Waste Management initiatives

43% of the Safai Sathis serve as the chief wage earners in their families, while around 29% are actively engaged in work within their households.

56% of the Safai Sathis are solely responsible for waste collection within their households.

56%, reside in temporary and unauthorised homes and 36% of Safai Sathis live as tenants in rented houses

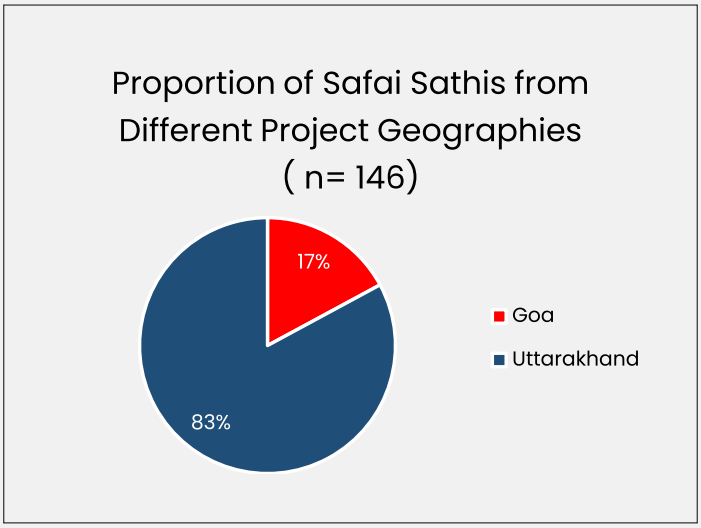
51% of the Safai Sathis in the absence of project were unaware of proper waste segregation practices

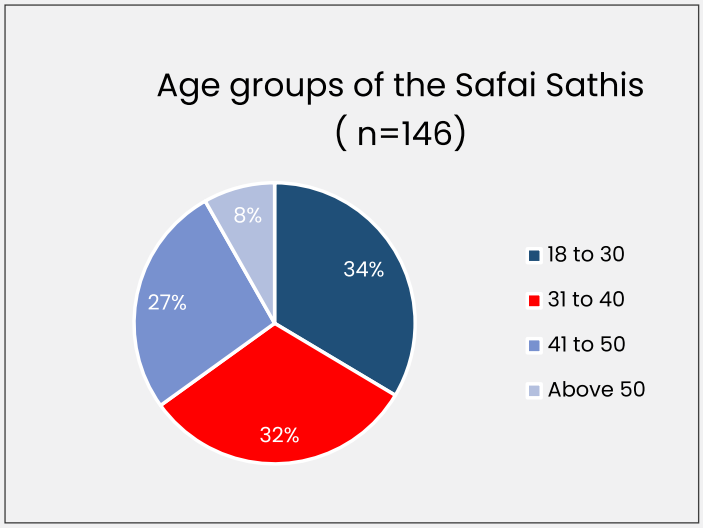
42% of the Safai Sathis were unaware of the good practice of covering waste collection vehicles

44% of the Safai Sathis were unaware of essential health and safety practices in the absence of the project

90% of the Safai Sathis expressed a strong belief in the need for awareness and training sessions on waste management and segregation

Geographic and Age Profile (n=146)

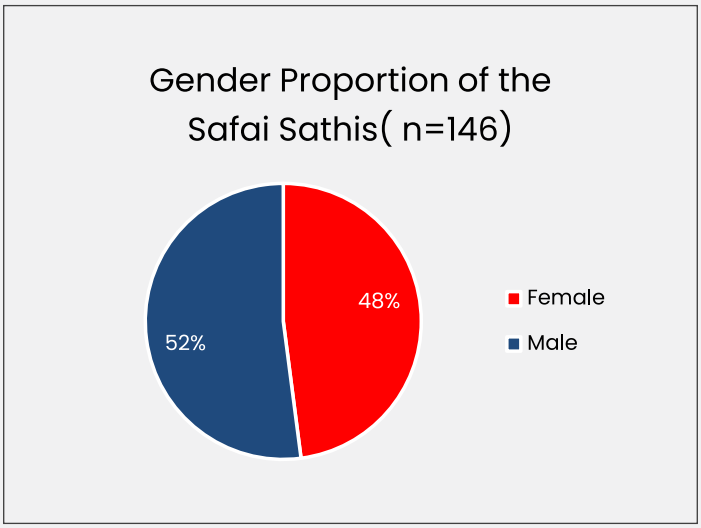


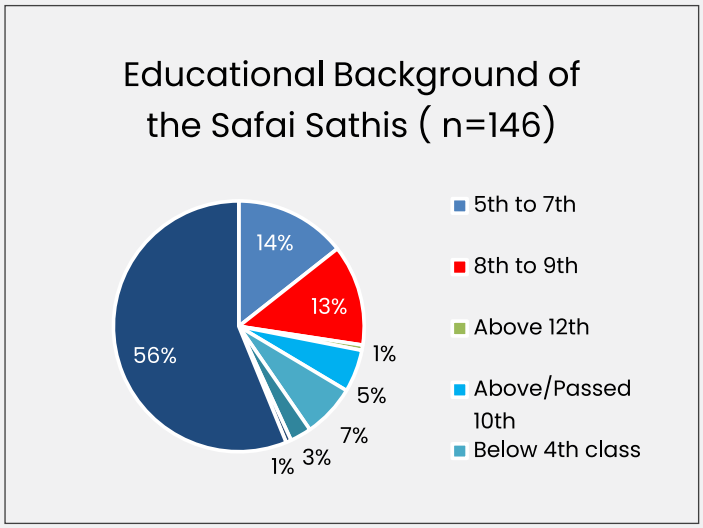


Among the various stakeholders involved in the project, the primary beneficiaries of the MRF (Material Recovery Facility) setup are the waste workers, commonly referred to as "Safai Sathis. In the survey, 83% of beneficiary interactions were with Safai Sathis based in Uttarakhand, specifically in Rishikesh and Dehradun, while the remaining interactions took place in Goa.

The survey included beneficiaries from a wide range of age groups, all of whom have benefited from the programme. Monitoring and evaluation data reveal that about 66% of the Safai Sathis are within the age range of 18 to 40 years, which represents the primary working age group. However, it is noteworthy that the dynamic and often unpredictable nature of the waste management sector necessitates continued employment for some individuals beyond this age range. Consequently, about 27% of Safai Sathis are working into older age to support their families and sustain their livelihoods. This distribution highlights the critical need for ongoing support and adaptation to the evolving needs of these workers.

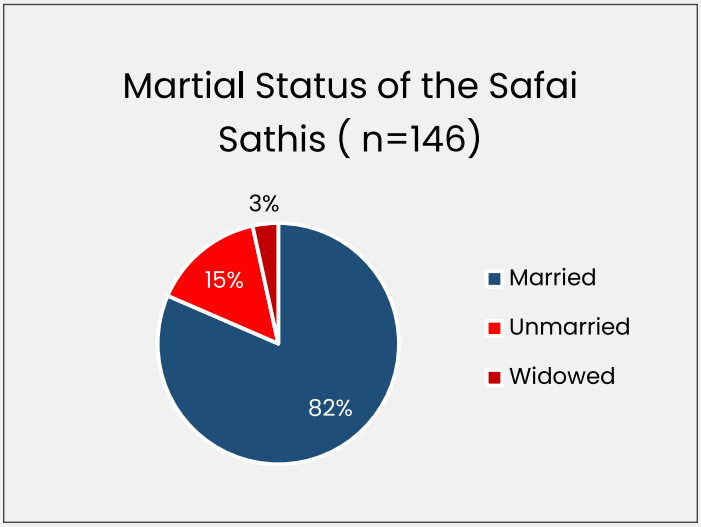
Demographic and Educational Profile (n=146)





The field study ensured a proportionate representation of both male and female beneficiaries, reflecting the programme's equitable outreach throughout the project. This balance reflects an equitable distribution of responsibilities and access to employment opportunities, showcasing the project's commitment to gender inclusivity and empowerment.

The relevance of the project is further indicated through the data revelation of the educational background of the beneficiaries involved in interactions. About 56% of the Safai Sathis are illiterate highlighting the vulnerability and limited awareness of such initiatives, which can exacerbate their discrimination and marginalisation. Therefore, this project is crucial in helping them regain independence, develop a sustainable livelihood and improve their economic prospects.



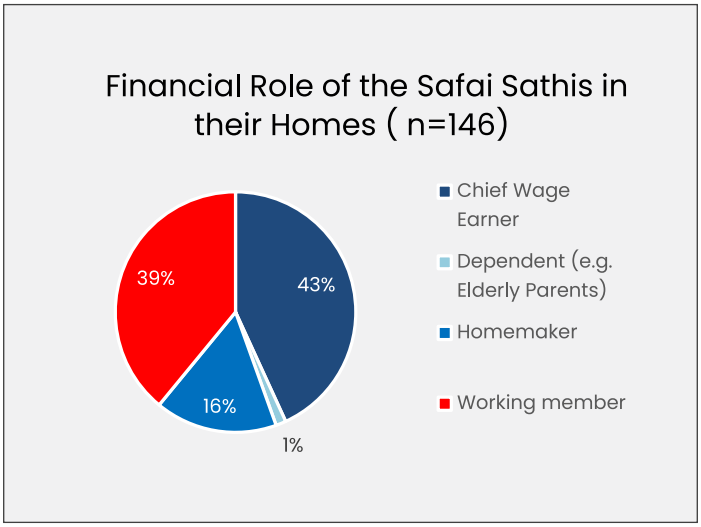
Marital Status (n=146)

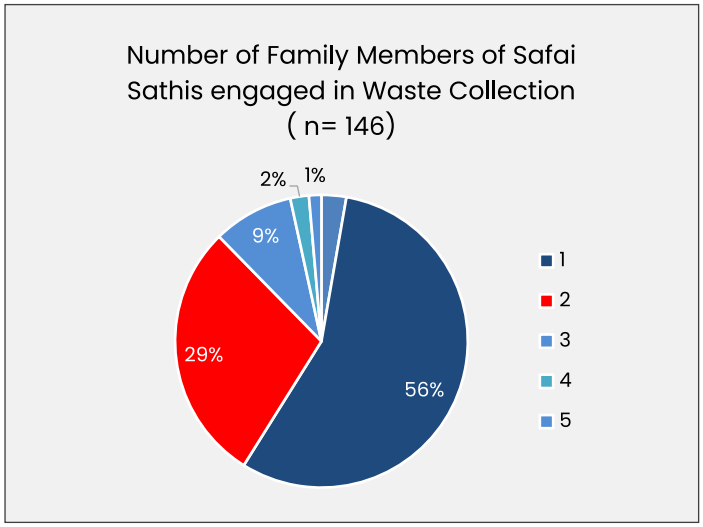
The study indicates that approximately 82% of the Safai Sathis are married and responsible for supporting their families. This highlights the significance of the project in providing not only employment opportunities but also a stable livelihood for the beneficiaries and their families.

By creating job opportunities for the Safai Sathis, the project has played a crucial role in fostering sustainable living conditions, thereby enhancing the overall well-being of both the workers and their dependents.

Financial Responsibilities within households (n=146)

The study reveals that approximately 43% of the Safai Sathis serve as the chief wage earners in their families, while around 29% are actively engaged in work within their households. This data highlights that a significant portion of the beneficiaries are primary contributors to household income, playing a crucial role in sustaining their families' financial well-being.



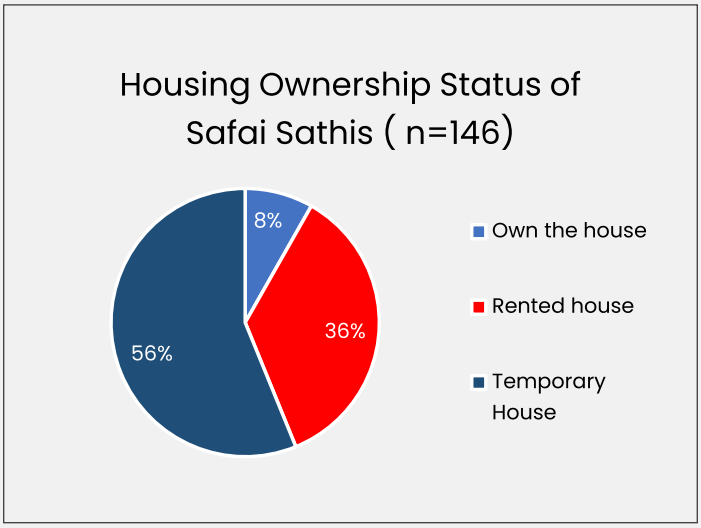


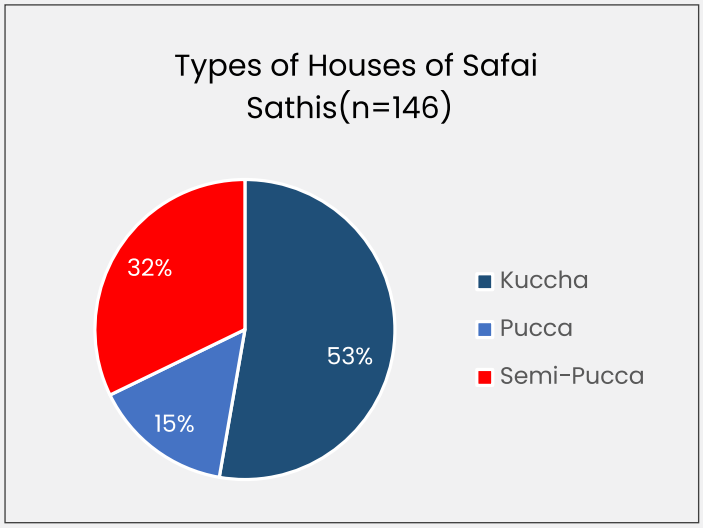
Involvement of Family Members in Waste Collection (n=146)

The findings reveal that approximately 56% of the Safai Sathis are solely responsible for waste collection within their households. In contrast, around 29% of the Safai Sathis receive support from a family member in their waste collection duties.

This data highlights the varying levels of familial involvement in waste management activities, illustrating both the individual commitment and the collaborative efforts within households to sustain their livelihoods.

Housing Ownership Status (n=146)

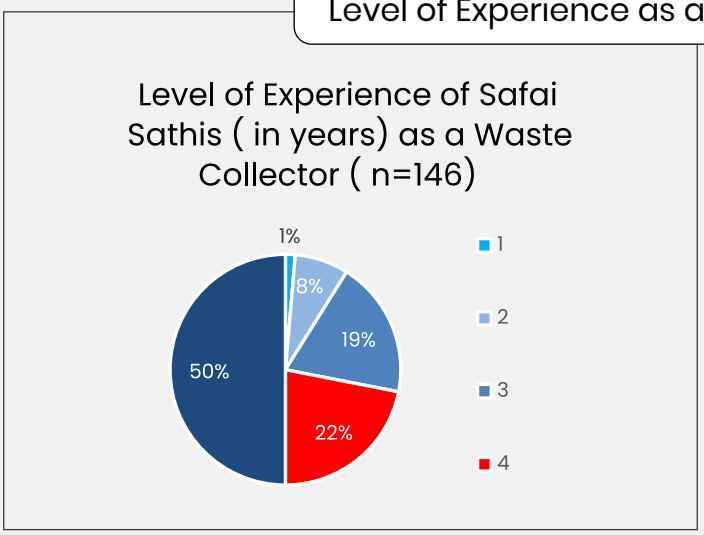




The data indicates that the majority of the Safai Sathis, approximately 56%, reside in temporary and unauthorised homes. Additionally, around 36% of Safai Sathis live as tenants in rented houses. Also, approximately 53% of the Safai Sathis reside in kuccha houses, while around 32% live in semi-pucca houses.

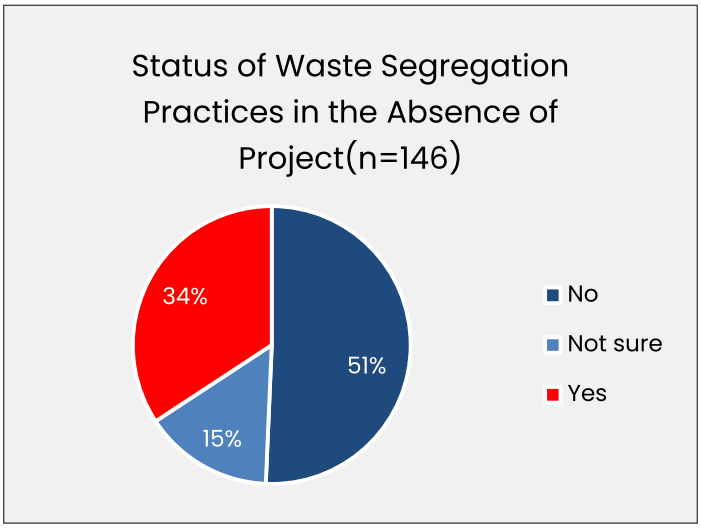
These findings reflect the challenging living conditions faced by the beneficiaries, indicating the need for continued support and improved livelihood to enhance their quality of life. The housing conditions reflect the low quality of life experienced by a significant portion of the beneficiaries.

Level of Experience as a Waste Collector (n=146)



The assessment reveals that about 72% of Safai Sathis onboarded have over 4 years of experience as waste collectors. This highlights their substantial skills and knowledge, which are critical in ensuring the project's efficiency and long-term sustainability.

Their extensive experience not only adds value to the project but also strengthens its potential to succeed in delivering effective waste management practices. This positively helps in comprehending the socio-technical model adopted in the project involving – Waste Segregation, Waste Collection and Waste Recycling.

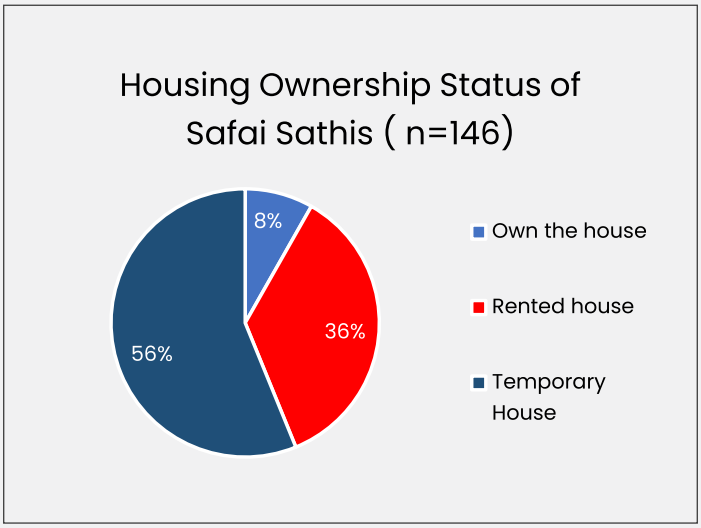


Unawareness of Waste Segregation Practices in the Absence of Project (n=146)

Prior to the initiation of the project, approximately 51% of the Safai Sathis were unaware of proper waste segregation practices. This highlights the critical need for the project to foster knowledge, awareness, and improved behavioural practices among the Safai Sathis.

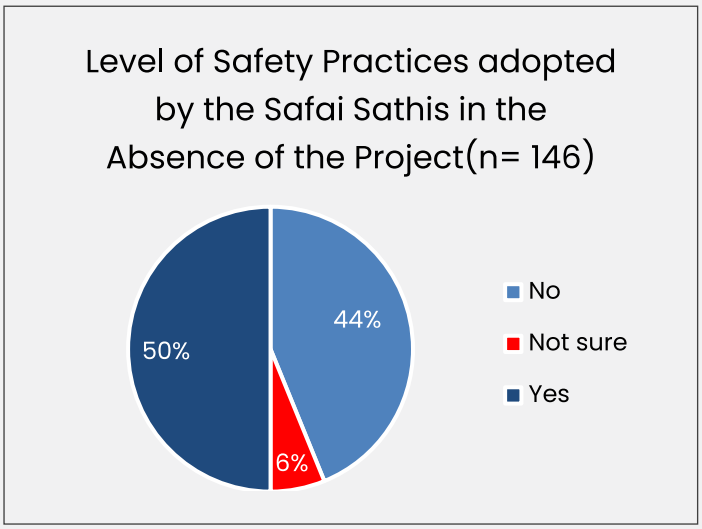
By focusing on educating and equipping beneficiaries with essential waste management skills, the project plays a pivotal role in promoting efficient and sustainable waste handling and management.

Unawareness of covering of Waste Collection Vehicle in the Absence of Project (n=146)



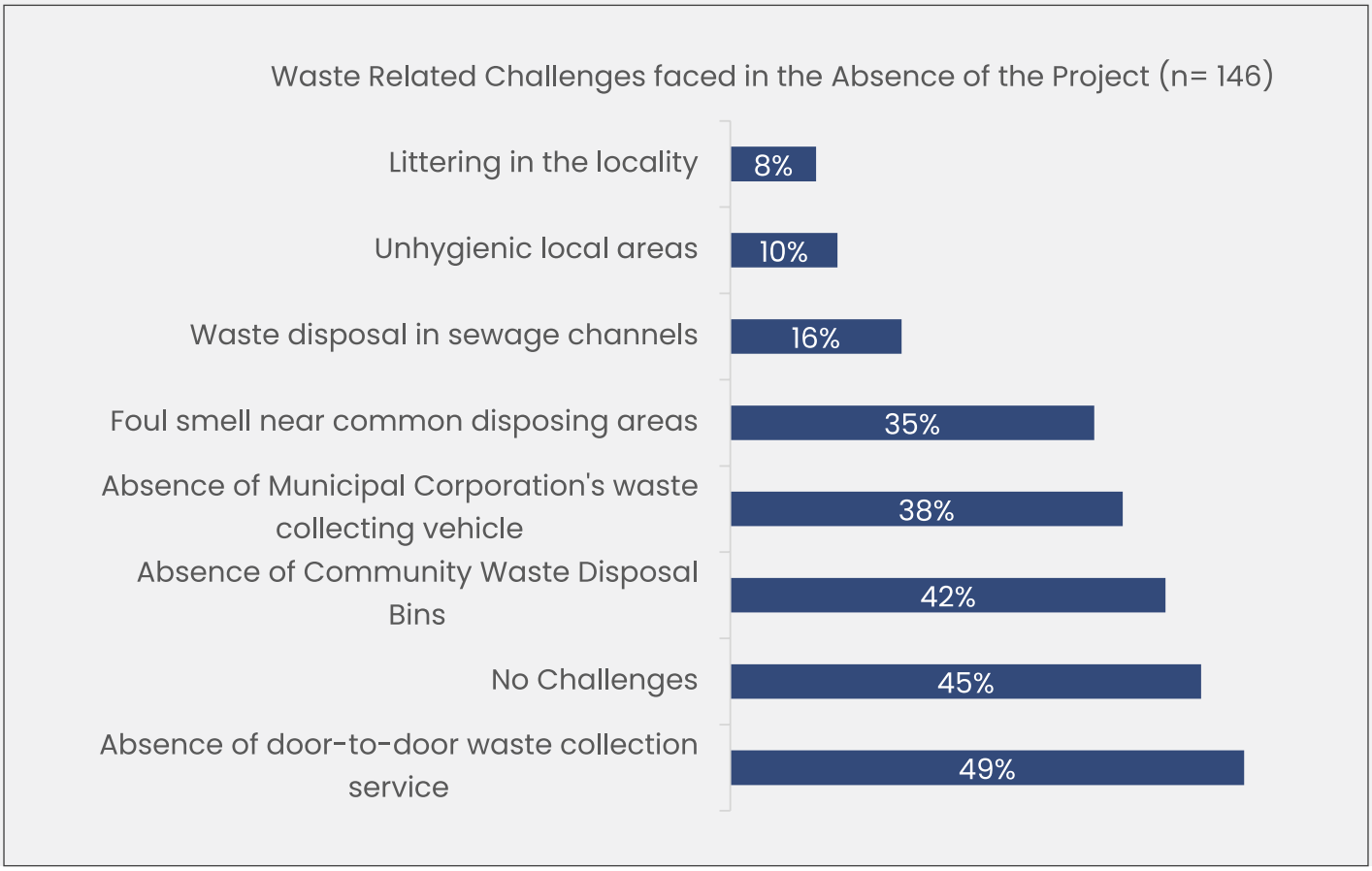
The study shows that in the absence of the project, about 42% of the Safai Sathis (almost half of the proportion) were unaware of the good practice of covering waste collection vehicles while transporting waste to Material Recovery Facilities (MRF). This lack of knowledge highlights a significant gap in awareness regarding the challenges, risks, and hazards posed by uncovered waste during transportation. Such practices can lead to environmental contamination, health risks, and even legal or regulatory issues. Addressing this knowledge gap through targeted training and awareness programmes is essential for ensuring safer, more efficient waste management processes, while also protecting both the community and the environment. This signifies the need for the project to combat the above challenges.

Unawareness of Good Safety Practices in the Absence of the Project (n=146)



It was observed that in the absence of the project, approximately 44% of the Safai Sathis were unaware of essential health and safety practices, such as wearing masks and gloves while handling and managing waste. This lack of awareness presents significant health risks, as exposure to hazardous materials without proper protective gear can lead to infections, injuries, respiratory issues, and other long-term health complications. Ensuring adherence to these practices is vital for protecting the health and well-being of waste collectors.

Waste-Related Challenges Faced in the Absence of the Project (n=146)



The study discovered that in the absence of a project, the most pressing challenges revolve around the lack of organised waste collection systems, including door-to-door services, community bins, and waste collection vehicles.

Nearly half (49%) of the respondents indicated that the absence of door-to-door waste collection services was a major challenge. This points to the critical need for organised waste collection at the household level, which, if left unaddressed, can lead to unsanitary conditions and irregular waste disposal practices.

The absence of accessible community waste disposal bins was noted by 42% of respondents. This lack of infrastructure likely exacerbates improper waste disposal and contributes to environmental degradation, highlighting a gap in public waste management facilities.

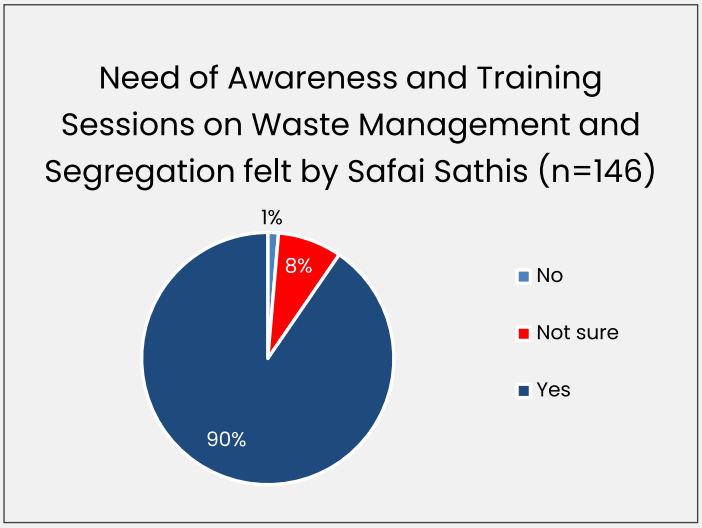
A significant 38% of respondents cited the absence of a municipal waste collection vehicle. This absence further underlines the need for reliable waste collection systems to manage waste removal effectively and consistently.

Around 35% of respondents reported foul odours near common waste disposal areas, likely due to accumulated waste and improper disposal methods. Such conditions pose public health risks and contribute to the overall decline in the quality of life for residents.

Waste being improperly disposed of in sewage channels was observed by 16% of respondents, a practice that can lead to sewage blockages, flooding, contamination of water sources, and other serious environmental and health issues.

Around 10% of respondents expressed concerns over unhygienic conditions in their local areas. These further underscores the need for regular cleaning and waste removal to maintain sanitary living environments.
Littering in the locality was reported by 8% of respondents, suggesting that public awareness and participation in waste disposal practices are also areas that require attention and improvement.

Need for Awareness and Training Sessions on Waste Management and Segregation (n=146)



The majority of Safai Sathis (approximately 90%) expressed a strong belief in the need for awareness and training sessions on waste management and segregation. This reflects their willingness to learn and become more informed about waste management practices. Additionally, this further indicates that the community is not only aware of the problem but also eager to acquire the necessary skills to address it.

3.2 Effectiveness of the Project

The programme's effectiveness measures the extent to which objectives have been achieved and identifies the supporting processes and systems that influence the achievement of these objectives. The assessment team's observations relating to programme effectiveness are stated below.

95% of the Safai Sathis have received training and awareness sessions on waste management through the project

91% of Safai Sathis were involved in proper waste segregation after the Project

After the Project, 95% of Safai Sathis were aware about the practice of capping waste collection vehicles

90% of the Safai Sathis got aware about the adoption of Safety Measures while Waste Collection after the project implementation

There has been complete eradication of several key waste related challenges since the project implementation

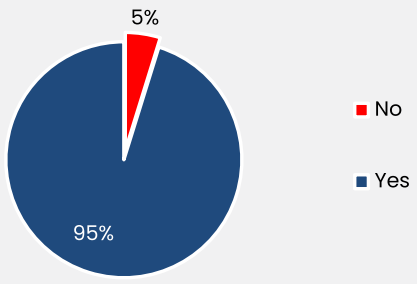
58% of the Safai Sathis believed that the waste-related challenges have been successfully resolved by the Project

Significant improvement in the awareness levels of beneficiaries regarding different types of waste after the project

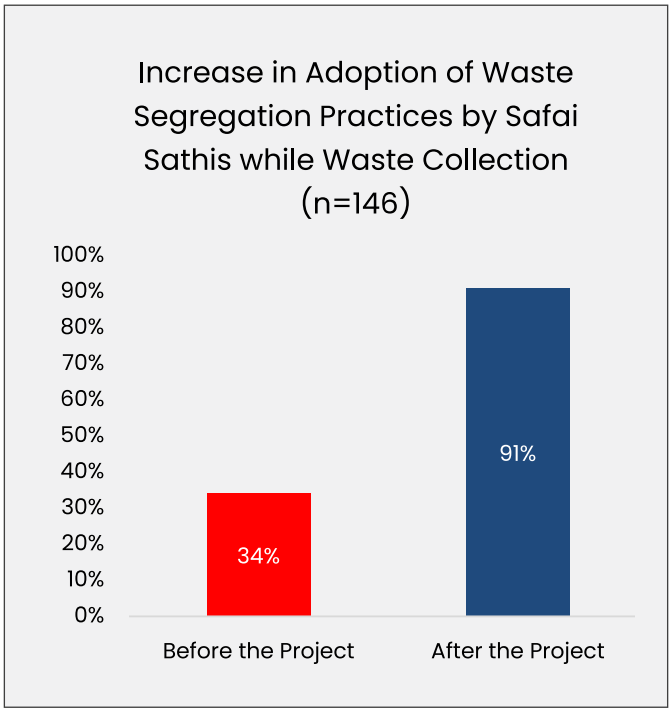
Increase in Level of Awareness of Safai Sathis about Problems Associated with Improper Disposal of Non-Segregated Waste

Training and Awareness Sessions on Waste Management (Behaviour) (n=146)

Status of Training and Awareness sessions on Waste Management recieved by Safai Sathis(n=146)

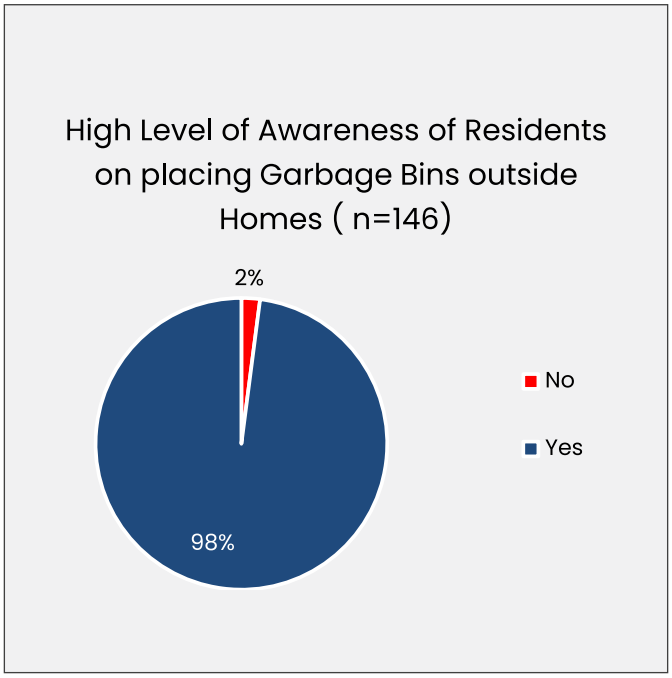


Approximately 95% of the Safai Sathis expressed that they have received training and awareness sessions on waste management through the project. The sessions encompassed a variety of initiatives, including awareness campaigns, waste segregation programmes, health camps (for providing free medical check-ups), and the formal integration of Safai Sathis into the waste management system. These sessions emphasised the importance of segregating dry and wet waste and guided the community on how to properly channel waste into the formal management system. The sessions also covered the topics of health and hygiene highlighting the importance of adopting good health, hygiene and safety practices for preventing injuries and diseases associated with poor waste management. Additionally, they provided education on the three main categories of solid waste: dry, wet, and hazardous and played a pivotal role in raising awareness and equipping the community with the knowledge required for effective waste management.



Increase in adoption of Waste Segregation practices while Waste Collection (Behaviour) (n=146)

The evaluation data reveals a dramatic improvement in the adoption of waste segregation practices by the waste collectors due to the project interventions. Prior to the project's implementation, just over one-third (34%) of Safai Sathis were involved in proper waste segregation. However, after the project, the adoption rate surged to 91%, indicating a significant behavioural shift in waste management practices within the community. The increase from 34% to 91% clearly demonstrates the effectiveness of the project in promoting waste segregation practices. This suggests that the awareness and training initiatives undertaken were highly successful in transforming the waste management habits of the Waste Collectors and the community. Additionally, this further highlights the Waste Collector's engagement and commitment towards proper waste handling practices.

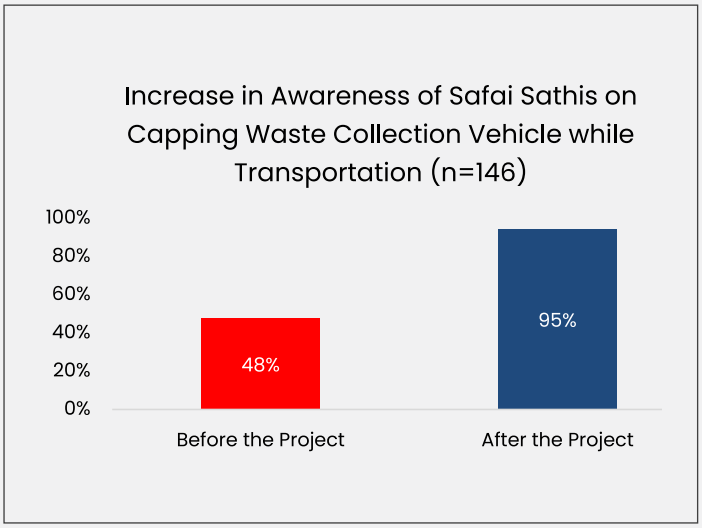


High Level of Awareness of Residents on placing Garbage Bins outside Homes (Knowledge) (n=146)

An overwhelming majority of residents (98%) are aware of the importance of placing garbage bins outside their homes. This indicates a high level of awareness and adherence to proper waste disposal practices, which is essential for maintaining cleanliness and hygiene in local communities. It reflects the success of awareness campaigns or educational efforts implemented by the project to improve household waste management practices.

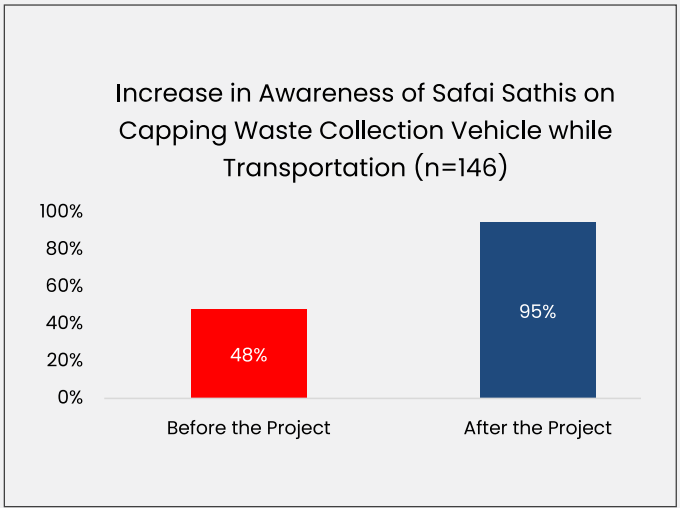
The 98% awareness level is a strong indicator that the project has been highly effective in educating residents about proper waste management practices. This is a critical step in reducing littering and improving the overall cleanliness of the area. The high awareness of proper waste bin placement suggests that this practice could become a sustained behavioural change, contributing to the long-term success of waste management efforts in the community.

Increase in Awareness of Capping Waste Collection Vehicle while Transportation (Knowledge) (n=146)



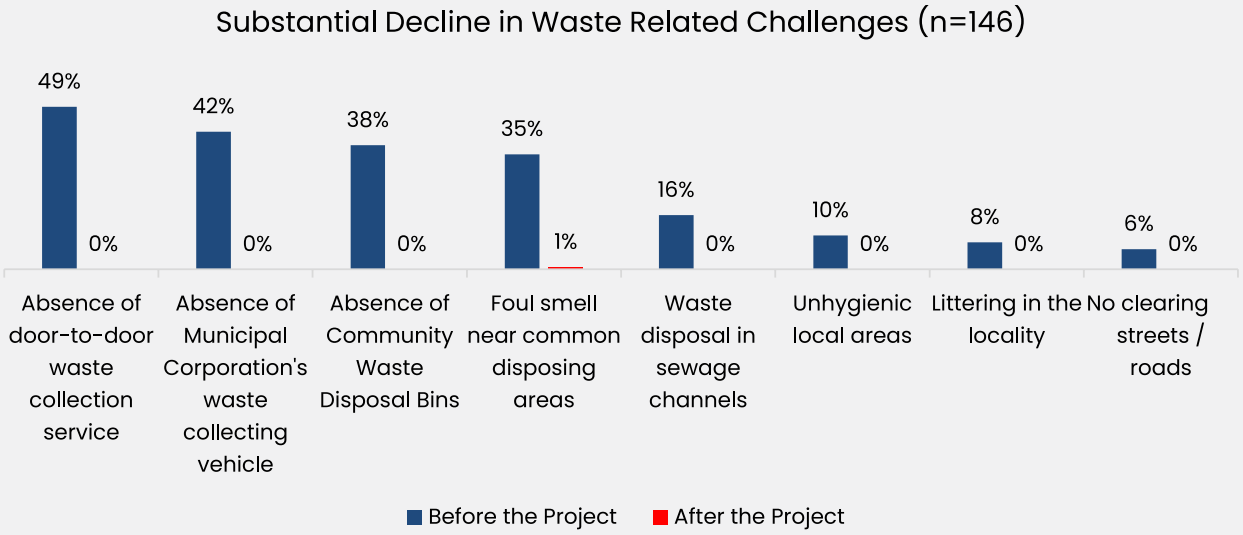
There has been a notable rise in awareness about the practice of capping waste collection vehicles after the project's implementation. The increase from 48% to 95% demonstrates that the project successfully raised awareness about the importance of covering waste during transportation to prevent spillage, odour, and environmental contamination. The jump in awareness from 48% to 95% reflects the effectiveness of the project's educational campaigns and training efforts in improving waste transportation practices. Capping waste collection vehicles is an essential practice to ensure that waste is properly contained during transportation, reducing environmental and public health risks.

Increase in Adoption of Safety Measures while Waste Collection (Behaviour) (n=146)



A sharp increase in the adoption of Safety Measures by Safai Sathis demonstrates the project's effectiveness in raising awareness, providing training, and ensuring that the Safai Sathis adopt safer waste handling practices. This substantial increase highlights the importance of education and capacity-building initiatives implemented through the project. It indicates the project's success in promoting a culture of safety among waste workers, directly contributing to improved occupational health. The increase in the use of personal protective equipment (PPE) provided through the project directly reduces the exposure of waste collectors to harmful materials, minimizing health risks and improving overall well-being. This improvement is crucial for fostering a safer work environment and sustainable waste management practices. The high post-project success rate (90%) suggests that the training and interventions have led to sustained behavioural changes among the waste pickers, which is likely to have long-term benefits for both their personal health and the efficiency of waste management operations. Regular health camps were organised to address common health issues among waste workers, especially skin diseases. Two medical camps were conducted annually, providing free check-ups and medications to workers.

Substantial Decline in Waste-Related Challenges (Attitude) (n=146)



The above graph illustrates a notable decrease in the range of waste-related challenges faced by Safai Sathis, comparing the situation before and after the project implementation. The monitoring and evaluation data highlights the significant improvements in waste management infrastructure and services as a direct result of the project.

Prior to the project, 49% of respondents reported the absence of door-to-door waste collection services. After the project, this issue was entirely resolved, with 0% indicating this as a challenge, highlighting the success of introducing systematic waste collection services.

The absence of municipal waste collection vehicles, which was a problem for 38% of respondents before the project, was also fully addressed post-project. This improvement shows the enhanced coordination between municipal bodies and project efforts in waste collection.

The lack of community waste disposal bins affected 42% of respondents before the project. Afterwards, this issue was completely mitigated, demonstrating a substantial improvement in waste management infrastructure at the community level.

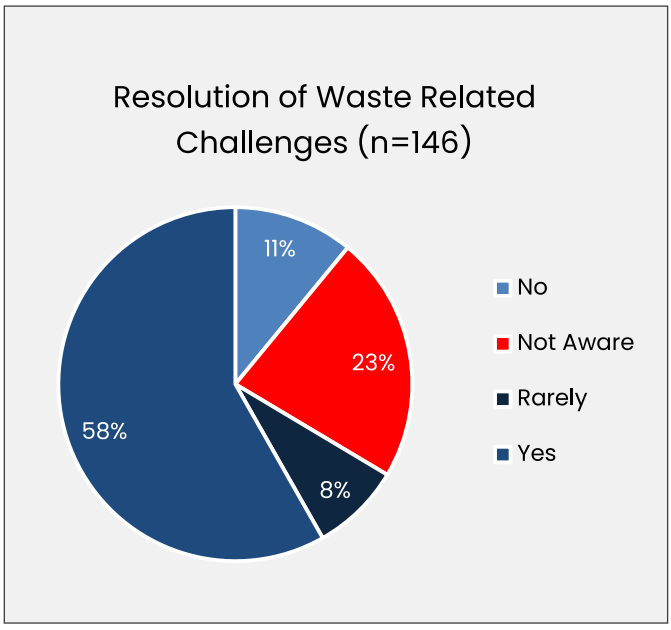
Before the project, 35% of respondents identified foul smells near common disposal areas. Post-project data shows this issue was eradicated, indicating improvements in waste processing and hygiene management practices.

While 16% of respondents reported waste being dumped in sewage channels before the project, this figure dropped to 1% post-project. Although there is still a small percentage of occurrences, the project has greatly reduced improper waste disposal practices.

A smaller portion (10%) of respondents mentioned unhygienic local areas before the project, but this was fully resolved afterwards. This highlights the project's focus on waste management which has clearly improved cleanliness and sanitation.

Key Insight

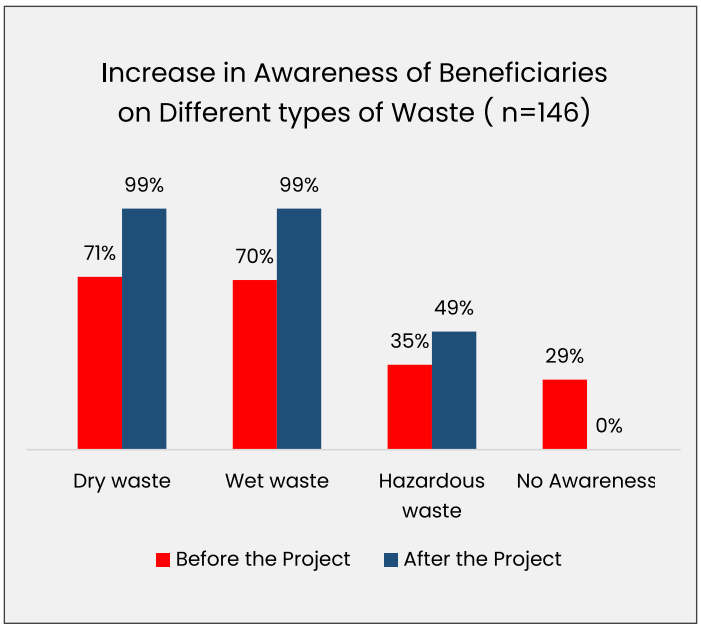
The complete eradication of several key challenges, including the absence of waste collection services, community disposal bins, and municipal vehicles, reflects the project's success in addressing critical gaps in waste management infrastructure. The elimination of foul smells and reduction of waste disposal in sewage channels indicate significant improvements in both environmental and public health conditions. These improvements reduce the risks of waterborne diseases and improve the overall quality of life. The reduction in issues such as littering and unhygienic areas points to a combination of improved municipal services and heightened awareness and responsibility among the community regarding proper waste disposal practices.



Resolution of Waste-Related Challenges (Attitude) (n=146)

A significant majority of the Safai Sathis (58%) have confirmed that the waste-related challenges they previously faced have been successfully resolved. This indicates a strong positive impact of the project in addressing key issues such as waste collection, community disposal bins, and sanitation practices. About 23% of respondents stated that they were "Not Aware" of whether the challenges were resolved. This suggests that either these beneficiaries were not directly affected by the challenges or were not fully engaged in the community's waste management processes.

It points to a potential gap in communication or awareness that needs to be addressed. Approximately 11% of Safai Sathis believe that waste-related challenges have not been resolved. This minority highlights areas where the project's interventions might not have been as effective or where further efforts are required to fully address the lingering issues. A smaller portion, 8%, stated that challenges were "Rarely" resolved. This suggests that while there may have been occasional improvements, the frequency or consistency of effective waste management interventions is still lacking for these respondents.

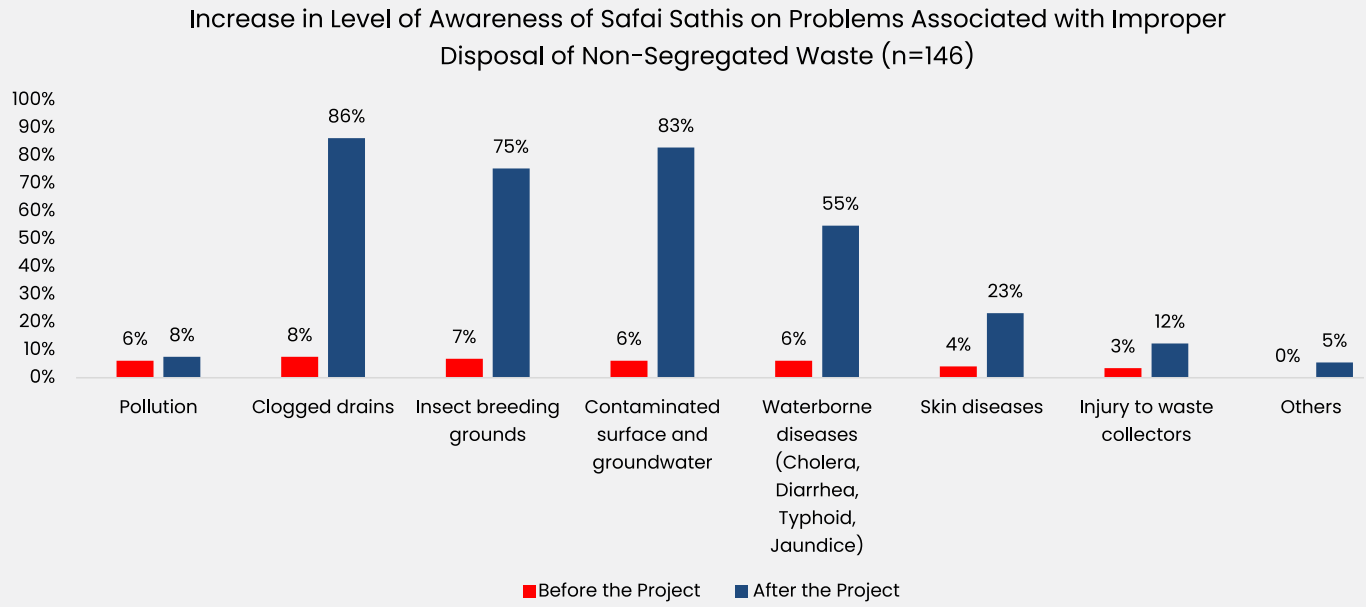


Increase in Awareness of Different types of Waste (Knowledge) (n=146)

There has been significant improvement in the awareness levels of Safai Sathis regarding different types of waste. Before the project, a notable portion of the community lacked awareness, particularly of hazardous waste. The project interventions, including training and educational sessions, resulted in near-complete awareness (99%) of dry and wet waste, with a moderate increase in awareness of hazardous waste (49%). Additionally, the complete elimination of Safai Sathis with no awareness post-project highlights the success of the initiative.

Additionally, the complete elimination of Safai Sathis with no awareness post-project highlights the success of the initiative.

Increase in Level of Awareness of Problems Associated with Improper Disposal of Non-Segregated Waste (Knowledge) (n=146)



The assessment shows a significant increase in awareness of almost all the identified problems related to the improper disposal of non-segregated waste, after the project's implementation. The most notable improvements were seen in the understanding of issues like clogged drains (up to 86%), contamination of surface and groundwater (up to 83%), and the creation of insect breeding grounds (up to 75%). The beneficiaries' understanding of waterborne diseases (up to 55%) also increased substantially, although there is room for further improvement in areas like skin diseases and injuries to waste collectors. The project has successfully raised awareness of critical environmental and health issues caused by improper waste disposal. However, sustained efforts and a targeted focus on health-related risks and pollution are essential for long-term success.

3.3 Efficiency of the Project

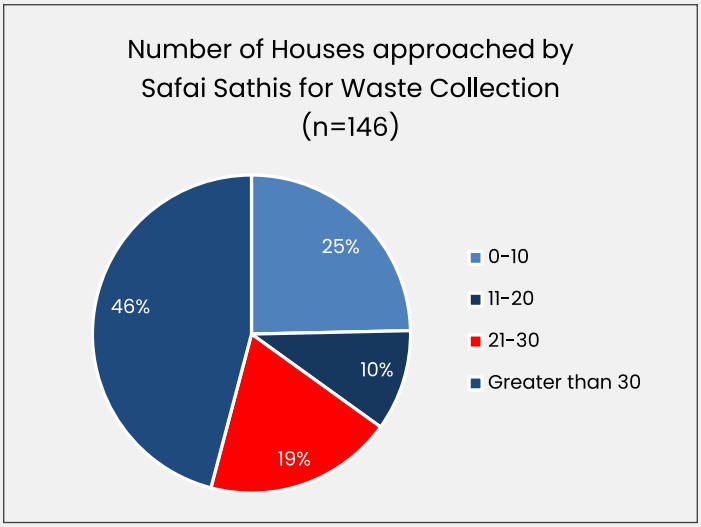
This section captures the extent to which the intervention delivered its outcomes promptly and with ease.

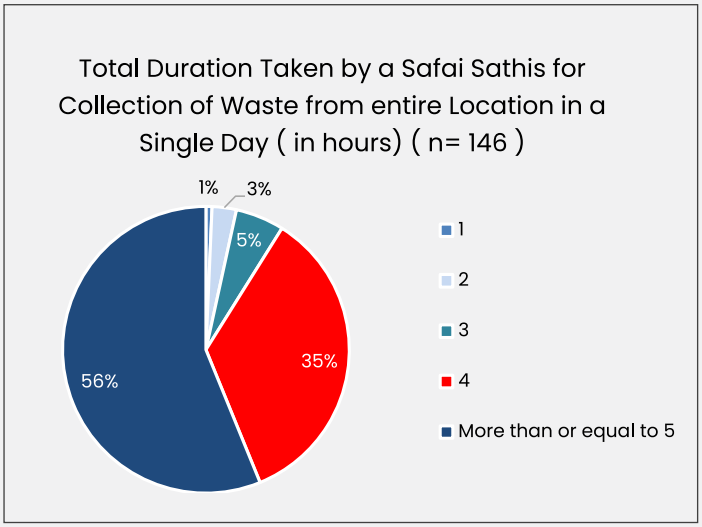
46% of Safai Sathis cater more than 30 houses for Waste Collection

56% of Safai Sathis spend over 5 hours in a day for Waste Collection

51% of the Safai Sathis prefer to collect Waste in the Morning

66% of Safai Sathis gather more than 5kg of Waste on daily basis





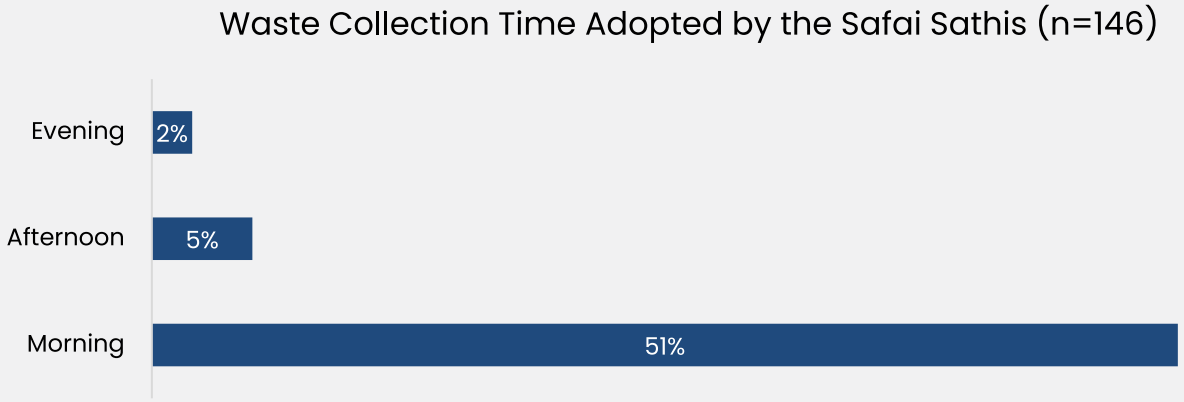
Number of Houses Approached for Waste Collection (n=146)

The largest proportion of Safai Sathis (46%) responded to cater to more than 30 houses for the collection of waste making the collection process smooth and efficient. Meanwhile, 25% of Safai Sathis approached fewer than 10 houses, possibly due to variations in the geographies of project locations. The efficiency in the Waste Collection process strengthens the Socio-Technical Model of the Project and makes it sustainable.

Time taken for Waste Collection (n=146)

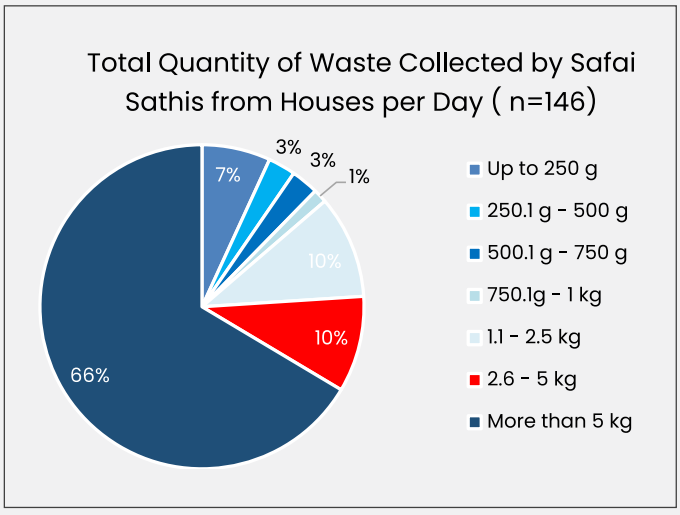
A significant portion of the Safai Sathis (56%) spends over 5 hours on waste collection. This highlights that waste collection is a time-intensive activity. Only a small percentage of participants take less than 3 hours for this task, suggesting that factors like the size of the location, the volume of waste, or possibly inefficiencies in collection methods may contribute to the extended duration for most.

Waste Collection Time Adopted (n=146)



The majority of Safai Sathis (51%) prefer to collect waste in the morning, which could be possible due to the waste collection schedule aligning with the community's or resident's schedule. Collection rates significantly drop in the afternoon and evening, with only 7% of the total collection activity occurring in these later times combined. Morning is clearly the preferred time for waste collection, indicating that any planned waste management activities or community initiatives should ideally be scheduled around this time to align with the highest level of engagement.

Total Quantity of Waste Collected from Houses per Day (n=146)

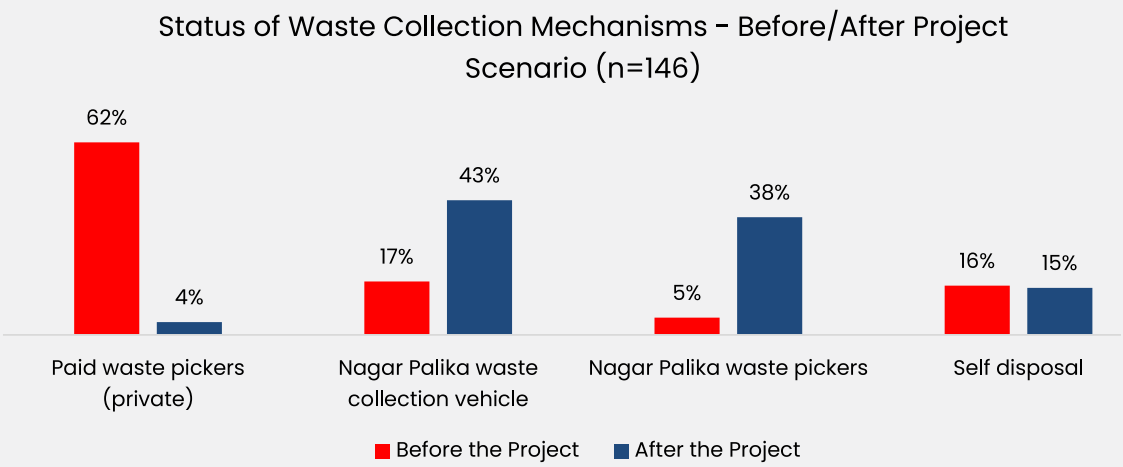


While 66% of collectors gather huge amounts of waste, there is notable variation in collection volumes. About 10% of collectors handle larger amounts (2.6 - 5 kg), while a smaller percentage manage very low volumes (up to 250 g). This variation could be attributed to differences in population density, the number of households on each collection route, and household waste generation practices.

Understanding the range of waste collected can help optimise collection routes and resource allocation. Routes with higher waste volumes may need more frequent collections, while areas with lower waste production might benefit from longer collection intervals or smaller collection teams.

Additionally, since the amount of waste collected may directly influence the income of waste collectors, those collecting higher volumes of waste might experience better earning opportunities. However, this should be balanced with ensuring fair labour conditions, as excessive workloads can impact health and safety.

Waste Collection Mechanisms (Behaviour) (n=146)

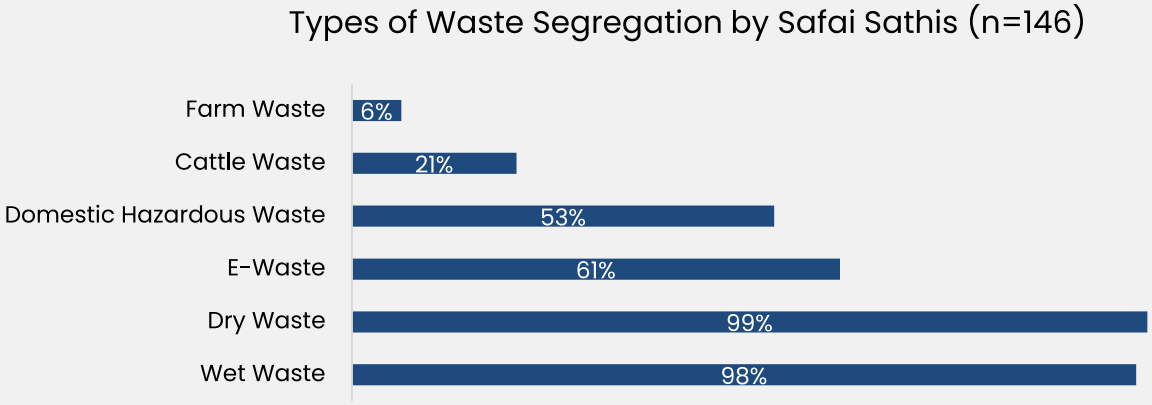


The project has led to a significant shift in waste collection methods, with a clear reduction in paid services and a marked increase in the involvement of local and municipal authorities. This reflects a stronger and more sustainable waste management system post-project.

Paid Waste Collection: Before the project, 62% of the waste collection was managed through paid services. After the project, a significant reduction occurred, with only 4% of waste being collected through paid services. This highlights that the project successfully reduced reliance on paid waste collection, indicating an improvement in public or municipal waste management services.

Nagar Palika Waste Collection Vehicle: Before the project, only 17% of waste was collected by waste collection vehicles from local government bodies. After the project, this increased substantially to 43%. There is a noticeable improvement in waste collection managed by local government bodies, suggesting enhanced capacity or more effective involvement of local municipalities post-project.

Self-Disposal: Before the project: 16% of waste was self-disposed by residents. After the project, a slight decrease to 15%. The project has had a marginal impact on reducing self-disposal, indicating that while formal mechanisms have improved, a small percentage of the population still resorts to self-management of waste.



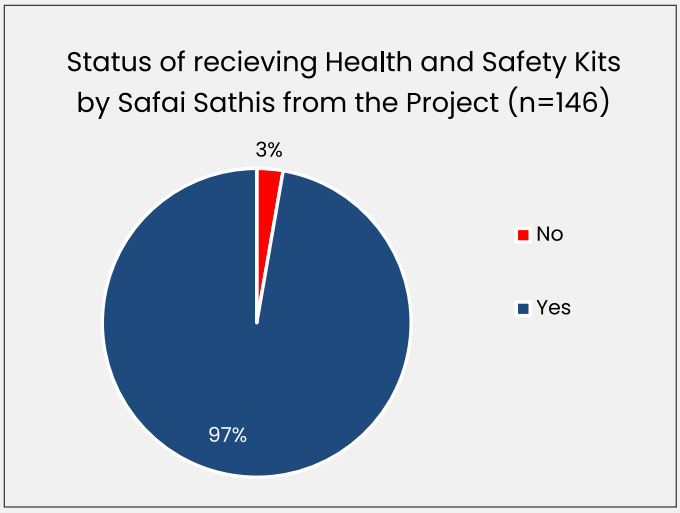
Dry Waste (99%) and Wet Waste (98%): Safai Sathis are highly effective in managing the segregation of dry and wet waste, which are likely the most common waste types encountered in daily waste collection. This indicates a strong capability in handling standard waste streams.

E-Waste (61%): E-waste segregation, although lower than dry and wet waste, is still reasonably high, suggesting that Safai Sathis are equipped to handle electronic waste to a moderate extent.

Domestic Hazardous Waste (53%): 53% of domestic hazardous waste, such as batteries, chemicals, glass and other potentially dangerous materials, is segregated.

Cattle Waste (21%) and Farm Waste (6%): The low percentage indicates that the segregation of cattle and farm waste is not a primary focus or that it is not as prevalent in the waste stream managed by Safai Sathis.

Health and Safety Kits provided from the Project (Attitude) (n=146)



The majority of Safai Sathis (97%) were provided with health and safety kits, which likely contributed to the reduction in health hazards. These kits may include protective gear such as gloves, masks, and other equipment essential for safe waste handling.

Site-Specific Observations:

1. Dehradun

Project Efficiency:

Initiated around 2020-2021, the project aimed to address waste management challenges by establishing a Material Recovery Facility (MRF) in Dehradun. The project, despite its short duration of about one year, has left a lasting positive impact, particularly in improving the operational efficiency of the waste segregation system and enhancing overall community waste management.

Mainstreaming Waste Workers:

One of the most significant achievements was the successful integration of waste pickers into the formal workforce. Approximately 16–20 Safai Sathis now work directly at the MRF and are officially on the payroll, receiving provident fund (PF), Employee State Insurance (ESI), and medical allowances.

Recognition and Identity:

Another key milestone was the issuance of identity cards by the Municipal Corporation, providing social recognition to the waste workers. This formal acknowledgement marked a crucial step toward recognising their role in the waste management ecosystem, which had previously gone unrecognised.

Awareness and Training Programmes:

The project placed significant emphasis on awareness and training initiatives, targeting Resident Welfare Associations (RWAs), waste pickers, and bulk waste generators. These sessions focused on proper waste segregation, particularly of dry, wet, and hazardous waste. Waste Warriors conducted eight awareness and training sessions with four RWAs during the early stages of the project.

Self-Help Groups (SHGs) and Livelihood Initiatives:

Approximately eight Self-Help Groups (SHGs) were formed as part of the programme, with the goal of providing financial support and fostering community-driven growth. One SHG successfully completed a year and received a government contribution of ₹10,000. Although the project was short-term, SHGs played a critical role in enhancing livelihood opportunities for waste workers, involving around 200 individuals. The project team indicated that a longer duration could have facilitated the formation of more SHGs.

Innovative Waste Management Practices:

1. Composting: The project promoted household-level composting of wet waste, which constitutes 70% of the waste stream. This sustainable practice reduces the need for harmful fertilisers like urea and supports local gardening.

2. Awareness Campaigns: Creative awareness campaigns were launched, such as offering free food in exchange for dry waste to encourage proper waste management practices.

3. Use of QR Codes: Two wards in Dehradun implemented a QR code system for waste collection. Waste pickers scan the code at each household to ensure consistent collection. This system is under consideration for wider municipal use.

4. Shame and Fame Method: In some municipalities, social pressure is used to enforce compliance with waste segregation. Households failing to segregate waste may have it displayed on a plastic sheet in front of their homes, encouraging compliance through public accountability.

Health and Safety Measures:

The health and safety of waste workers were prioritised through the provision of personal protective equipment (PPE), including gloves, masks, and boots. Regular health camps were organised, addressing common issues such as skin diseases. Two medical camps were conducted annually, offering free check-ups and medication.

Waste Management Impact:

The project in Dehradun successfully collected and processed approximately 400 metric tons of dry waste, significantly reducing the amount of waste sent to landfills and highlighting the project's environmental impact.

Material Recovery Facility (MRF) Operations

Training Programmes and Induction:

The MRF provides extensive training for both new and experienced workers. Training programmes focus on waste segregation, handling practices, and facility operations. General employees receive 1-2 hours of training, while segregation supervisors undergo more comprehensive training over 2-3 days. Continuous learning is supported through cross-team visits and collaborations with other organisations.

Scope for Maximizing Land Utilisation:

Currently, the centre operates one baling machine, which is being used to its maximum capacity. To improve efficiency, the centre has proposed the acquisition of a second baling machine.

Learning and Development (L&D) Cell:

The centre's L&D department designs location-specific training modules tailored to the challenges faced. Monitoring and evaluation (M&E) teams assess the success of training sessions, evaluating impacts on livelihoods, community outreach, and programme efficiency. Data is collected weekly, with monthly reviews ensuring alignment with project goals.

Support for Green Workers:

The centre has partnered with a community kitchen to provide free lunches to Safai Sathis (green workers), enhancing worker welfare.

MRF Process Efficiency:

The MRF processes dry mixed waste, segregating it into various categories before compacting it with a baling machine. This improves transportation efficiency and reduces costs. The facility also has a composting unit that processes up to 1,000 kg of wet waste daily, turning it into compost within 15–20 days. The MRF segregates waste into 15-20 varieties, ensuring high recycling rates and minimizing landfill disposal.

Market-Driven Segregation Approach:

The segregation process is adjusted based on market demand and aggregator needs. The facility ensures high purity levels in recyclables, maximising their value and utility.

Health and Safety Measures

Reduction in Injuries:

Since the project's inception, the incidence of work-related injuries has decreased. Adequate safety gear is provided, reducing risks from hazardous materials. The centre also maintains insurance policies, providing employees with free medical consultations and assistance, with coverage of ₹4,800 per year for medical expenses.

Fire Safety Measures:

Basic fire safety measures are in place, but considering the geographical challenges, more advanced fire-proofing systems are needed to ensure full safety compliance.

Waste Management Impact:

The MRF has significantly improved waste segregation since the project's launch. The facility handles 35 distinct categories of materials, efficiently channelling dry waste to recycling and wet waste to composting, thereby reducing the environmental footprint in Ward 97.

City	Machinery	Operationality	Repair and Maintenance Records	Hours of Operation per Day	Remarks
Dehradun	Air Blower (Phatka)	Functional and abandoned	Yes	7 hours/day, depending on the quality of the material	Used when required. Presently not required but is functional. Once the fire was there at the switchboard. Records of repair and maintenance via mail. Additionally, the monitoring and procurement of machinery are tracked through the Sathi Portal.

	Plastic Shredder with silo blower & Conveyor	Dysfunc-tional	Not available	7 hours/day, depending on the quantity of material with a capacity of 300 Kg/hour	Under repair and is awaited. No episodes of repairing so far, hence this is the first time and previous repair and maintenance records.
	Extrusion Machine	Not available	Not available	NA	Not required
	Agglomeration Machine	Not available	Not available	NA	NA
	Baler – 1	Functional	Available and updated	7 hours/ day on weekdays, sometimes on weekends as well.	2 visits of monitoring in a year through AMC.
	Conveyor – 1	Functional	Available and updated	7 hours/ day on weekdays, sometimes on weekends as well.	NA
	Forklift	Not available	Not available	NA	NA
	Hydraulic Trolley (In place of Forklift)	Functional	Available and updated	When required. Maximum load carrying capacity is 1 ton	NA
	Styrofoam Compactor	Not available	Not available	NA	NA
	Vehicle	Functional	Available and updated	Every vehicle runs 20-25 km/day	4 vehicles for collecting waste + 2 vehicles for handling operations running at MRF

	Weighing Bridge	Not available	Not available	NA	NA
	Weighing Scale (in place of Weighing Bridge)	Functional			
	Recycled Products (Park Benches, Dustbins, Tree Guards, Artwork)	Available	NA	NA	Benches, stools, Boards, Stationery

Challenges

Budget Constraints: The project faced significant budgetary limitations, with funding allocated only for a short-term period. This constraint restricted the project's potential to fully address several critical areas, including:

- Expanding educational opportunities.
- Providing enhanced health services for the waste-picking community.
- Creating more sustainable livelihood opportunities.

MRF Financing: The Material Recovery Facility (MRF) is currently recovering only about 50% of its total operational costs through user fees (₹70 per family) and recycling efforts. To bridge this financial gap, the following measures are being considered:

- Increasing user fees to enhance the financial stability of operations.
- Leveraging government schemes such as the 15th Finance Commission and Swachh Bharat Mission funds to offset the remaining 50% deficit.
- Reducing dependence on CSR funding, which is deemed unsustainable for long-term operations.

Waste Segregation: Proper waste segregation at the household level remains a persistent challenge. Despite efforts, only 50-60% of the population in the state successfully achieves source segregation of waste. The lack of widespread compliance in municipalities hampers the efficiency of waste management processes.

Attacks from Wildlife: The MRF centre, situated near Rajaji National Park in an ecologically sensitive zone, is highly vulnerable to wildlife invasions. The centre has experienced disturbances from wild animals such as elephants, snakes, tigers, and deer. Past incidents have involved elephants damaging waste bags and MRF machinery, creating operational disruptions and increasing the risk to the centre's infrastructure and resources.

Sanitation and Hygiene Issues: There is an urgent need for improved infrastructure, particularly the construction of a boundary wall around the MRF centre to ensure proper sanitation and hygiene. The following sanitation-related concerns were observed:

- The centre is prone to flooding during the monsoon season due to the overflow of nearby streams.
- This floodwater often mixes with waste at the facility, leading to potential health risks and the breeding of disease vectors, posing a threat to both workers and the local environment.

2. Rishikesh

Project Efficiency

- The project involves multiple stakeholders, including government bodies, waste pickers, and local communities and focuses on various components such as government convergence, cleanliness integration, MRF (Material Recovery Facility) operations, sustainability branding, communications, and awareness activities at the ward level. A key focus was on ensuring high levels of source segregation, aiming for 95% or more in selected wards thereby creating them with as model wards.
- Despite these challenges, efforts were made to engage the community through awareness campaigns, waste segregation initiatives, and integration of Safai Sathis (cleaners) into the formal waste management system. Training, capacity building, and provision of safety kits were part of these efforts.
- The project monitoring was done on a daily basis through regular updates and communications from phone calls and data uploads. The team was divided into two parts – The project management team and Site-Specific Team. The project management team was initially involved at the site when the project was initiated and then later managed the project backend work additionally also visiting the project site once a month. The site-specific team was dedicatedly deployed on-site, monitoring the project on a daily basis.

Material Recovery Facility (MRF) Operations

The lack of strong government support and the delays in securing land and constructing the MRF significantly impacted the project's outcomes. The MRF operations were hindered by insufficient space, a lack of infrastructure support from the government, and a challenging working environment, including theft and poor conditions at the MRF site. Achieving the desired levels of waste collection was difficult due to competition from informal waste collectors who offered higher payments to workers. The sustainability of the project was compromised by the lack of proper waste and sufficient material quantities to operate the MRF efficiently.

Challenges

Informal Sector Dominance: The project faced significant challenges due to the strong nexus between waste pickers and local informal networks, making it difficult to recover high-value recyclables. The project faced difficulties in securing adequate and clean dry waste for recycling due to existing informal systems of waste collection and competition from local scrap dealers. The segregation from door to door remains a challenge, with only 50-60% of the state achieving source segregation.

Project Model Limitations: The proposed model for managing dry waste, which included establishing a dedicated Material Recovery Facility (MRF) and employing waste pickers, was not fully implemented. The lack of government support and strong informal networks hindered its success.

Funding and Resource Constraints: The funding for the project was limited, which covered only a portion of the required human resources. The project relied on the revenue generated from dry waste to sustain operations, but this revenue was insufficient due to the leakage of valuable recyclables and the challenges posed by the informal sector.

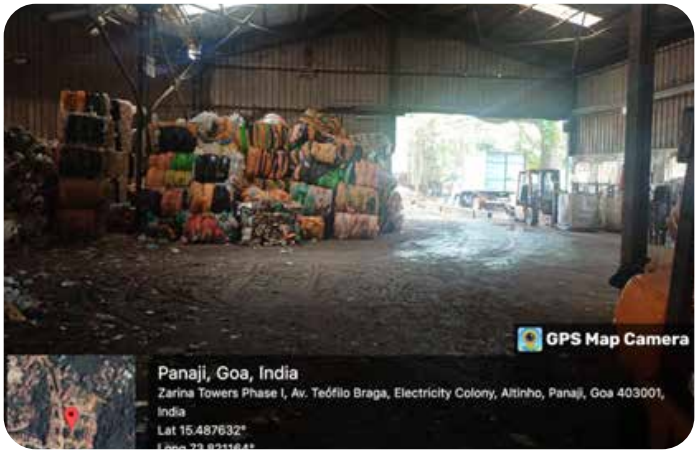
3. Panaji

Project Efficiency

- The waste management project in Panaji focuses on enhancing segregation and disposal efficiency through structured processes. The MRF centre is central to this project, with dry and wet waste being processed via various segregationally techniques.
- Improvements in the waste management system have led to environmental benefits. The introduction of a system that includes dustbins at every location has facilitated waste segregation at the source, increasing the recyclability of materials.
- The Corporation of the City of Panaji (CCP) has implemented 4-way dustbins across the city to manage waste from a population of 45,000 and daily commuters of up to 100,000. This initiative supports the segregation process and waste collection at the source.
- Due to the training and awareness sessions, post-training employment opportunities have increased for waste workers, offering them stable livelihood options.

Material Recovery Facility (MRF) Operations

The MRF centre operates under a model that segregates waste into up to 32 categories. Such granular segregation ensures that more materials are recycled, benefiting the environment and increasing the efficiency of waste processing. The current model involving segregation, compression, and sale of dry waste has significantly reduced waste accumulation and odour at the MRF centre. The focus on sustainability is evident in the development of machinery like conveyor belts that reduce manual handling and improve efficiency. The initiative has led to more efficient processing of waste, with segregated materials being sold separately, thus reducing waste accumulation. Innovations like the conveyor belt system and 16-way segregation models are increasing the revenue generated from waste.



Machinery Checklist

Cities	Machinery	Operationality	Repair and Maintenance Records	Hours of Operation per Day	Remarks
Panaji	Air Blower (Phatka)	Not available	NA	NA	NA
	Plastic Shredder with silo blower & Conveyor	Not available	NA	NA	NA
	Extrusion Machine	Not available	NA	NA	NA
	Agglomeration Machine	Functional	Available and updated	15 Hours	NA
	Baler	Functional	Available and updated	15 hours	NA
	Conveyor	Functional	Available and updated	15 Hours	NA
	Forklift	Functional	Available and updated	15 Hours	NA
	Styrofoam Compactor	Not Available	Available and updated	NA	NA
	Vehicle	Functional	Available and updated	5 Hours	NA

Challenges

- Machinery & Workforce Shortage: Pre-COVID, the MRF centre struggled with an inadequate workforce and machinery, leading to waste accumulation. This was resolved through post-pandemic improvements including machinery provisions and manpower expansion.
- Health Issues: Waste Workers have reported health concerns due to the build-up of methane gas from accumulated waste. Regular spraying of pest control medicines has ceased, exacerbating health problems such as colds and flu among the workforce.
- Lack of Facilities: Waste Workers have expressed dissatisfaction due to the lack of basic amenities like designated changing rooms. This issue remains unresolved.
- Health and Safety Measures: Despite health concerns related to methane gas exposure, there is little evidence of systemic safety measures to protect workers from such risks. The cessation of pest control measures worsens these issues. Improved health and safety protocols are necessary for the well-being of the workforce.
- Gap in Wages of Waste Workers - While employment opportunities have risen post-training, the wage structure remains a challenge. Local workers are often driven away due to low wages, leaving the centre dependent on external labour from areas like Nepal.

Greater Noida

The MRF centre has been constructed, but the necessary machinery has not yet been procured. Since the construction of the MRF, no formal MOU has been signed with the Development Authority to initiate its operation, resulting in the centre remaining non-functional. The key to the centre has been handed over to the Greater Noida Development Authority.

Additionally, Safai Sathis were onboarded on a permanent payroll basis during the project and their job was to collect the waste from the residents, segregate the waste into different categories and sell the waste to aggregators or scrap dealers for help in refuelling the financing of the project model.

3.4 Impact of the Project

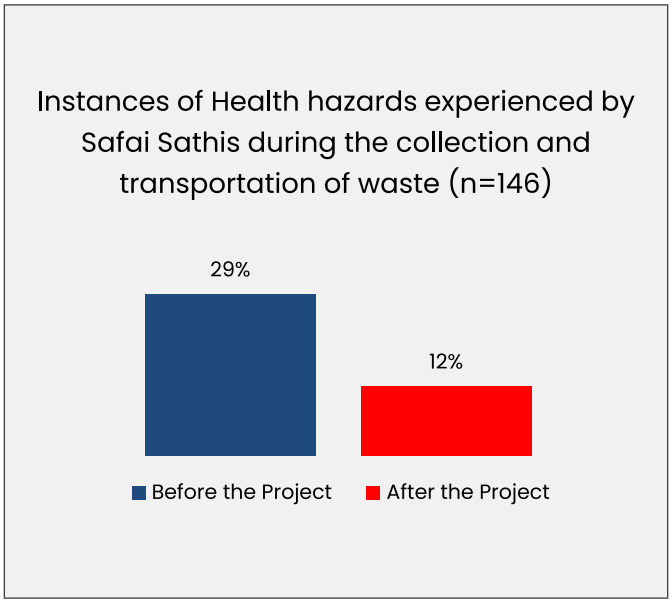
To attain a comprehensive assessment of the programme's impact, we delve into its profound and potentially transformative effects on the social ecosystem. This section meticulously examines the indirect, secondary, and prospective impact arising from the project.

There has been a **17%** decrease in health hazards faced by Safai Sathis since the project implementation

87% of the Safai Sathis acknowledged that the project played a role in improving their livelihood opportunities

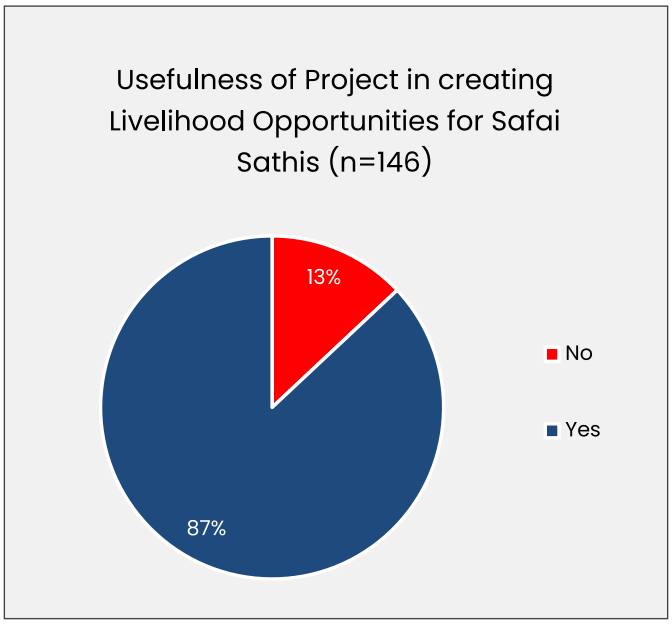
A combined 65% of Safai Sathis rated the project as **4** or **5** in improving their personal income

A combined **53%** of Safai Sathis rating the project as **4** or **5** in decreasing their migration for work



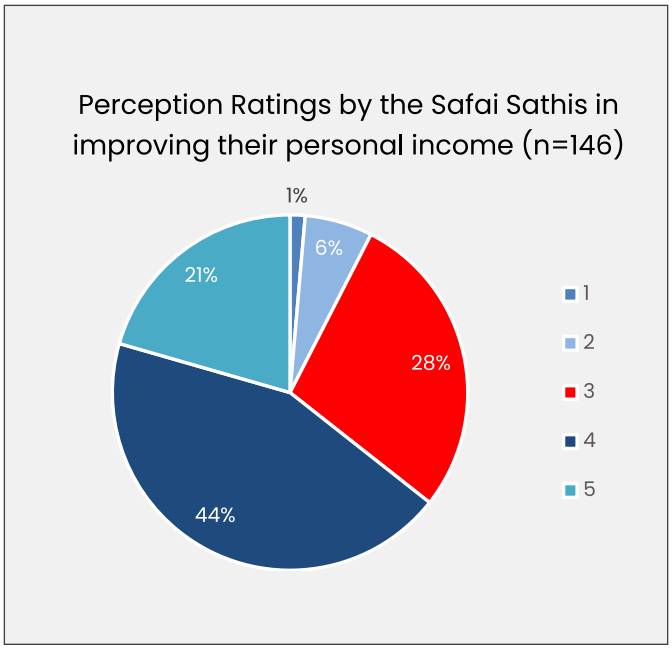
Decrease in Health Hazards during the Collection and Transportation of Waste (Attitude) (n=146)

The study reveals that there has been a 17% decrease in health hazards faced by Safai Sathis following the implementation of the project. This improvement indicates that the measures introduced by the project had a positive impact on the safety and well-being of waste workers. The reduction in health risks suggests the introduction of safer waste collection practices or equipment. It also implies increased awareness of safety measures among Safai Sathis during their waste collection and transportation duties.



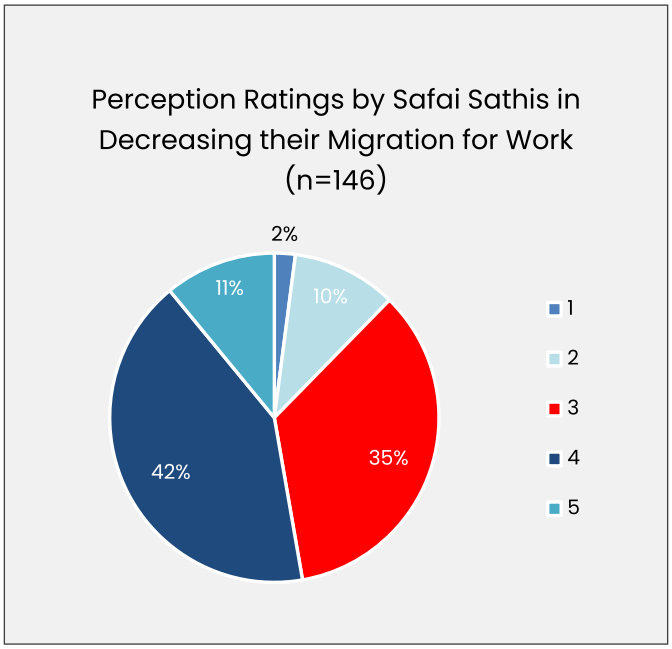
Project in creating Livelihood Opportunities (Attitude) (n=146)

A significant majority (87%) of the Safai Sathis acknowledged that the project played a role in improving their livelihood opportunities, which may include better wages, job security, or new employment avenues. The overwhelmingly positive response suggests that the project effectively generated economic benefits for most waste collectors.



Weighted Average of Project Ratings in improving personal income (Attitude) (n=146)

Safai Sathis provided the weighted average of project ratings as 3.78, indicating that a significant majority found the project effective in improving their income. This suggests that the interventions have largely achieved their financial goals. There has been an increase in average monthly income of beneficiaries of about Rs. 2945.205. However, this also indicates that while there has been some positive impact, there were beneficiaries who may have expected further income improvements.



Weighted Average of Project Ratings in improving personal income (Attitude) (n=146)

Safai Sathis provided the weighted average of project ratings as 3.78, indicating that a significant majority found the project effective in improving their income. This suggests that the interventions have largely achieved their financial goals. There has been an increase in average monthly income of beneficiaries of about Rs. 2945.205. However, this also indicates that while there has been some positive impact, there were beneficiaries who may have expected further income improvements.

Resident Welfare Associations (RWAs)

Waste Generation

The RWA generates approximately 6-8 kg of mixed waste daily. For the broader area landscape, this increases to an estimated 500-1,000 kg of waste daily. The waste generated is predominantly dry (e.g., wrappers, packaging), with some households managing wet waste (such as food scraps) themselves by composting or feeding animals.

Waste Management Practices Adopted

- Collection Systems: A door-to-door collection system has been implemented by the local municipalities and on-ground implementing partners with residents charged user fees per household for waste collection, and the community has shown strong compliance with payments. The fare of the user fee depends on the size of the residential property.
- Segregation Awareness: There is a high level of awareness regarding waste segregation, with many residents striving to separate dry and wet waste. However, challenges persist in achieving full compliance across all households, with some still inconsistent in segregating waste.

- **Localized Waste Handling:** Wet waste is often managed at the household level, with several residents repurposing it as manure or animal feed, reducing the volume of waste requiring external collection.

Community Involvement and Training

- **Awareness Initiatives:** Training, awareness, and health camps from the project have helped improve residents' understanding of waste management and associated health risks. These initiatives have led to a significant reduction in poor waste disposal practices and health issues like clogged drains, which were frequent before the intervention. Increasing the frequency of awareness programmes to regularly educate new residents and ensure that everyone follows the same waste segregation practices would help maintain the system's efficiency.

In Greater Noida, the society conducted sessions for their housekeeping staff, emphasising the need to wear clean uniforms, gloves, and masks. They were also instructed to wear PPE kits when handling hazardous waste and taught how to process organic (green) waste, such as leaves, to turn it into manure using their machines.

- **Cooperation and Participation:** The community is cooperative in paying user fees, actively participates in regular clean-up drives, and shows a strong commitment to becoming a model society/community for effective waste management. However, there is no formal penalty system for non-compliance, but reminders are issued to those who miss collection days.

Health and Environmental Awareness

- Health and Safety Measures: The RWA highlights that the waste collection workers are properly equipped with safety gear (gloves, masks, uniforms, boots), ensuring safer handling of waste. Waste collection vehicles are also covered to reduce dust, though they are partially open for efficient waste loading.
- Environmental Concerns: Residents are aware of the health risks posed by improper waste management, such as clogged drains and mosquito breeding, and take active measures to mitigate these risks.
- Segregation of Hazardous Waste: In addition to regular household waste, residents also segregate hazardous waste (e.g., diapers, expired medicines, e-waste), demonstrating a comprehensive approach to waste management.

Commercial Establishments (Bulk Waste Generators) – Restaurants

Waste Generation

The restaurant generates approximately 60-65 kg of wet waste daily, consisting mostly of food scraps and kitchen waste. Dry waste is significantly lower, around 5-6 kg daily, though this can increase during events or parties. Plastic bottles and oil containers are part of the dry waste stream and are separated for further recycling or sold to local scrap dealers instead of being disposed of with regular waste.

Waste Segregation and Disposal

Initially, the restaurants struggled with mixing wet and dry waste, but after the project, they have now established proper segregation practices. Plastic bottles and oil containers are set aside and sold to scrap dealers, which contributes to reducing waste and promoting recycling efforts. Waste is collected daily by waste collectors who adhere to safety standards, such as wearing masks and gloves. The collection truck is mostly covered, ensuring compliance with hygiene protocols.

Waste Collection

The restaurants pay a monthly fee of ₹2,500 for waste collection services, demonstrating that the system for waste collection is well-structured with clear payment protocols. If the waste collection truck misses waste collection for a day due to logistical or health reasons, the restaurant stores waste outside until the next day's collection. There is clear communication regarding delays.

Challenges and Recommendations

- Community Support: The restaurants note that while improvements have been made, some community members still engage in improper waste disposal, such as throwing garbage or burning it. This indicates a need for stronger public awareness and better community participation.
- Waste Collection Frequency: The restaurants suggest that during busy days or when hosting events, waste should be collected twice a day instead of once. This would prevent waste from piling up and ensure better waste management on high-volume days.
- Transparent Waste Collection System: Another recommendation is to introduce a signature system where restaurant staff sign off when waste is collected. This would provide a transparent tracking system to confirm timely collections and avoid confusion about missed pickups.

Commercial Establishments (Bulk Waste Generators) – Education Institution

Waste Generation and Collection

- Types of Waste: The educational institution generates several types of waste daily, including food waste from hostels, dust waste, and medical waste, such as medical equipment and cotton from the institution's clinic. This diverse waste profile is regularly managed through a collection system with visits from a waste collection vehicle.
- Waste Handling Practices: The institution ensures proper handling of waste by making sure that the collection vehicle is adequately covered, and the cleaners and waste workers use appropriate safety gear like masks and protective kits, aligning with health and hygiene standards.

Waste Segregation and Disposal

- On-Site Waste Segregation: The institution has established a waste segregation system with waste pits on the premises to manage wet, dry, and dust waste, particularly in the hostel areas. This on-site segregation is critical to ensuring that waste is sorted before being handed over for collection, improving overall waste management efficiency.
- Expansion of Waste Pits: One suggested improvement is to install additional waste pits in specific high-waste areas like the canteens and mess halls for both boys and girls. These would enhance waste sorting in areas with heavy footfalls and waste generation.

Awareness and Training Programmes

- Workshops for Students: The institution organises regular workshops and classes for students to educate them on waste segregation, safe disposal methods, and waste handling techniques. These sessions emphasise what materials students should avoid touching and how to manage waste safely, fostering environmental responsibility.
- Involvement of Waste Workers: The workshops are conducted by waste workers aligned with the project, who actively engage with students and explain the importance of segregation and the environmental impact of improper waste disposal.
- Provision of Safety Gear: During these workshops, students are often given gloves and masks to ensure that they safely handle waste. This initiative promotes hands-on learning and prepares students for direct participation in waste management practices on campus.

Scrap Dealers

The scrap dealers play a vital role in the local waste management and recycling chain, contributing to environmental sustainability while supporting the livelihoods of their workers.

Growth in Business

Since the project implementation, scrap dealers have witnessed a noticeable increase in the volume of scrap materials they handle. The scrap comes from various regions and is then cleaned and sent to factories for recycling. The waste includes a variety of materials collected from different areas. Proper segregation at the MRF centres ensures that dealers can process the scrap more efficiently.

Employment and Economic Impact

- Job Creation: The growing scrap business has allowed dealers to employ more workers, providing reliable livelihoods. Income fluctuates based on the volume of scrap processed each month, linking their earnings to the waste management ecosystem.
- Seasonal Impact on Earnings: During the rainy season, the value of scrap materials, especially dry waste, decreases when the materials get wet, leading to financial losses. This is mainly because dry, clean materials are preferred by buyers, and moisture impacts their ability to sell at competitive rates.

Health and Safety Concerns

- Risk of Injuries: Workers often deal with hazardous materials, particularly glass, which poses a risk of cuts and injuries. Although gloves are provided, workers sometimes remove them, especially when not under supervision, increasing the likelihood of injuries.
- Medical Costs: Scrap dealers estimate monthly medical expenses between ₹1,000 to ₹1,500 for treating injuries related to handling sharp objects like glass.

3.5 Coherence of the Project

The Coherence section of the report checks the alignment of the programme with other interventions in the country, i.e., with similar programmes which were being run by other institutions.

Alignment with Sustainable Development Goals (SDGs)

The Sustainable Development Goals (SDGs), also known as the Global Goals, were adopted by the United Nations in 2015 as a universal call to action to end poverty, protect the planet, and ensure that by 2030 all people enjoy peace and prosperity.

SDG Goal	SDG Target	Alignment
	End poverty in all its forms everywhere	The onboarding of Safai Sathis is creating a reliable job and source of income for the Waste Collectors. In Rishikesh and Panaji, initiatives were taken to open the Bank Accounts of the Safai Sathis.

	Ensure healthy lives and promote well-being for all at all ages.	Proper waste management reduces health hazards associated with open burning and dumping, resulting in improved public health and well-being. This is supported through increased awareness and supporting the onboarded Safai Sathis through Mediclaim and insurance.
	Achieve gender equality and empower all women and girls	The onboarded Safai Sathis are inclusive of gender equality and are provided wages equally.
	Ensure availability and sustainable management of water and sanitation for all.	Effective waste management prevents the contamination of water sources, ensuring access to clean water and sanitation facilities for rural communities.
	Build resilient infrastructure, promote inclusive and sustainable industrialisation and foster innovation.	The Material Recovery Facilities in Dehradun and Panaji are helping in recycling and effective management of waste through the creation of a sustainable 'waste to wealth' model.
	Make cities and human settlements inclusive, safe, resilient and sustainable.	By establishing a sustainable waste management model, the project contributes to creating cleaner and more resilient communities, enhancing living conditions, and promoting inclusivity and sustainability.
	Ensure sustainable consumption and production patterns.	The project promotes resource efficiency and waste reduction through initiatives like segregation, collection, and recycling, thereby encouraging responsible consumption and production patterns.

	Take urgent action to combat climate change and its impacts.	By reducing open burning and landfill emissions, the project reduces greenhouse gas emissions and supports climate change adaptation and resilience.
	Conserve and sustainably use the oceans, seas and marine resources for sustainable development.	Through the adoption of Socio -Technical Model, the project helps in the conservation and preservation of life below water and on land.
	Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.	
	Strengthen the means of implementation and revitalise the Global Partnership for Sustainable Development.	Collaboration between HDFC Bank, UNDP, local authorities, and community stakeholders highlights the importance of partnerships in achieving sustainable development goals, fostering collective action, and facilitating knowledge sharing.

Alignment with National Priorities

Scheme Name	Scheme Details	Alignment
Swachh Bharat Mission	The Swachh Bharat Mission - Urban (SBM-U), launched on 2nd October 2014, aims to make urban India free from open defecation and achieve 100% scientific management of municipal solid waste in 4,041 statutory towns across the country. The second phase of SBM-U was launched on 1st October 2021 for a period of five years. The vision for SBM-U 2.0 is to achieve "Garbage Free" status for all cities by 2026 .	The project aligns closely with the objectives of the Swachh Bharat Mission, which aims to achieve open defecation-free (ODF) status, improve waste management practices, and promote cleanliness and hygiene.

National Mission for Waste to Wealth	The mission aims to identify, develop, and deploy technologies to treat waste for energy generation, material recycling, and resource extraction. The mission will assist and augment the Swachh Bharat and Smart Cities projects by leveraging science, technology, and innovation to create circular economic models that are financially viable for waste management, thereby streamlining waste handling in the country .	The project closely aligns with the objectives of the mission through the installation of MRF centres for processing, recycling and resource extraction from the waste collected through the involvement of technology and innovation.

Alignment with CSR Policy

Schedule VII (Section 135) of the Companies Act, 2013 specifies the list of the activities that can be included by the company in its CSR policy. The below-mentioned table shows the alignments of the intervention with the approved activities by the Ministry of Corporate Affairs.

Activity	Description	Alignment with the Project
(iv)	Ensuring environmental sustainability, ecological balance, protection of flora and fauna, animal welfare, agroforestry, conservation of natural resources and maintaining the quality of soil, air and water.	The project aims to establish a sustainable waste management socio-technical model that directly contributes to environmental sustainability. By implementing proper practices for waste collection, segregation, recycling, and disposal, the project helps reduce environmental pollution and promotes ecological balance.

Alignment with BRSR Principles

The programme's intervention also aligns with the ESG Sustainability Report of the corporate. Particularly, concerning the Business Responsibility & Sustainability Reporting Format (BRSR) shared by the Securities & Exchange Board of India (SEBI), the programme aligns with the principle mentioned below:

Swachh Bharat Mission : Ministry of Housing and Urban Affairs, Government of India (mohua.gov.in)

National Mission for Waste to Wealth | India Science, Technology & Innovation - ISTI Portal (indiascienceandtechnology.gov.in)

ESG Principle	Alignment with the Project
PRINCIPLE 2. Businesses should provide goods and services in a manner that is sustainable and safe	The project aims to establish a sustainable waste management socio-technical model system, which directly contributes to providing a service (waste management) sustainably (maximising resource recovery, reducing landfill) and safely (preventing environmental pollution and health hazards).
PRINCIPLE 4. Businesses should respect the interests of and be responsive to all its stakeholders	The project demonstrates responsiveness to stakeholders, including local communities, waste workers, residents, and municipalities, by addressing the critical need for proper waste management. This enhances hygiene, cleanliness, and overall well-being in the urban and peri-urban regions of the project geography.
PRINCIPLE 5. Businesses should respect and promote human rights	Implementing a waste management project contributes to human rights by reducing environmental pollution, improving public health, and creating safer and healthier living conditions for individuals in the project locations.
PRINCIPLE 6. Businesses should respect and make efforts to protect and restore the environment	The project focuses on managing waste through source segregation, collection and recycling that minimises environmental impact, promotes resource recovery, and reduces pollution, thereby aligning with efforts to protect and restore the environment.
PRINCIPLE 8. Businesses should promote inclusive growth and equitable development	Through capacity building, employment generation, and community engagement, the project aims to promote inclusive growth and contribute to equitable development. It provides livelihood opportunities to waste workers while promoting environmental sustainability.

Municipal Corporation Involvement:

The municipal corporation monitors the progress of segregation and waste management in various wards through tools like the Swachh Bharat Mission (SBM) portal, which tracks waste collection data. The local municipalities have introduced a Garbage Vulnerable Point (GVP) removal initiative, which targets long-standing dump sites within colonies. For example, a 35-year-old GVP in Dehradun was recently cleared, enhancing public health and reducing pollution.

Additionally, the project played a pivotal role in the programme by engaging with households directly to promote waste segregation. This micro-level support complemented the macro-level efforts of municipalities, resulting in more effective waste management practices. The surveys and publications by the government further supported the project's objectives.

3.6 Sustainability of the Project

The sustainability aspect focuses on the long-lasting benefits of the intervention. This section covers the post-project effects and how they impacted the lives of the beneficiaries.

Replicability and Success of Project's Socio-Technical Model

The Project model, renowned for its door-to-door collection and 100% waste segregation, has set a benchmark for other towns. Its success is now being replicated across various municipalities in Uttarakhand, underscoring the scalability and effectiveness of this waste management approach.
Introduction of the Self-Help Group (SHG) Model

The SHG model implemented involves self-help groups collecting user charges for waste management services. SHGs retain 25% of the total user charges collections, providing a financial incentive to maintain high service quality. This model has proven effective in enhancing local waste management efforts.

Incentive-Based Segregation System

Several municipalities have introduced a differential rate system to encourage waste segregation. Households that provide segregated waste benefit from lower charges, while those with mixed waste face higher fees. This financial trigger promotes better segregation practices and increases overall waste management efficiency.

Individual wards replicate the success

One of the wards achieved remarkable success with 1,708 families participating in the project. The efficient segregation of waste, which was directly sent to the Material Recovery Facility (MRF), led to nearly zero dumping and littering. The successful practices of the Ward were adopted by other wards, reinforcing the project's impact.

Success of Composting Initiatives

Residents in several wards began composting their wet waste and using the compost in their gardens. This practice has demonstrated the environmental benefits of segregation and composting, serving as a model for other wards to follow and contributing to long-term sustainability.

Positive Life Changes for Waste Workers

A poignant example of the project's social impact is the story of a female waste worker who initially hesitated to participate due to concerns about exploitation. Over time, she experienced the project's benefits, including financial security and community respect. Her transformation inspired others to join the project initiative, highlighting the project's significant social impact.

Joshimath's Model of Economic Success

Joshimath, a small town in Uttarakhand with a population of 10,000, has demonstrated the economic potential of effective waste management. Inspired by the success of the implemented project, the town adopted waste segregation practices and converted plastic waste into a compacted form for sale. Over the past five years, Joshimath has earned ₹1.10 crore from recycling efforts, showcasing how waste management can generate significant revenue even in small municipalities.

3.7 Rating the Implementing partner on the PPP matrix

The rating criteria and ranking of the implementing agency have been based on primarily 3 factors People, Processes, and Platforms.

The PPP framework revolves around the dynamic interplay of its three key elements. People, who actively participate in programme execution are complemented by processes that enhance efficiency and accuracy. The platform component, in turn, facilitates tasks and automates processes. The harmonious equilibrium among these elements, optimising the synergy between people, processes, and platforms, empowers agencies to attain organisational efficiency.

Visualised as a golden triangle with each side equally significant, the PPP framework embodies a holistic approach to project success, from execution to outcomes. Neglecting any element can disrupt the framework's balance and, consequently, impact the project's overall success.

The rating criteria consider multiple factors, and the implementing partners have been given individual ratings based on their scope of work and level of engagement. The below-mentioned table describes the major indicators which were used for evaluating the partner.

Framework Element	Indicator	Individual Scoring	Consolidated Scoring
People	Governance Mechanism	10	9.3
	Quality of resources hired	10	
	Involvement of multiple stakeholders	10	
	Decision Making and Leadership	10	
	Knowledge and Awareness developed from the Project	8	
	Personal income improvement of Safai Sathis	8	
Processes	Whether proper permissions were taken to operate and construct the MRF centres and MOUs were exchanged with Government	8	7.3
	Challenges faced by the Project implementation and management team	6	
	Resolution of challenges of the Beneficiaries	8	
Platform	Mode of data collection during the programme	10	10
	Data privacy	10	
	Usage of any DBMS software of other secure data-storing platform	10	
	Data Quality, Storage & Maintenance for tracking	10	

The People parameter considers the responsibility and capability of individuals engaged in project implementation for specific tasks. Additionally, it takes into account the behavioural aspects exhibited by these individuals during project execution while providing support for the data collection process.

The Processes parameter examines the practices employed by stakeholders throughout the project implementation. This encompasses the consideration of proper permissions and ethical practices. Given the programme's focus on individuals with disabilities, their perceived ease of accessing the project was also taken into account. Additionally, the critical aspect of partner coordination played a pivotal role in implementing the programme on a large scale and was thus carefully considered.

The Platform indicator was designed to assess partners based on their data management capacity and any best practices they employed, utilising technically sound mediums. Additionally, information about each beneficiary, as provided by the partners and shared with CSRBOX's team during the evaluation process, was factored into the consideration for the programme.

Legend: Kindly follow the below-mentioned table for inferences on the PPP ranking.

Rating	Inference
9–10	Very Good
8	Satisfactory
Less than 8	Unsatisfactory

3.8 Target vs Achievement

S.No.	Particulars	Target	Achieved
1	Quantity of Dry Waste collected, segregated and recycled (in metric tonnes)	14,000	14198.27
2	Several waste pickers were provided with socio-economic benefits and underwent mainstreaming (nearly)	2,500	1,178
3	Partnerships established with NGOs, CBOs, institutions and private sector	5	13
4	Number of Women Enterprises (SHG) established involving more than 50 women (10 -15)	12	13
5	Number of Swachta Kendra established and formalised with the Urban Local Bodies	5	9

Chapter 4

Recommendations for the Programme

A thorough Impact Assessment study, employing a blend of qualitative and quantitative research methods, has yielded a spectrum of findings. This section offers recommendations and proposes actionable measures that can be adopted to optimise the effectiveness of similar future interventions.

Project Challenges and Recommendations

Below are the grassroots challenges relevant to each level of the project -

Restaurants

Community Support: While restaurants have made improvements in managing their waste, improper waste disposal habits persist among some community members. This includes behaviours such as throwing garbage in undesignated areas and burning waste, which creates environmental and health hazards. The issue highlights the need for stronger public engagement and more effective communication regarding the harmful effects of improper waste disposal.

Waste Collection Frequency: Restaurants have indicated that during busy periods, particularly on event days, the current once-daily waste collection is insufficient. Waste piles up quickly, resulting in hygiene issues and the risk of attracting pests. Hence it is suggested that during busy days or when hosting events, waste should be collected twice a day instead of once. This would prevent waste from piling up and ensure better waste management on high-volume days.

Transparent Waste Collection System: A lack of transparency in the waste collection process has been identified. Without clear documentation or tracking, restaurant staff are often left uncertain whether the waste has been collected on time. This confusion can lead to missed collections and the perception that waste management services are unreliable. Hence it is recommended to introduce a signature system where restaurant staff sign off when waste is collected. This would provide a transparent tracking system to confirm timely collections and avoid confusion about missed pickups.

Scrap Dealers

Risk of Injuries: Scrap dealers face significant health and safety risks, particularly from handling hazardous materials like glass. Workers are often provided with gloves, but in some instances, they remove them when they believe there is no immediate supervision. This increases the likelihood of cuts, abrasions, and other injuries, creating a safety risk that requires constant attention. It is hence suggested to establish stricter safety protocols to ensure that workers consistently wear protective gloves while handling hazardous materials. This could include regular supervision, mandatory safety training, and penalties for non-compliance. Additionally, the workers should be provided with alternative gloves that are more comfortable and conducive to prolonged use.

Medical Costs: Scrap dealers report that injuries related to handling sharp objects, especially glass, are common. These injuries lead to monthly medical expenses ranging from ₹1,000 to ₹1,500, which puts an additional financial burden on the workers and dealers. Therefore, setting up insurance schemes or offering health subsidies could alleviate the financial burden of frequent medical expenses.

Seasonal Impact on Earnings: During the rainy season, the earnings of scrap dealers decline due to the decreased value of wet scrap materials. Buyers prefer clean, dry materials, and moisture negatively impacts the quality of the waste. As a result, dealers face financial losses, particularly in the case of materials like paper and cardboard, which are highly susceptible to water damage. Thus, investing in protective infrastructure, such as covered storage areas, to prevent materials from getting wet during the rainy season will help in maintaining the quality of scrap materials, allowing dealers to sell them at competitive prices even during unfavourable weather conditions.

MRF Centre in Panaji

Machinery & Workforce Shortage: Prior to the COVID-19 pandemic, the MRF centre in Goa experienced significant challenges due to an inadequate workforce and insufficient machinery, leading to waste accumulation. Although post-pandemic improvements, such as the addition of new machinery and expanded manpower, have helped mitigate these issues, the centre remains vulnerable to similar challenges if resources are not continually maintained and upgraded. Hence continuous expansion and addition of equipment and workforce with regular review of machinery performance and workforce efficiency are suggested to identify areas for further optimisation, ensuring that the centre remains equipped to handle increasing waste loads.

Health Issues: Workers at the MRF centre have raised concerns about their health, particularly due to exposure to methane gas generated by accumulated waste. As a result, workers frequently suffer from respiratory issues, including colds and flu, which are directly linked to the unhealthy working environment. Hence, it is suggested to reinstate regular pest control measures to manage methane gas build-up and reduce health risks. Additionally, installing proper ventilation systems and considering the use of odour control technology will be helpful in further mitigating health hazards related to methane exposure. Periodic health check-ups for workers should also be mandated to monitor any health issues arising from long-term exposure.

Lack of Facilities: Waste workers at the MRF centre have expressed dissatisfaction with the absence of basic amenities, such as designated changing rooms. This lack of facilities impacts worker morale and comfort, creating a less productive and less hygienic working environment. Hence it is suggested to allocate a portion of the centre's budget to construct essential facilities, such as designated changing rooms and rest areas, to improve worker comfort and hygiene. Ensuring that these facilities are well-maintained will contribute to a better working environment and increased productivity.

Health and Safety Measures: In addition to the health risks posed by methane gas exposure, there is a general lack of systemic safety measures to protect workers from such hazards. Hence it is recommended to develop and implement comprehensive health and safety protocols, including mandatory use of protective gear, regular safety training, and health monitoring. Establishing a system for reporting and addressing safety concerns promptly to maintain a safe working environment can make the health and safety process efficient.

Gap in Wages of Waste Workers: Although employment opportunities have increased after workers received training, the wage structure continues to be a challenge. Local workers are often reluctant to continue working at the MRF centre due to the low wages offered, which has resulted in the centre becoming reliant on external labour, particularly from Nepal. This dependence on external labour further complicates the centre's ability to retain and attract a stable workforce.

Hence reviewing the current wage structure and exploring options to offer competitive salaries to retain local workers can be a few suggestive strategies. Additionally, it is suggested to explore potential external funding sources or partnerships to supplement wages and reduce reliance on external labour.

MRF Centre in Rishikesh

Informal Sector Dominance: The waste management project in Rishikesh has faced substantial difficulties due to the dominance of informal waste networks. Local waste pickers and scrap dealers have established a strong nexus, making it challenging for the formal waste management system to recover high-value recyclables. These informal actors collect and sell valuable dry waste materials to private buyers, which reduces the availability of clean, segregated waste for the MRF centre. Hence it is suggested to strengthen collaboration with informal waste sector actors and integrate them into the formal waste management system. Developing partnerships with local waste pickers and scrap dealers to enhance waste collection efficiency and secure high-value recyclables can turn out to be useful in breaking the strong nexus.

Project Model Limitations: The proposed model for managing dry waste, which included establishing a dedicated Material Recovery Facility (MRF) and employing waste pickers, was not fully implemented. One of the key reasons for the model's failure was the lack of government support and resources, coupled with the strong influence of informal waste networks. Hence it is suggested to seek increased government support and resources to fully implement the proposed waste management model.

Funding and Resource Constraints: The project faced severe funding limitations, which only covered a portion of the necessary human resources. Operations were reliant on the revenue generated from dry waste recycling, but due to the leakage of valuable recyclables to informal networks, this revenue was insufficient. As a result, the project struggled to sustain itself financially, limiting its effectiveness and scalability. Hence it is suggested to explore alternative funding sources, such as government grants, private-sector partnerships, and community fundraising, to address financial shortfalls.

MRF Centre in Dehradun

Budget Constraints: The Dehradun MRF centre faced budgetary limitations, with funding only available for a short-term period. This restricted the project's ability to fully expand in critical areas, such as providing education for the waste-picking community, improving health services, and creating sustainable livelihood opportunities. The lack of consistent long-term funding has hindered the centre's overall impact. Hence it is recommended to secure long-term funding through diverse sources, including government schemes, private investments, and community contributions.

MRF Financing: The MRF centre currently recovers only about 50% of its operational costs through user fees (₹70 per family) and recycling efforts. This financial gap poses a significant challenge to maintaining the facility's operations. The remaining 50% of the costs remain uncovered, necessitating a review of financing strategies to ensure long-term sustainability. Thus, it is suggested to evaluate and adjust user fees to better cover operational costs while ensuring affordability for families and engaging with government programmes to access additional funding and support.

Wildlife Attacks: The MRF centre is located near Rajaji National Park, an ecologically sensitive area, and is vulnerable to wildlife invasions. Incidents involving elephants, snakes, tigers, and deer have been reported, with elephants causing the most damage by destroying waste bags and machinery. These wildlife disturbances disrupt operations and pose a serious risk to both the infrastructure and the safety of workers. Hence it is suggested to construct barriers and boundary walls to protect the facility from wildlife damage and ensure that proper safety protocols are in place for dealing with wildlife encounters.

Sanitation and Hygiene Issues: The centre is prone to flooding during the monsoon season due to the overflow of nearby streams. This floodwater mixes with the waste, creating potential health risks for workers and breeding disease vectors. The situation poses significant sanitation and hygiene challenges, particularly in terms of managing floodwater contamination. Hence it is suggested to construct a boundary wall around the MRF centre to prevent floodwater from contaminating the facility and implement measures to ensure proper sanitation and hygiene.

Chapter 5

Impact Stories

Transforming Ward 66 - A Journey of Environmental Responsibility and Community Empowerment

In the heart of Dehradun, a small but dedicated group of individuals decided to take a stand against the rising tide of plastic waste. The people of Ward 66, supported by students, waste workers, and local authorities, came together to clean their environment and create a lasting impact. Their story is one of resilience, collaboration, and the belief that every action, no matter how small, can inspire change.

जंगल से निकाला 300 किलो प्लास्टिक कचरा

• बच्चों को पर्यावरण के प्रति सजग करना है जरूरी: मेयर

भास्कर समाचार सेवा

देहरादून। कचरे के सही निस्तारण के लिए जन जागरूकता अभियान के अंतर्गत नगर निगम एवं वेस्ट वारियर्स संस्था की ओर से संयुक्त रूप से रायपुर वार्ड-66 में ग्राफ़िक एरा डीम्ड यूनिवर्सिटी एवं डीआईटी यूनिवर्सिटी के छात्र छात्राओं के साथ मिलकर मंगलवार को एक सफाई अभियान आयोजित किया गया। जिसमे लगभग 300 किलो प्लास्टिक कचरा अलग से एयरपोर्ट रोड से लगे जंगल की परिसीमा से निकाला गया। इस सफाई अभियान में निकाला गया कचरा हरांवला स्थित एवं नगर निगम और वेस्ट वारियर्स संस्था की ओर से संचालित स्वच्छता केंद्र प्रोसेसिंग के लिए भेजा गया। महापौर सुनील उनियाल गामा अपने संबोधन में कहा कि इस सफाई अभियान का उदेश्य केवल सड़क किनारे और वार्ड से कचरे को साफ़ करना नहीं था परन्तु आस पास रहने वाले जन मानस और ख़ासकर कि बच्चों को अपने पर्यावरण के प्रति सजग करना था। अपने वार्ड, शहर, देश और विश्व को हम सभी साफ़ एवं सुन्दर बना सकते हैं जब हम एक जुट हो कर एकांगी प्रयास करेंगे। साथ ही हर शुक्रवार, शनिवार व रविवार को स्वच्छ दून सुन्दर वार्ड कार्यक्रम के अंतर्गत सफाई अभियान भी चलाया जा रहा है। इस सफाई अभियान में 90 से अधिक लोगों ने भाग लिया जिसमें ग्राफ़िक एरा डीम्ड यूनिवर्सिटी एवं डीआईटी कॉलेज के छात्र-छात्राएं के साथ नगर निगम के ब्रांड एंबेसडर भी शामिल थे जिन्होंने बिना किसी हिचक के सफाई को प्राथमिकता दी। सफाई अभियान की शुरूआत मेयर सुनील उनियाल गामा, नगर आयुक्त मनुज गोयल, सहायक नगर आयुक्त एसपी जोशी ने की। संस्था से नवीन कुमार सहाना युवराज शामिल रहे।

प्लास्टिक कचरा एकत्रित करते संस्था के सदस्य व निगम अधिकारी।

What began as a simple clean-up drive evolved into a movement that empowered the entire community. The Dehradun Nagar Nigam, Waste Warriors, and volunteers from universities partnered to reclaim their natural surroundings. Over three days, they removed 300 kilograms of plastic waste from the forest near Rajpur Road, sending a powerful message: this is our home, and we are responsible for its care.

As a result of this initiative, the following were the key achievements:

- Environmental Impact: The forest, once choked with plastic waste, has been restored to its natural beauty. The removal of plastic wasn't just about cleanliness—it was about healing the land.
- A Community United: More than 40 students, alongside waste workers and municipal authorities, rolled up their sleeves and worked side by side. Their shared sense of purpose broke down barriers, turning a simple act of waste collection into a symbol of unity.
- A Ripple of Change: This initiative has inspired the community to adopt sustainable practices, encouraging waste segregation and responsible disposal. The success of this campaign demonstrated that change is possible when individuals unite with a common goal.

For many participants, the project became more than just a clean-up drive. It was an awakening, especially for the younger generation, to the critical importance of environmental stewardship. The sight of 40+ students, standing shoulder to shoulder with municipal workers and community leaders, infused a deep sense of purpose. This collective effort was not just about removing 300 kilograms of waste but reclaiming their natural environment and restoring pride in their community.

The volunteers, many of whom were students, reported that their involvement gave them a sense of ownership and connection to their surroundings. As one participant remarked, "It wasn't just waste we were cleaning up—it was our future." For the waste workers who often labour in obscurity, this effort brought them respect and recognition from both the local population and civic authorities. It highlighted their crucial role in keeping the community clean and safe.

In addition, there was testimony of local leaders who expressed pride in seeing the younger generation take up such causes. The mayor, who encouraged the drive, emphasised the importance of making children environmentally conscious from a young age. His words echoed the emotional sentiment that sustainability isn't just a policy—it's a personal responsibility passed on to the next generation.

The success of Ward 66 stands as a model for other localities in Dehradun and beyond. The collaboration between civic authorities, local schools, and waste management organisations like Waste Warriors demonstrates the power of grassroots activism in achieving environmental sustainability. More than that, it's a reminder that small towns and wards, when united by a shared vision, can serve as torchbearers for larger urban centres.

Challenges Encountered

While the project was a great success, the journey wasn't without its hurdles. The team faced logistical challenges during the waste collection drive, especially in a forested area. The Nagar Nigam's waste collection trucks were unable to easily access some locations, requiring volunteers to manually transport waste over long distances. However, their perseverance paid off, with local authorities working around the clock, including on weekends, to ensure the waste was removed promptly.

A Grassroot Movement Toward Sustainability – Composting for a Greener Future

In several wards of a town, residents have taken a commendable initiative toward sustainability by segregating their wet waste and turning it into compost. This practice, while simple in concept, has demonstrated significant environmental benefits, showing how small, community-led actions can make a big impact.

Recognising the importance of waste segregation, residents in these wards started separating their wet waste—kitchen scraps, garden clippings, and other organic matter—from dry waste. Rather than discarding the wet waste, they turned it into nutrient-rich compost through home composting. This decision marked the beginning of a movement that would not only reduce waste but also promote environmental sustainability.

Environmental Benefits Achieved

The composting initiative quickly revealed its environmental benefits. By diverting organic waste from the town's general waste stream, the residents reduced the volume of waste sent to landfills. Organic waste, when left in landfills, generates methane—a greenhouse gas that contributes to global warming. By composting, the community plays a role in reducing methane emissions, thereby mitigating climate change.

Additionally, the compost produced was used to nourish gardens, replacing the need for chemical fertilizers. This organic enrichment improved the health of the soil, leading to more vibrant and productive gardens. The residents found joy in seeing their plants thrive, knowing they were helping the environment while reducing their own waste footprint.

The success of composting in these wards soon caught the attention of neighbouring areas. Seeing the positive outcomes—both in waste reduction and garden improvement—other wards began adopting similar practices. This grassroots movement turned into a model of sustainability that other parts of the town could emulate, showing how individual actions can have a collective environmental impact.

Long-Term Sustainability and Future Potential

The composting initiative not only addressed immediate waste management issues but also laid the foundation for long-term environmental sustainability. It fostered a sense of responsibility and ownership among the residents, who understood that their actions had a direct effect on the town's ecological well-being. As more wards begin to follow suit, this practice has the potential to spread even further, contributing to a cleaner, greener community. Their efforts serve as a model of sustainable living, offering a tangible path toward a greener, more responsible future.

Disclaimer For the Impact Assessment Report

- This report has been prepared solely for the purpose set out in the Memorandum of Understanding (MoU) signed between Renalysis Consultants Pvt. Ltd. (CSRBOX) and HDFC Bank Ltd. to undertake the Impact Assessment of their Corporate Social Responsibility (CSR) project implemented.
- This impact assessment is pursuant to the Companies (Corporate Social Responsibility Policy) Amendment Rules, 2021, notification dated 22nd January 2021.
- This report shall be disclosed to those authorised in its entirety only without removing the disclaimer. CSRBOX has not performed an audit and does not express an opinion or any other form of assurance. Further, comments in our report are not intended, nor should they be interpreted to be legal advice or opinion.
- This report contains an analysis by CSRBOX considering the publications available from secondary sources and inputs gathered through interactions with the leadership team of HDFC Bank Ltd., project beneficiaries, and various knowledge partners. While the information obtained from the public domain has not been verified for authenticity, CSRBOX has taken due care to receive information from sources generally considered to be reliable.
- In preparing this report, CSRBOX has used and relied on data, material gathered through the internet, research reports, and discussions with personnel within CSRBOX as well personnel in related industries.

With Specific to Impact Assessment, CSRBOX:

- Has neither conducted an audit or due diligence nor validated the financial statements and projections provided by HDFC Bank Ltd.
- Wherever information was not available in the public domain, suitable assumptions were made to extrapolate values for the same;
- CSRBOX must emphasise that the realisation of the benefits/improvisations accruing out of the recommendations set out within this report (based on secondary sources) is dependent on the continuing validity of the assumptions on which it is based. The assumptions will need to be reviewed and revised to reflect such changes in business trends, regulatory requirements, or the direction of the business as further clarity emerges. CSRBOX accepts no responsibility for the realisation of the projected benefits;

The premise of an impact assessment is 'the objectives of the project along with output and outcome indicators pre-set by the programme design and implementation team. CSRBOX's impact assessment framework was designed and executed in alignment with those objectives and indicators.

Annexure

PPP Matrix Scoring

1. People

Indicator	Calculated Percentage	Calculated Score
Governance and people involved, in terms of inclusion of male and female team members (implementation team)	**~57%(F)**	**10**
Rationale The proportion of females in staff as part of Project Management and Waste Workers Team	**Percentage**	**Score**
	50% to 60%(F)	10
	40% (F)	8
	<40% (F)	6

Indicator	Calculated Percentage	Calculated Score
Governance and people involved, in terms of inclusion of Safai Sathis	**0%**	**10**
Rationale Episodes or instances of exclusivity or biasness faced by Safai Sathis from the project management team	**Percent of Population**	**Score**
	0%	10
	1 to 2%	9
	3 to 4%	8
	5% to 6%	7
	Greater than 6%	6

Indicator	Calculated Score
Quality of resources hired on their functionality/tasks assigned – capability and experience of people; Educational qualification of resources hired (whether they were capable of handling the responsibilities)	10
Rationale	**No complaints received**

Indicator	Applicable Nature of Involvement	Calculated Score
Decision Making involvement of the project management staff	**Mix involvement of Senior Management and Ground Management Staff**	**10**
Rationale Nature of involvement of Project Management Staff	**Nature of Involvement**	**Score**
	Mix involvement of Senior Management and Ground Management Staff	10
	Involvement of only Senior Management or Ground Management Staff	8

Indicator	Calculated Project Rating	Calculated Score
Knowledge and Awareness of Safai Sathis and Community on Waste Segregation, Management and Handling; Health and Safety Practices and Associated problems from improper waste management.	**3.7**	**8**
Rationale Weighted Average of Project Ratings provided by Beneficiaries	**Project Ratings**	**Score**
	4.1- 5	10
	3.1- 4	8
	2.1- 3	6
	Less than 2	5

Indicator	Calculated Project Rating	Calculated Score
Perception of Safai Sathis in project improving their personal income	**3.8**	**8**
Rationale Weighted Average of Project Ratings provided by Beneficiaries	**Project Ratings**	**Score**
	4.1- 5	10
	3.1- 4	8
	2.1- 3	6
	Less than 2	5

2. Process

Indicators					
Whether Proper permissions were taken to construct and operate MRF centres, SOPs were considered and MOUs were signed with Government	Dehradun	Goa	Rishikesh	Greater Noida	**Average Score**
Calculated Scores	10	10	6	6	**8**
Rational	No com-plaints	No com-plaints	Government Land Dispute	MRF is non functional due to the absence of MOU with the Greater Noida Development Authority	
Challenges faced by the Project man-agement and implementation Team	Dehradun	Rishikesh	Goa	Greater Noida	**Average Score**
Calculated Scores	6	6	6	6	**6**
Rational	Physical, financial and environmental challenges faced by the Project Management Team				

Indicator	Calculated Project Rating	Calculated Score
Resolving issues and Challenges	**3.9**	**8**
Rationale Weighted Average of Project Ratings provided by Beneficiaries	**Project Ratings**	**Score**
	4.1- 5	10
	3.1- 4	8
	2.1- 3	6
	Less than 2	5

2. Process

Indicator	Calculated Score
Mode of data collection during the project	**10**
Rationale	Data collection was done electronically through computers via special softwares. All the data captured underwent rigorous monitoring and screening.

Indicator	Calculated Score
Ensuring the privacy of details as shared by beneficiaries	**10**
Rationale	Data is always kept secured

Indicator	Calculated Score
Any DBMS software was used for the project	**10**
Rationale	Specific DBMS and tally softwares were used to record and capture data

Indicator	Calculated Score
Data Quality	**10**
Rationale	Data integrity and quality is maintained through electronic and diary records. A dedicated IT cell and Screening team is involved in the process

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