Impact Assessment Report

My Clean City - Noida

FY 2020 to 2024

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1. Introduction

Noida's rapid urbanization has brought urgent challenges in municipal solid waste management. The city generates increasing waste each day as it expands. In response, HCL Foundation launched the My Clean City initiative in 2018 in partnership with the Noida Authority, aiming to establish a long-term, sustainable solid waste management (SWM) system and make Noida one of India's cleanest cities. This program Clean Noida is a comprehensive intervention focusing on behavior change, infrastructure support, and community engagement in waste management. It aligns closely with the national Swachh Bharat Mission and Solid Waste Management Rules 2016, ensuring relevance to both local needs and policy frameworks.

My Clean City operates across multiple settlements in and around Noida, categorized into three focus areas:

Clean Sector:

Urban residential sectors (RWAs and apartment complexes) within Noida city. This component began in 2019 with 10 pilot sectors and has since expanded to cover 95 Sectors. These are planned housing communities where the program works through RWAs/AoAs to improve household-level waste segregation, collection systems, and on-site processing.

Clean Urban Village:

Semi-urban settlements (urban villages) within Noida's municipal area. The project targeted 5 urban villages in Noida with intensive interventions to improve waste services and community practices. These areas often lacked formal waste infrastructure historically, so the program had to emphasize community mobilization and coordination with municipal services.

Chakachak Village:

A rural development component focusing on 40 villages in the peri-urban or rural fringes Greater Noida and beyond under the *Chakachak* initiative. The program covered 40 villages, working to eliminate open dumping, introduce door-to-door collection, and establishing

local waste committees termed *Chakachak Village Committees*. This component dovetails with HCL's rural development efforts to ensure convergence between urban and rural cleanliness efforts.

The My Clean City program has directly reached over 120,000 households in Noida and surrounding areas. Primary stakeholders include residents in high-rises, plotted colonies, and villages, waste workforce, the waste collectors, sweepers, gardeners, & RWA/AOA officials, market traders, domestic helpers, and municipal staff. The program's holistic approach addresses technical, behavioral, and institutional aspects of SWM, it provides infrastructure and technical solutions e.g. color-coded bins, composting units, e-garbage loaders to improve collection and processing. It emphasizes behavior change communication (BCC), door-to-door awareness, community meetings, street plays, etc. to inculcate waste segregation and cleanliness habits. It fosters community ownership through capacity building of RWAs and formation of local committees in villages, ensuring inclusive participation of women and youth in keeping their surroundings clean.

Notably, these efforts have contributed to Noida's rise in national cleanliness rankings. In 2022, Noida was ranked among the top 5 cleanest cities in India (Swachh Survekshan 2022), a status credited in part to HCL's Clean Noida project expanding focus to single-use plastic elimination and citizen engagement. The partnership model CSR funding and expertise via HCL Foundation, executed in collaboration with implementation partners like CEE and the Noida Authority exemplifies a successful public-private initiative for urban sanitation.

Program name	**My Clean City**
Unit of intervention	Residents of RWAs & Urban Villages
Program objective	To enhance urban & peri-urban waste managament through integrated capacity-building and resource support such as infrastructure development and maintaince
Program location	Noida, Uttarpradesh
SDG alignment	

Key Activities:

Enhance Awareness and Behavioral Change

Raise awareness among citizens about waste minimization, segregation at source, and proper disposal. The program aimed to instill lasting behavioral change so that households adopt the 3Rs (Reduce, Reuse, Recycle) and segregation as daily habits. Intensive Information, Education & Communication (IEC) and Behavior Change Communication (BCC) campaigns were planned, including door-to-door visits, workshops, events, and school activities. These activities target all stakeholder groups, residents of varied socioeconomic backgrounds, women's groups, domestic workers, and waste collectors, to ensure broad awareness.

Establish Effective Waste Segregation & Collection Systems

Develop and implement a detailed SWM plan for target areas in collaboration with local authorities and communities. This included strengthening door-to-door waste collection and ensuring segregation of waste into wet, dry, and hazardous streams at source. A key objective was to integrate decentralized waste solutions: deploying color-coded bins, introducing two-bin collection carts or e-garbage vehicles, and scheduling regular pickups, so that no waste is left uncollected. The program set goals to improve source segregation rates from baseline levels, which were often below 30% in many sectors to most households segregating. For instance, introduction of battery-operated e-garbage loaders was an innovative strategy to improve collection efficiency and segregation compliance. This objective speaks to the program's effectiveness in achieving visible outcomes like higher segregation rates and cleaner streets.

Eliminate Open Dumping (GVPs) and Enhance Waste Processing

Identify all Garbage Vulnerable Points (GVPs), sites of chronic open dumping in the target areas and eliminate them. The plan involved cleaning these sites, installing signage or beautification wall murals, plantations, and close monitoring to prevent relapse. Simultaneously, the program aimed to promote local processing of waste, particularly composting of wet/ organic waste to reduce the load on landfills. Objectives included setting up community or on-site composting units e.g. horticulture waste compost pits in parks, household composting for kitchen waste. The program installed 56 composting units and harvested over 8.2 tons of compost for use in gardens. Eliminating open dumps aligns with public health priorities and SWM Rules 2016, while composting fosters environmental sustainability and circularity by turning waste into a resource.

Build Capacity and Ownership among Stakeholders

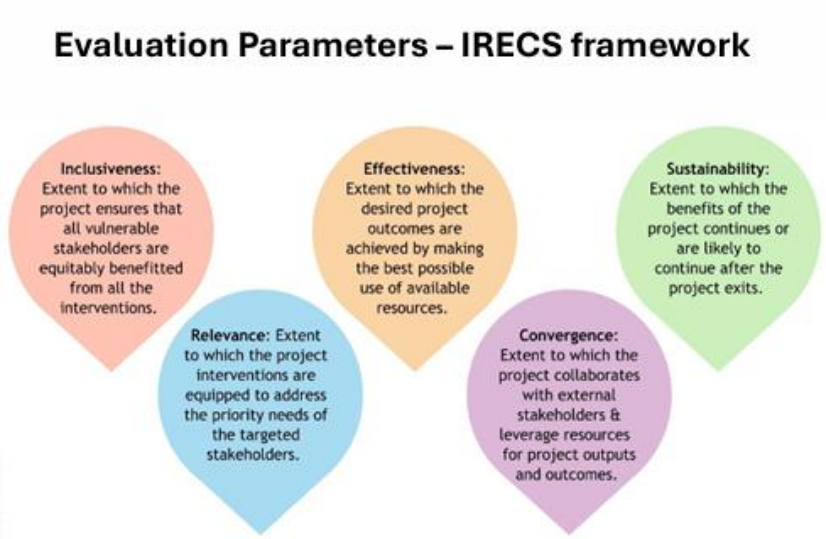
Strengthen the competency, willingness, and engagement of all stakeholders, including RWA/AOA officials, waste workers, and citizens, so that the waste management systems are community-driven and sustained beyond the project period. This involved formal training on SWM rules, waste handling, vehicle operation, etc., exposure visits, and formation of

governance structures like Committees in rural areas and volunteer groups in sectors. A notable objective was to involve and recognize women and youth as change agents, for example by forming women's groups to manage community composting or school competitions to encourage student involvement. By institutionalizing roles for different groups and coordinating with government efforts, the program ensures an inclusive approach and convergence with local governance e.g. RWAs partnering with Noida Authority sanitation staff.

In summary, the objectives of My Clean City are centered on an integrated SWM improvement from changing individual behavior to upgrading community infrastructure thereby delivering a cleaner, healthier environment.

2. Approach & Methodology

Evaluation framework: Protiviti uses the IRECS framework for evaluation. The proposed evaluation framework has 5 broad dimensions, as presented below.



Approach: Protiviti used a mix of qualitative and quantitative approaches to analyse the impact of the program on the target population.

The program's impact was assessed and justified using a combination of two approaches:

- Intervention control comparison between groups with and without the program to isolate project effects while accounting for external influences.
- Reviewing annual progress reports and Management Information System data from the evaluation period to assess program performance.

Protiviti has analyzed quantitative information using descriptive and inferential statistical methods. The quantitative information was triangulated using the program level MIS and qualitative information collected using FDGs and In-depth Interviews of key stakeholders.

The findings from the quantitative and qualitative study were then grouped into the dimensions mentioned in the evaluation framework, i.e., inclusiveness, relevance, effectiveness, convergence, sustainability.

1. Endline Surveys (KAP Surveys): A comprehensive *Knowledge, Attitude, and Practice (KAP)* household survey was conducted to gauge community behaviors and perceptions regarding waste management, after program implementation. The KAP survey covered respondents from all three program categories and a control area for comparison. In total, 280 household responses were recorded, distributed as follows:

Program	Sector / Urban Village Name	Male (No.)	Female (No.)	Grand Total
Chakachak Village	Ambedkar Nagar (Harijan Basti)	15	17	32
Chakachak Village	Parthala	8	24	32
Clean Sector	Sector 34	10	20	30
Clean Sector	Sector 47	13	17	30
Clean Urban Village	Nithari	20	12	32
Clean Urban Village	Raipur	15	17	32
Intervention Total		**81**	**107**	**188**
Control Location	XU1 - C Block	14	18	32
	Sector 122	19	11	30
	Sector 36	22	8	30
Control Total		**55**	**37**	**92**
Grand Total		136	144	280

2. Key Informant Interviews (KIIs): To gain deeper insights, semi-structured interviews were carried out with two critical stakeholder groups, RWA/AOA Officials, Leaders or office bearers of Resident Welfare Associations in Clean Sectors were interviewed President/Secretary/ members from intervention sectors. Interviews with Sanitation Workers were also conducted with frontline sanitation workforce, waste collectors, sweepers, etc., who have been involved in the program. 8 sanitation workers across different sectors/villages were interviewed to understand their experiences

3. Observational Field Checklist: An on-site observational assessment was carried out using a standardized checklist to objectively verify the cleanliness and systems in place. Nine different sector/village locations were observed by the team, spanning the three categories a mix of sectors and urban villages.

3. Findings

Impact 1: Improvement in Knowledge & Awareness

Key Activities:

- **Door-to-Door Education:** Intensive IEC/BCC campaigns were carried out, with field teams reaching approximately 1.2 lakh households across 95 sectors to raise awareness on waste segregation at source. This included one-on-one interactions, distribution of informational pamphlets, and demonstrations of using color-coded bins.

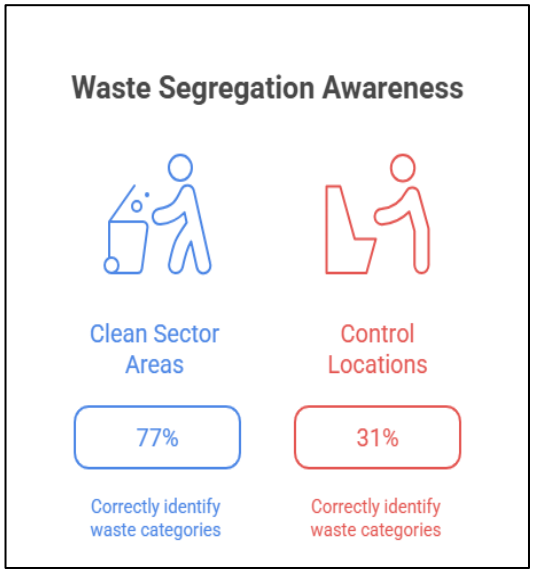
Image 1: Posters used to spread awareness on effective waste segregation methods

- **Stakeholder Trainings & Events:** A total of 157 training sessions and workshops were conducted for various stakeholder groups (residents, domestic helpers, waste workers, shopkeepers), engaging 8,889+ participants on topics like 3-way segregation, SWM rules, and home composting. Special IEC events (e.g. Workers' Day, World Environment Day) further reinforced messages, reaching an additional ~2,900 people.
- **Targeted Community Outreach:** Focused training courses for domestic helpers (3,719 trained) were implemented, recognizing their influence on household practices. RWAs and project teams also organized school awareness drives, street plays, and cleanliness rallies in select areas to instill waste-wise habits from the grassroots up.
- **Information Materials & Signage:** Installation of SWM signage, wall paintings, and display boards in residential areas served as constant visual reminders. Many

sectors put up notices about waste segregation guidelines, dos and don'ts, and the harms of littering, ensuring sustained public awareness.

Visible Impact

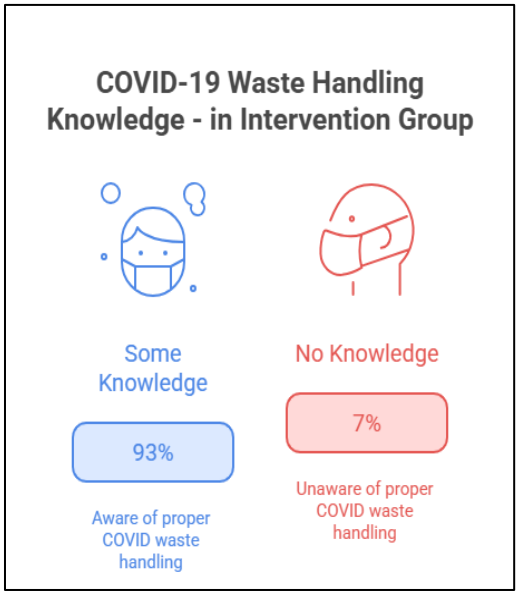
- **High Awareness of Waste Segregation:** Residents demonstrated a strong understanding of proper waste management. In the KAP survey, **over 94%** of households **(N=188)** agreed that segregating waste at home is crucial for effective waste management. In fact, **77%** of respondents **(N=188)** in Clean Sector areas could correctly identify the need to separate waste into wet, dry *and* hazardous categories, a far higher full awareness rate than in non-intervention areas only **~31% (N=92)** in control locations. Nearly **77% (N=188)** also knew that the responsibility for segregation at source lies with individual waste generators (households/institutions), reflecting a clear internalization of accountability.



- **Increased Knowledge of Rules & Impacts:** Community knowledge now extends to specific waste management rules and environmental impacts. About **79% (N=188)** of surveyed residents correctly identified which single-use plastics are banned under the 2022 Plastic Waste Management Rules (e.g. plastic cutlery, straws, earbuds), showing that government regulations have permeated public awareness. A similarly high proportion around **73%** understood why thicker reusable bags are promoted (for reusability and easier recycling). Moreover, virtually everyone recognizes the link between poor waste management and health risks **98% (N=188)** agree that unsafe waste disposal can severely affect public health.

- **Positive Behavioral Shifts:** The program cultivated a pro-environment mindset. An overwhelming **95–98%** of households now believe every citizen has a role in keeping their surroundings clean and that each household must take responsibility for its own waste. There is near-universal agreement around **99% (N=188)** that **"Green Friends" (sanitation workers)** deserve adequate protection and respect for their contribution, a marked improvement in attitude towards frontline workers. Similarly, **over 90% (N=188)** of residents' view reducing single-use plastic as vital for environmental protection and support strict enforcement against littering and plastic carry-bags.

- **Informed COVID-19 Safety Practices:** Intensive awareness during the pandemic yielded high public knowledge on health safety measures. Nearly **87% (N=188)** of respondents recalled that waste collectors were equipped with gloves, masks, and boots during COVID-19 operations. About **48% (N=188)** knew that used masks/gloves should be kept separate as biomedical waste (with an additional **45%** aware they must not mix with recyclables), indicating that roughly **93%** had some knowledge of proper COVID waste handling. This demonstrates the project's success in imparting critical health-related knowledge alongside general SWM education.



Impact 2: Improvement in Behavior & Practice

Key Activities:

- **Household Engagement & Follow-Up:** The project team not only educated households but also continuously monitored and reinforced good practices through daily follow-ups. Waste collectors and volunteers provided on-the-spot guidance during collection rounds – for example, reminding families to keep wet and dry waste separate, and gently correcting those who lapsed. Domestic helpers (trained under the program) further reinforced segregation habits within homes they serve, creating an accountability loop within the community.

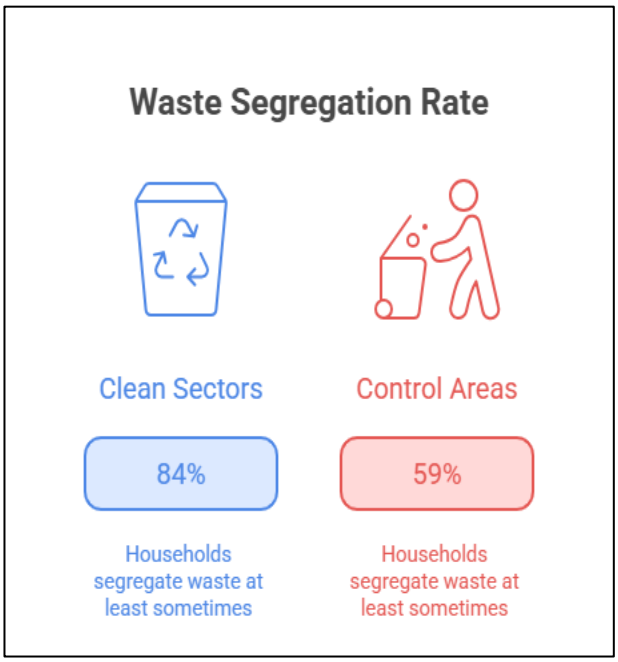
- **Demonstration & Role Modeling:** In many sectors, early adopter households and RWA leaders were showcased as role models (e.g. by displaying homes practicing 100% segregation). This peer influence strategy motivated others, indeed, **69.5% of residents reported actively encouraging neighbors to continue segregating** and not backslide. Community-led cleanliness drives (conducted by some RWAs) and "best segregating household" recognitions fostered a healthy competitive spirit to keep the neighborhood clean.

- **Supportive Enforcement Mechanisms:** Some RWAs introduced gentle enforcement to improve compliance – for instance, announcing that unsegregated waste might not be collected or levying small fines/penalties in repeat violation cases (in coordination with the Noida Authority's regulations). Simultaneously, the project helped strengthen user fee systems and collection schedules, so residents saw reliable service when they followed rules. The consistent message was that **cooperation with waste collectors** is essential, a point emphasized in outreach and now widely accepted by residents (over 96% feel residents must cooperate to ensure timely collection).

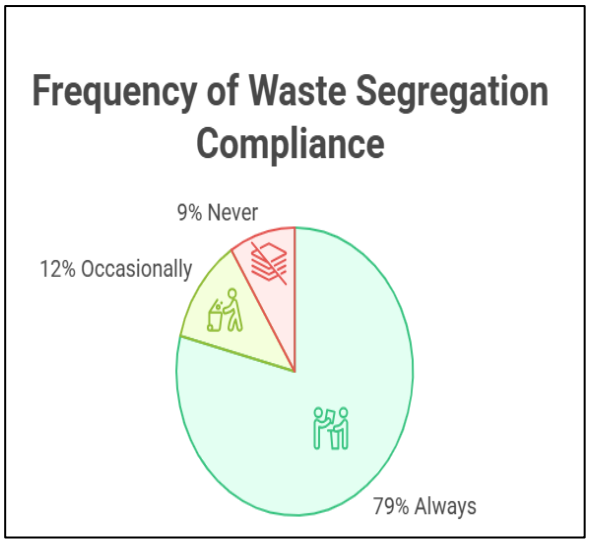
- **Behavioral Nudges & Materials:** The campaign deployed behavioral nudges such as sticker reminders on bins ("Wet waste here, Dry waste there"), segregation pledge banners signed by families, and periodic challenges (e.g. "No Plastic Week"). Sanitation staff, having received communication training, would politely refuse mixed waste on occasion or inform RWAs about non-compliant households, creating mild social pressure to adhere to good practices. These consistent nudges gradually turned segregation and proper disposal into daily habits rather than one-time actions.

Visible Impact

- **High Rate of Waste Segregation at Source:** The on-ground results show a dramatic improvement in household behavior. According to the endline survey, **84%** of all respondent households now segregate their waste at least "sometimes," with over 75% reporting that they "always" segregate into wet, dry, and hazardous before disposal. The field data indicate **80–88%** of households in Clean Sectors and Chakachak Villages consistently segregate waste, compared to about **59%** in control areas without the intervention. The proportion of families who *never* segregate has dropped to negligible levels in program areas versus **30%** in control, demonstrating a clear behavior shift.



- **Daily Compliance and Routine:** Most families have made waste segregation and safe disposal part of their daily routine. Nearly **79%** of respondents said they "always" ensure their entire household follows segregation rules strictly (and another ~12% do so at least occasionally). Furthermore, even during challenging times like the COVID-19 lockdown, residents maintained good practices, over **96%** continued to hand over segregated waste to collectors during the pandemic, with **92%** doing so *every single day* despite the circumstances. Such resilience in behavior underlines that the practice has become normalized.



- **Waste Reduction and Composting Habits:** A notable number of residents have adopted waste minimization behaviors. About **72%** of households **(N=188)** report that they always avoid single-use plastics and carry reusable bags, with an additional ~21% doing this "sometimes". This correlates with the project's SUP (Single-Use Plastic) reduction campaigns. Likewise, interest in composting has risen, nearly **66% (N=188)** of respondents have attended or are keen to attend composting awareness sessions, and many have started segregating wet waste for compost. In one sector, a collective of 25 women began composting their kitchen scraps in community grow-bags, producing substantial compost for local use.

- **Improved Cooperation with Waste Collectors:** Behavioral changes are also evident in how residents interact with sanitation workers. Waste collectors interviewed noted that most residents now cooperate fully, segregated waste is typically kept ready for pickup, and people are more respectful and responsive to guidance. In fact, when faced with instances of mixed waste, all collectors reported that they explain and request the residents to segregate rather than simply collecting without comment. Many households have formed a rapport with their "Green Friends," with some even providing water or shade to workers, a stark change from the indifference or occasional friction. Field observations back this trend, in two thirds of observed sectors, resident cooperation and segregation behavior were noted to be "improving" or "significantly improved" compared to earlier, with only isolated pockets of non-compliance remaining. This points to a community that is increasingly collaborative in keeping their sector clean.

Impact 3: Improvement in Infrastructure and Support

Key Activities:

- **Provision of Waste Segregation Infrastructure:** The project facilitated the distribution and use of **color-coded bins** at household and community levels. Thousands of twins-bin sets (Green for wet waste, Blue for dry) were introduced to encourage source segregation. Simultaneously, two-bin pushcarts and battery-

operated e-garbage loaders were deployed for door-to-door collection in many sectors. By project's later phases, most waste collection vehicles in target sectors were equipped for segregated waste streams -confirmed by RWA. This hardware support ensured that infrastructure was not a bottleneck to sustaining new behaviors.

Image 2: Vehicle used for waste collection

- **On-site Composting Systems:** To manage organic waste locally, **on-site composting units** were set up across locations. In parks and community areas, the team installed compost pits and portable "grow bag" composters for horticultural waste. 86 horticulture composting units were established in 43 sectors. Each unit was closely monitored and maintained with RWA cooperation. In select RWAs, decentralized wet waste composters (like Organic Waste Converters or bio-composters) were also introduced as pilot projects, and women's self-help groups were encouraged to manage kitchen waste composting at community centers.


Images 3 & 4: Compost pits set up in gardens (Left) and Composting Mechanism for residue (Right)

- **Removal of Garbage Vulnerable Points (GVPs):** A concerted effort was made to identify, clean, and permanently eliminate open dumping spots. The team, in partnership with Noida Authority, cleared garbage from numerous GVPs and then installed deterrents such as signboards, plantings, or conversion of the spot into a useful space like a parking area. Regular follow-ups were done to ensure these points did not recur, including deploying CCTV in a few sites and increased patrol by sanitation staff. By the end of the project, most sectors had zero active GVPs, as the few remaining ones were down to one per sector and were under continuous watch for improvement.

- **Safety and Sanitation Resources for Workforce:** Clean Noida bolstered the frontline workforce by providing Personal Protective Equipment (PPE) and tools. Sanitation workers were supplied with gloves, masks, reflective jackets, boots, and sanitizer especially during the pandemic. The project also arranged bleaching powder and disinfectants for use after drain cleaning or in high-risk zones, contributing to healthier work and community environments. Additionally, modest infrastructure like wheelbarrows, drain-cleaning hooks, and sweeping tools were given where gaps were identified.

Visible Impact:

- **Enhanced Collection & Waste Handling Capacity:** The infusion of infrastructure has measurably improved waste management operations. Today, *segregated* waste

collection coverage is nearly universal in the project areas multiple sectors even achieved the milestone of 95%+ source segregation and were formally certified for it, indicating the success of bin distribution and two-stream collection vehicles. RWA interviews reinforce this: most now report having adequate collection equipment (dual-bin carts or e-rickshaws) and no shortage of manpower to cover their area daily. One RWA official noted that prior to the project, they relied on informal handcarts, whereas now motorized e-loaders ensure timely pickups even in a large sector. The improved logistics have not only increased efficiency but also residents' confidence they see that if they segregate properly, the system will handle each fraction responsibly.

- **Substantial Composting and Waste Diversion:** The establishment of composting units has started yielding significant environmental dividends. The managed composting pits and grow-bags collectively produced over 8.2 metric tons of organic compost from garden and kitchen waste. This is waste that would otherwise have been garbage, instead, it has been converted into a resource (often used in neighborhood parks and green belts). In Sector 75, Golf City, residents achieved 75% on-site processing of wet waste, with 760 kg of compost generated from kitchen scraps in few months. The harvested compost was even distributed to residents, closing the loop locally. Such infrastructure-driven outcomes not only reduce the load on landfills but also cut down the need for waste transport and the incidence of open burning of horticultural waste, a common practice pre-intervention.

- **Elimination of Open Dumping:** Infrastructure support combined with awareness has drastically reduced open dumping. 11 garbage vulnerable points had been eliminated in the earlier phases, in later Phase an additional 7 chronic GVP sites cleaned and maintained. Field observations found no active GVPs at 8 locations, and only a single small dumping spot at one area. Moreover, observers noted that where dumping spots were removed, the areas have largely remained clean and are being utilized for positive purposes in Sectors, for example, a former dump corner was converted into a mini garden. The streets and lanes in Clean Noida sectors are visibly cleaner: 9 observation visits reported no overflowing community bins, and nearly no litter was visible on the streets. Even where some litter was seen, it was mostly minor paper or packaging scraps virtually no organic waste or hazardous waste litter was observed, indicating that refuse is being contained and collected more systematically.

- **Improved Public Health and Hygiene Conditions:** The robust waste infrastructure has had positive ripple effects on environmental health. Regular street sweeping and a focus on clearing drains have reduced stagnant waste and water, which in turn curbs pest breeding. All surveyed RWAs confirmed that drains in their areas are cleaned on a routine schedule now, only one cited occasional blockage due to plastics or silt buildup. Project interventions like periodic drain desilting and

disinfectant spraying were noted during field checks in several sectors, contributing to better sanitation. Residents have also become cautious about disposing of sanitary and medical waste correctly, during the pandemic, over 85% always disposed of used masks/tissues separately to prevent contamination. The comprehensive approach (segregation + infrastructure + hygiene messaging) likely contributed to Noida's improved civic sanitation profile, notably, the city climbed to 5th rank in the national Swachh Survekshan cleanliness survey. While many factors influence that ranking, the elimination of local black spots and provision of proper waste services in these sectors played a role in the city's overall cleanliness gains.

- **Sustainability of Systems:** An important outcome is that the infrastructure and systems put in place are being sustained by local stakeholders. For instance, two RWAs have started allocating budget for maintenance of e-garbage vehicles and even considered hiring a shared mechanic to keep them running. Likewise, nearly all sectors that received compost units continue to use them, some pits needed turning or had minor odor issues, but at least one-third of observed compost sites had ready compost present and active processing underway. RWAs that got involved in waste management are now maintaining records and liaising with the Noida Authority for timely waste pickup and cleaning of public areas. This suggests that the infrastructure support didn't create dependence, instead, it built local capacity. One RWA head proudly stated that their sector is now moving towards "zero waste" with plans for composting and advanced recycling, which was unimaginable before a testament to the enduring infrastructure and operational systems established.

Impact 4: Improvement in Environmental and Health Conditions

Key Activities:

- **Garbage Vulnerable Point (GVP) Eradication Drives:** The project prioritized identifying all informal dump sites (kudagharas) in the target areas. Teams organized special cleanup drives where accumulated garbage was removed using JCBs and trucks. Importantly, each cleared site was given a preventive makeover, some were fenced or beautified with plants, others repurposed (e.g. as parking lots or play areas) to discourage re-dumping. Communities were involved through "spot fix" activities, often turning GVP clean-ups into a collective action day. Repeated awareness was done in the vicinity of erstwhile GVPs, warning against littering there.

- **Improved Street Cleansing & Sanitization:** The frequency of street sweeping increased in the intervention areas, with dedicated beat plans for sanitation workers. Drains were scheduled for cleaning before monsoons and regularly thereafter, the project provided oversight to ensure drainage lines remained unclogged by solid waste. Additionally, periodic spraying of disinfectants was implemented in waste collection points, public toilets, and around bins to improve hygiene and reduce

vector breeding. These measures were complemented by RWAs organizing community cleanliness drives and “swachhta” competitions to keep public spaces garbage-free.

Image 5: Beautification of the street via Wall Paintings & Murals

- **Promotion of Safe Waste Disposal & Health Hygiene:** Alongside infrastructure, extensive educational efforts addressed the environmental and health rationale for proper waste management. Campaigns highlighted the dangers of open burning of waste (to air quality) and open dumping (to water and soil health). The project team trained residents on handling hazardous and biomedical waste, for example, distributing red bags for biomedical discards and instructing households on safe disposal of batteries, broken glass, etc. During COVID-19, special instructions on discarding masks and gloves were disseminated widely. By instilling these practices, the initiative aimed to mitigate health risks associated with waste.
- **Climate and Green Initiatives:** The Clean Noida program also integrated environmental enhancements in its approach. Trees were planted at cleaned-up spots, and compost use in parks improved soil health and greenery. The project facilitated plastic waste collection drives and tie-ups for recycling, directly reducing plastic pollution in the environment. Furthermore, local markets were targeted to become “Single-Use Plastic Free,” working with vendors to shift to cloth bags and biodegradable alternatives. Rainwater harvesting pits were set up in select RWAs as

a complementary activity, recognizing that environmental conditions improve when communities adopt broader sustainability measures.

Image 6: Poster used for public display at markets and in training

Visible Impact:

- **Cleaner Surroundings & Aesthetic Improvements:** One of the most tangible changes has been the visible cleanliness in the project areas. Nearly all the former garbage dumps (GVPs) have been eliminated or transformed, greatly improving the neighborhood environment. Over the course of the project, chronic dumping spots in sectors were permanently cleared and beautified. For residents, this means no more foul-smelling corners or scenes of strewn waste that were once common. Observers noted that in many sectors, streets are substantially free of litter, on inspection, only minor plastic or paper bits were occasionally seen, with no heaps of mixed garbage in sight. This enhanced cleanliness is not just cosmetic; it has likely reduced pests (rats & flies) that feed open garbage. In fact, community feedback indicates a drop in instances of clogged drains and stagnant waste-water puddles, which correlates with better waste handling. As a bonus, the aesthetic uplift from wall murals, gardens, and painted bins in place of dumpsites has improved resident morale and neighborhood pride.

- **Improved Public Health Indicators:** Though detailed health data would require long-term study, the interventions have addressed several known vectors of disease. With routine clearing of waste and application of disinfectants, residents have observed fewer incidences of foul odors and fly breeding around waste points. All RWA officials interviewed reported that there has been no outbreak of waste-related illnesses (such as dengue from blocked drains or diarrhea from contaminated

surroundings) in the past years, a marked change from earlier years where such issues were periodically noted. Moreover, the community's handling of biomedical waste shows heightened caution. During the pandemic, 85.8% of households always disposed of used masks/tissues separately as medical waste, reducing the risk of infection spread. Almost 98% of people agree that safe disposal of medical and hazardous waste prevents disease, reflecting a deep understanding that it likely translates into safer behavior. These behavioral and environmental improvements collectively contribute to a healthier living environment.

- **Environmental Sustainability Gains:** The program's focus on composting and recycling has yielded clear environmental benefits. By composting organic waste locally (over 8 tons processed into compost), the sectors have cut down on methane emissions that would have occurred if that waste went to landfill. Residents are utilizing compost in their gardens, which enriches the soil and reduces chemical fertilizer use, an environmental plus. Additionally, the significant reduction in single-use plastic usage (with over 92% of households actively avoiding disposable plastics) means less plastic entering the land or water. Markets that participated in the plastic-free campaign report a visible drop in littering of polybags, and increased use of cloth/jute bags. Another win is the reduction of open-air burning of waste: earlier, burning of dry leaves and garbage was a sporadic practice in some areas, contributing to local air pollution. Now, with horticulture waste being composted and better awareness, such incidents have become rare. Collectively, these changes support cleaner air, soil, and water in Noida's residential sectors. The initiative has essentially mainstreamed the concepts of waste as a resource and community ownership of the environment – crucial for long-term sustainability.

Impact 5: Stakeholder Empowerment

Key Activities:

- **Capacity Building of RWA Leaders:** The project engaged Resident Welfare Association officials as critical partners, conducting dedicated workshops to empower them in solid waste management. RWA presidents, secretaries, and committee members attended training on topics like organizing waste collection systems, monitoring segregation compliance, handling resident grievances, and liaising with municipal authorities. They were provided with toolkits (SWM guidebooks and checklists) to assess their sector's cleanliness. The project encouraged RWAs to form **"Swachhta Committees"**, enabling them to take charge of activities such as community awareness, cleanliness drives, and worker supervision in their localities.

- **Empowerment of Sanitation Workforce:** Recognizing waste workers as key stakeholders, Clean Noida invested in their training and well-being. **372 waste**

collectors and sweepers underwent training sessions covering waste segregation techniques, safe handling of hazardous waste, use of PPE, composting methods, and communication skills with residents. The program celebrated their contributions publicly for example, Safai Karamchari Diwas (Workers' Day) events were held, where sanitation workers were felicitated by residents and RWAs. This not only boosted morale but also improved their social standing in the communities. Workers were also added to WhatsApp groups and invited to RWA meetings, giving them a voice in local decision-making regarding waste issues.

- **Recognition and Incentives:** The program introduced incentives to empower and motivate stakeholders. RWAs achieving high segregation rates were awarded certificates (e.g., a "**95% Segregation Achiever**") and public appreciation during events. Sanitation workers demonstrating exemplary service were given "Best Green Friend" awards and small gifts (toolkits, gift cards) as tokens of appreciation. Active domestic helpers and motivated shopkeepers were also applauded in community gatherings. Such recognition instilled pride and a sense of ownership, stakeholders began to see themselves as change-makers in the cleanliness drive, not just passive participants.

Visible Impact:

- **RWA Ownership and Leadership:** A clear outcome of the project is the strengthened role of RWAs in managing waste and cleanliness. Resident leaders now actively campaign SWM in their communities. In the KII interviews, RWA officials highlighted major improvements: *"Nobody thought we could segregate earlier… now there is major behavior change the area is clean and people segregate"*, one president noted. All engaged RWAs have institutionalized practices like daily supervision of sanitation staff and routine cleanliness audits. RWAs have even conducted their own cleanliness drives or *plogging* activities post-training, a sign that they feel empowered to mobilize residents independently. Importantly, RWAs have become effective with city authorities: for example, one RWA successfully arranged regular door-to-door e-rickshaw service and coordinates maintenance for the vehicles, while another secured extra public bins from the municipal stock by presenting data on littering black spots. This proactive stance is a departure from the earlier scenario where RWAs were often disengaged or solely reliant on the Municipal Authority. Now, stakeholder empowerment is evident in collective initiatives and sustained RWA-led monitoring to keep their sectors at a high standard.

- **Empowered Waste Workers ("Green Friends"):** The sanitation workforce has reported improved working conditions and dignity. Thanks to training and inclusion, many waste collectors feel more confident in their roles. *"Now we explain to residents… earlier we just picked up garbage silently,"* said one worker, reflecting how training in communication empowered them to be educators in the community.

Survey results show the community's respect for these workers has dramatically risen, over 98% of households voiced that sanitation workers must be adequately protected and respected. This behavioral shift translates into day-to-day empowerment: workers note that residents are more polite, some even segregate waste as a form of "support" to ease the collector's job. Moreover, provision of PPE and tools, albeit not uniform everywhere, meant that several workers experienced safer conditions (several got gloves and gumboots, whereas previously many had none). While two workers in the KII indicated no PPE was provided, the majority did receive at least some protective gear, and RWAs in many sectors have committed to continuing PPE supply on their own. Another empowering development is that workers can now voice their issues. All workers interviewed indicated they can freely share problems or suggestions with their supervisors or the project team, often via WhatsApp groups or morning briefings, and they usually receive timely responses (a vastly improved dynamic from the past top-down approach). This inclusion in the feedback loop has made them feel heard and valued.

- **Community Participation:** The project cultivated a cadre of community champions, from school eco-club students to housewives and domestic helpers, who continue to drive change. For instance, the training of domestic helpers has had a multiplier effect, these helpers ensured segregation in the 4–5 homes they work in and often educated the families, significantly widening the outreach. The fact that all the surveyed RWAs conducted domestic helper training and resident training on waste management underscores the community-based approach. Women's leadership got a boost, apart from the composting groups, women volunteers took lead roles in door-to-door campaigns and as "Swachhta Didi" in some villages, feeling a new sense of agency. Likewise, young residents participated in street theatres and night patrols to prevent illicit dumping, reflecting empowerment at the grassroots. As one outcome, Noida now has multiple examples of empowered communities be it a high-rise apartment complex achieving near-zero waste or a modest urban village running its own cleanliness committee, all stemming from the capacity-building and participatory ethos of Clean Noida.

Image 7: Training organized for the Domestic helper in Sector 31

- **Improved Sustained Practices:** Ultimately, the empowerment of stakeholders has translated into sustained action and institutionalization of good practices. Many of the program's gains (segregation, GVP elimination, composting) are being maintained and even improved after direct project support ended, precisely because local actors, RWAs, residents, workers, authority, have taken ownership. The empowered stakeholders have also become advocates beyond their locales: some RWA representatives are now mentoring neighboring sectors on SWM, and sanitation supervisors trained under the project are sharing best practices within the Noida Authority. This cascading effect ensures the impact is not only deep but also wide. In summary, by building knowledge, confidence, and collaborative networks among all stakeholders, the Clean Noida initiative has left behind a robust, empowered community that is equipped to drive its own clean and sustainable future.

4. Mapping Findings to IRECS Framework

The IRECS framework provides five lenses to evaluate the impact and quality of the program: Inclusiveness, Relevance, Effectiveness, Convergence, and Sustainability. Below, we map the findings of this assessment to each of these criteria, highlighting how the My Clean City program aligns with and fulfills them:

Evaluation Parameter	How the Program Aligns
Inclusiveness	• The *My Clean City* program adopted an inclusive, city-wide approach covering RWAs, high-rise apartments, urban villages, informal settlements, and the sanitation workforce, reaching over 1.2 lakh households through door-to-door engagement and community campaigns. • Tailored engagement strategies ensured accessibility across socio-economic groups—structured RWA meetings in formal sectors and culturally contextual IEC/BCC activities (nukkad nataks, wall paintings, chaupals) in urban villages, primarily delivered in Hindi. • Women were engaged as primary change agents, particularly in urban villages where household waste handling rests largely with them. Female field mobilizers facilitated household-level adoption of segregation, while 25+ women managing community compost grow bags in Sector 75 reflect meaningful leadership roles. • Sanitation workers, rebranded as *Green Friends*, were empowered through provision of PPE, uniforms, training, and motorized vehicles. 96%+ residents now report respectful engagement, and workers are increasingly included in RWA meetings, marking a significant shift in dignity, safety, and social inclusion.
Relevance	• The program directly addressed Noida's pressing urban challenges, low source segregation, open dumping at Garbage Vulnerable Points (GVPs), irregular waste collection, and low citizen awareness, clearly identified through baseline studies and stakeholder consultations.

Evaluation Parameter	How the Program Aligns
	• Interventions responded to immediate quality-of-life concerns, with improved cleanliness, reliable door-to-door collection, and elimination of neighborhood dumps leading to visible environmental and health benefits. • Strong alignment with the Solid Waste Management Rules, 2016, ensured relevance from a policy perspective, particularly in relation to source segregation, decentralized processing, door-to-door collection, and inclusion of informal waste workers. • The program reinforced national priorities under the Swachh Bharat Mission (Urban), contributing to Noida's rise into the top five cities in Swachh Survekshan by 2022. • Cultural relevance was strengthened by framing cleanliness as a shared civic responsibility *"My City, My Responsibility"* and celebrating local champions, fostering community pride and ownership.
Effectiveness	• The program achieved substantial and measurable outcomes. Source segregation increased from ~10–20% at baseline to ~75% on average, with several sectors and RWAs achieving 90–95% segregation. • Systematic identification and elimination of GVPs resulted in the removal of 18 major dumpsites in clean sectors and numerous others in urban villages, significantly improving local environmental conditions. • Awareness outreach was extensive and effective, with 1.2 lakh+ households directly engaged and near-universal awareness of segregation and waste management practices reflected in KAP surveys. • Infrastructure investments, bins, e-vehicles, compost pits are fully operational, with compost actively used in gardens and vehicles running daily, indicating strong translation of outputs into functioning systems. • Clear behavior change outcomes are evident: 75%+ households consistently segregate waste, 55% report paying

Evaluation Parameter	How the Program Aligns
	user charges, 72% report reduced dumping, 93% demonstrate respectful behavior toward sanitation workers, and 84% of workers report improved health. • The establishment of model RWAs and Zero Waste Clean Villages and growing interest in replicating the model elsewhere demonstrate effective scale and stakeholder satisfaction.
Convergence	• The program exemplified strong public–private convergence through a structured partnership between HCL Foundation and the Noida Authority, aligning citizen-level interventions with municipal waste collection and disposal systems. • Convergence with the Swachh Bharat Mission (Urban) was evident through shared branding, participation in Swachh Survekshan processes, and alignment with national cleanliness messaging. • Implementation involved coordinated action with RWAs, Panchayats, schools, NGOs (CEE, Pankh, and others), municipal officials, and community volunteers, creating a multi-stakeholder ecosystem around SWM. • Policy support from the Noida Authority, such as enforcement of plastic bags and facilitation of RWA engagement, enhanced legitimacy and compliance. • Overall, the program strengthened existing governance systems rather than creating parallel structures, thereby amplifying institutional ownership and impact.
Sustainability	• The program emphasized behavioral sustainability, with segregation and cleanliness practices becoming normalized habits. Survey findings indicate that a large majority of households continue good practices even without external reminders. • Institutional sustainability was supported through the formation and strengthening of RWA SWM committees and Chakachak village committees, many of which now maintain budgets for waste management services.

Evaluation Parameter	How the Program Aligns
	• Financial sustainability is emerging through user-fee collection mechanisms, with several RWAs and villages covering sanitation worker wages and vehicle maintenance, though coverage remains uneven. • Assets such as e-vehicles and composting infrastructure were formally handed over to RWAs or the Noida Authority, ensuring continuity beyond the project period. • Capacity-building efforts reached 5,500+ stakeholders, creating a local knowledge base capable of sustaining and scaling SWM practices. • Environmentally sustainable practices composting, recycling, plastic reduction provide ongoing economic and ecological incentives, reinforcing long-term adoption.

5. Conclusion and Recommendations

Conclusion

The My Clean City Solid Waste Management program in Noida has delivered a transformative impact across the city's residential sectors, urban villages, and rural fringes. In just a few years, the program has catalyzed a shift from a waste-challenged environment to a culture of cleanliness and responsible waste management.

Key achievements include Households adopted waste segregation and proper disposal habits with ~75% consistently segregating waste at source up from under 20% at beginning and nearly 95% acknowledging the importance of these practices. What was once seen as a municipal issue has become a *community ethic*, evidenced by citizen initiatives to keep their areas clean and report issues. Cleanliness improved markedly, open dumping spots have been largely eliminated (at least 18 major dumps cleared, plus numerous smaller ones in villages), littering reduced, and streets/commons are noticeably cleaner. This has direct positive implications for public health (fewer vectors and infections) and the environment. Residents, including those in poorer areas, now enjoy a cleaner neighborhood, which enhances their quality of life and community pride. The program empowered local institutions (RWAs, Panchayats) and individuals. RWA officials have taken ownership of waste management in their societies, and village leaders have mobilized youth committees for sustained action, embedding the changes into local governance. Crucially, the status of sanitation workers improved; they are better equipped, treated with respect, and have safer working conditions 84% reporting health improvement. Women and youth emerged as environmental stewards through training and campaigns, ensuring inclusivity in the

movement toward a clean city. Close collaboration with Noida Authority, many program interventions have been folded into the city's systems, daily door-to-door collection in all areas, routine monitoring of segregation, and enforcement of waste rules. The high Swachh Survekshan ranking for Noida reflects these systemic improvements. With financial mechanisms like user fees starting to take root and with community-led oversight structures in place, the groundwork for sustained maintenance of outcomes is strong. Noida's SWM system is now more resilient and closer to compliance with national regulations than ever before. HCL Foundation's initiative turned into a model that can be replicated. It demonstrated that a CSR-backed project can effectively partner with government and communities to solve urban problems. The concept of "Clean Sector" and "Chakachak Village" has set benchmarks e.g., a sector with >95% segregation, or a village with no open dumping, that others can strive for. This model is already inspiring similar efforts in surrounding regions and has become a flagship CSR success story for HCL, enhancing its reputation as a socially responsible organization making tangible impact.

In conclusion, the My Clean City program achieved its objectives of a cleaner, more sustainable waste management system in Noida with *consultant-grade* efficiency and community-centric execution. It successfully mapped onto the IRECS framework: it was inclusive in reach, relevant to policy and community needs, effective in delivering results, convergent with public systems, and set the stage for sustainable continuation. The HCL Foundation's CSR team can justifiably take pride in these outcomes which not only meet their social responsibility goals but also contribute enduring value to Noida's urban management and the well-being of its citizens.

Recommendations

Building on the successes, the following recommendations are offered to consolidate gains and address gaps:

1. Strengthen and Institutionalize User Fee Systems: As the data showed, willingness to pay exists but actual payment compliance is ~55%. HCL Foundation can work with Noida Authority and RWAs to design a robust mechanism for waste user charges.

   Advocating a municipal directive making nominal user fees mandatory in all RWAs and villages perhaps integrated with property tax or utility bills for convenience.

   Assisting RWAs/village committees to establish transparent collection and utilization of fees (e.g., ring-fencing the funds for sanitation purposes, like vehicle maintenance or bonus for waste workers). Sharing best practices from sectors already doing this will help. Conducting a focused awareness drives on your user fee keeps your city clean to convert the positive attitude into action. For instance, show how even ₹30-₹50 per household per month can ensure continuous service and cleanliness, a small price for a big benefit.
2. Deepen Segregation Quality and Extend to Waste Processing: While segregation rates are high, the quality of segregation can be further improved reducing instances of minor mixing and ensuring hazardous waste is strictly isolated. Additionally, currently segregated dry and hazardous waste still mostly goes to landfills or

recycling facilities elsewhere, more local processing would enhance sustainability. Recommended actions:

3. Intensified IEC on 3-way segregation: Refresh training focusing on the often-forgotten third bin (domestic hazardous waste), ensure households use it for things like batteries, expired medicines, sanitary waste, etc. Monitor those specifically (perhaps involve waste collectors in flagging if they find hazardous mixed).

By implementing these recommendations, the HCL Foundation's CSR team can ensure the longevity of the Clean Noida achievements and amplify its impact further. The journey of transforming Noida into a "Waste-Wise City" serves as a lasting model of urban environmental stewardship.

Annexure:

Sector-Wise: Clean Sector, Clean Urban Village, Chakachak Village

The *My Clean City* program was implemented in three distinct contexts, and while the core principles remained the same, the outcomes and strategies had some unique aspects in each. Here we outline the impact in each category:

Clean Sectors (Noida City Residential Sectors): This component arguably saw the most structured implementation and dramatic improvements, given the organized nature of RWAs and the relatively higher baseline capacity.

- Waste Segregation & Collection: As discussed, Clean Sectors achieved high segregation rates, with many RWAs sustaining above 90-95% source segregation. The presence of an RWA framework allowed for bylaws and enforcement; some RWAs imposed small fines or notices to residents who did not comply, which accelerated behavior change. Door-to-door collection is now virtually universal in these sectors, either through Noida Authority's contractor or RWA-hired staff. The donation of 89 electric waste collection vehicles across 24 sectors was transformative – these sectors (covering ~26k households) now have modern, quiet, zero-emission collection, which residents and workers both appreciate. According to the impact study, sectors with e-loaders saw household segregation jump from ~10-30% to >75%, validating that pairing infrastructure with awareness yields results. Clean sectors without e-loaders also improved using traditional means, but those with support clearly got an extra boost.
- Waste Reduction & Processing: Many Clean Sectors have taken steps towards decentralized processing. 11 horticulture compost pits were set up by 2021 in sectors, and that number grew with portable units by 2023. Some large RWAs (e.g.,

high-rises) installed mechanical composters for wet waste with project support (though O&M of those remains a challenge in some cases due to cost). At least 20 RWA markets were declared single-use-plastic-free by engaging shopkeepers (anecdotal from reports and HCL updates). Also, Clean Sectors piloted rainwater harvesting and other environment measures (though outside SWM scope, it shows holistic improvement – some sectors-built rainwater pits and planted trees, partly motivated by project's cleanliness drive).

- Community Engagement & Institutionalization: Clean Sectors benefited from creation of SWM sub-committees within RWAs. Roughly 90 model RWAs have an environmental or waste management committee now that liaises with residents and the Authority regularly. This institutionalization means the practices are more likely to continue. Clean Sector residents also formed the backbone of the Clean Noida Volunteer Club launched by HCL; dozens of active volunteers now champion waste segregation and cleanliness drives, sustaining momentum. Importantly, Clean Sectors also achieved "star ratings" in citizen feedback for Swachh Bharat: many sectors conducted their own resident feedback surveys which indicated high satisfaction with cleanliness post-intervention (where earlier complaints about garbage were common).
- Quality of Life Improvements: The overall cleanliness in these colonies has improved – greenery is better maintained (with compost), fewer stray animals (since open dumps eliminated), and aesthetics improved (with clean streets, painted walls at former dumps). It also had a safety aspect: one RWA pointed out that earlier, dark dumping corners were a safety hazard; now, with those cleared and lighted, the area feels safer at night. Additionally, the relationship between residents and waste workers improved in sectors, adding to social cohesion. It's not surprising that Noida's upscale sectors can now proudly compare with the cleanest neighborhoods of other metro cities, reflecting HCL's impact.

Clean Urban Villages (Urban Slums/Villages in Noida): Working in the 40 urban villages presented different challenges – like high population density, informal housing layouts, lack of prior waste services, and lower literacy – but the program made significant headway in these areas as well:

- Infrastructure & Service Delivery: At baseline, many villages had irregular waste collection (some only every 2-3 days) and virtually no fixed dumping infrastructure. The program coordinated with Noida Authority to extend/improve collection in these 40 villages. Now, most urban villages receive daily waste collection service, either via Authority trucks or micro-vehicles assigned to those areas, reaching inside narrow

lanes. Some villages were provided with community dumpsters at convenient locations to aggregate waste, which are cleared regularly. The program facilitated the formation of Chakachak Village Committees (CVCs) in these villages to monitor cleanliness. While not all 40 have functional committees yet, about 15 villages formed CVCs and of those, 8 particularly active ones achieved "Model Urban Village" status by meeting criteria like >70% segregation, no open dumping, and community ownership.

- Behavioral Changes: The KAP results for urban villages showed improvement but still trailing sectors. Initially, virtually 0% of households in villages segregated waste and awareness was low beyond having heard of Swachh Bharat. Post-intervention, survey data indicates around 79% of village respondents claim to always segregate now (with ~21% never) – a big leap, though slightly behind sectors. Additionally, the baseline found only 22.5% of village households used a dustbin (others used old buckets or plastic bags for waste). The program distributed free dustbins and today one can find bins in a much larger share of homes (exact % not measured, but given segregation stats, likely over 70% have at least two receptacles for waste). The attitude in villages also changed – baseline said ~50% villagers felt no training on waste mgmt, implying apathy, but now most acknowledge the training and see its importance (we saw near 100% awareness of SBM in baseline, which remained high, but actual practice caught up after the program).
- Cleanliness Outcomes: Urban villages have seen visible transformation in many cases. For example, Nithari and Parthala (two large villages) were part of the intervention: local reports note that these areas went from garbage heaps at every corner to a largely dump-free state after consistent clean-up and community pressure. *Approximately 92 GVPs in villages were identified; today, the majority of those are no longer active*. Some villages have even implemented fines at community level for littering (informally through elders). Women's self-help groups were involved in door-to-door campaigns and that peer approach helped overcome initial resistance. During our observation, we did see a bit more litter in villages than sectors, indicating that maintaining 24x7 cleanliness is harder where awareness is recent and housing dense. Nonetheless, the fact that garbage vehicle frequency improved (75% villages daily now) and committee oversight started means these villages are on a sustainable path. The "Chakachak" branding in villages created a positive competition – villages aspire to be called Chakachak by HCL Foundation, which motivated them.

- Additional Outcomes: In some urban villages, the program also had to tackle *liquid waste* issues (dirty drains) as that's intertwined with solid waste. While not a primary objective, improved solid waste management did help – less trash in drains means easier flow. A few villages took up projects like building soak pits or community toilets under HCL Uday concurrently, demonstrating convergence. Community engagement events like *cleanliness drives and school rallies* were conducted in these villages, often led by the newly formed youth groups. This resulted in a new generation in those communities that is conscious of cleanliness. Qualitatively, residents of these villages often remarked that they feel less "neglected" now – earlier only city sectors were clean, now their areas also get attention and they take pride in it. That change in mindset from slum mentality ("it's supposed to be dirty") to pride in a clean village is a crucial impact.

Chakachak Villages (Rural Greater Noida Villages): The 62 Chakachak villages are more rural (some in Greater Noida or outskirts of Noida). Many outcomes overlap with urban villages, but there are some distinct points:

- Community-Led Committees: The *Chakachak Village Committees (CVCs)* are essentially local panchayat-level bodies often chaired by the village pradhan or an elder, with youth members, focusing on sanitation. The program's baseline study recommended forming these committees since 82.5% of villages had no prior waste management committee. By project intervention, dozens of such committees were formed – not all equally active, but enough that they've become a known mechanism. These committees took charge of organizing clean-up drives and ensuring residents give waste to the collection vehicle.

- Waste Collection and Disposal: Rural villages often had no formal system; people would dump waste in pits or burn it. Through collaboration with the local administration, regular waste pickup was introduced in these 62 villages. In some cases, tractors or auto-tippers were deployed. Many villages now have a designated dumping site outside the habitation where waste is collected and then transported to the city processing site – an interim solution until full processing is available. The aim is to provide *on-site solutions* too (like composting). A few pilot villages started vermi-composting units for farm waste and domestic wet waste.

- Results: Out of 62, by the end of 2025, 62 villages are counted as "Chakachak Villages" by HCL, implying they have substantially improved. This likely includes elimination of open dumps in public areas (though some private plot dumping might persist), regular cleaning, and active community monitoring. The baseline highlighted that about 68.5% of identified GVPs in villages were on public land, 31.5%

on private land. Public ones have been the focus (since those can be cleaned via community effort), whereas private ones (like someone's empty plot) are harder unless owners cooperate. Through either persuasion or enforcement, many of those got addressed as well.

- Behavior Change in Rural Context: Historically, rural areas had the mindset of "dispose in a trench and nature will take care of it." The program had to introduce the concept of door collection and discourage harmful practices. The KAP shows rural Chakachak villagers' knowledge is better than urban villages in some aspects (interestingly they scored a bit higher on knowing 3-stream segregation than urban counterparts, possibly due to targeted training sessions) – about 41% answered correctly vs 27% in urban villages for the 3-bin question (still not great, but an improvement considering 0% would have known that before). Field anecdotes indicate that some villages enthusiastically took to the idea of being "the cleanest village": for example, Aicher village (one of the 8 model ones) reportedly now has painted slogans on walls about waste segregation and the villagers collectively ensure their streets are spotless – a dramatic change credited to the program's baseline triggering a resolution among them.
- Convergence with Government Schemes: The Chakachak Village program synced with government sanitation schemes like the Gram Panchayat-led Solid Liquid Waste Management under Swachh Bharat (Grameen). HCL's efforts in these villages often supplemented government funds for building waste sheds or providing tools. This convergence means the improvements have dual support, adding to sustainability. For instance, a few villages received funds to buy a community garbage cart after HCL's pilot demonstrated success – showing scaling beyond CSR.

In essence, Clean Urban Villages and Chakachak Villages now mirror many of the positive attributes of the Clean Sectors – daily collection, resident awareness, no heaps of garbage around – though they started from a more challenging baseline. The progress in rural and slum areas is perhaps the most heartening, as it directly improves living conditions for underprivileged populations and brings inclusivity (no one left in filth while the rest of city is clean).

It should be noted that sustaining these gains in villages might require longer hand-holding; RWAs in sectors are self-driven whereas village committees might need periodic activation. But having established the model in 8 villages, HCL Foundation can replicate that formula in remaining ones.

Comparison Across Settlements: To summarize cross-comparison:

- *Clean Sectors* reached highest performance in segregation and elimination of issues, thanks to better resources and governance structures. They serve as models and even exceeded some targets (e.g., multiple sectors at ~100% segregation).
- *Urban Villages* saw significant improvement but still have scope to reach the same level as sectors. Key metrics like % always segregating, % households with bins, etc., are a bit lower than sectors but much higher than before and higher than control. Community mechanisms are in place to continue progress.
- *Chakachak Villages (rural)* achieved basic cleanliness infrastructure where none existed. They have matched urban villages in many KAP aspects (some indicators slightly better, some slightly behind). The cultural shift is notable in rural communities embracing modern waste practices.
- All areas benefited from increased Inclusiveness (women, youth involvement; waste worker respect) and Convergence (working with authorities and aligning with national mission).

Social Return on Investment (SROI): My Clean City - Noida

1. Scope

1.1 Purpose of the SROI Analysis

This analysis estimates the Social Return on Investment (SROI) for the My Clean City (MCC) intervention across locations of the Chakachak Village

1.2 Scope and Timeframe

- **Geographical scope:** Selected intervention Raipur, Bhaktawarpur and Nithari of the Noida
- **Comparison group:** Control villages captured under the KAP survey
- **Total Benefitted Population:** Approximately. ~3,480 households
- **Timeframe of analysis:**
    - Benefits estimated for 2 years post-intervention
    - Drop-off assumed at 20% per year to account for gradual reduction in behavior persistence and benefit intensity
- **Type of SROI:** Evaluative SROI based on primary KAP survey data and project monitoring reports

2. Mapping Outcomes and Identifying Material Outcomes for Monetization

To assess the financial and social value generated by the intervention, key program outcomes were mapped and shortlisted based on their measurability, attribution to the program, and potential for monetization. The following material outcomes were identified:

Outcome 1: Reduction in Landfill Waste

The intervention is assumed to divert approximately 40% of total waste away from landfills through improved source segregation, composting, and recycling practices. This assumption is grounded in sector evidence, which indicates that the organic fraction of municipal solid waste in India typically ranges between 40–50%. Effective diversion of this fraction significantly reduces landfill burden as well as associated transportation and processing costs.

In line with sector benchmarks, the cost of waste management has been estimated at ₹1,150 per metric ton, comprising ₹250/MT for transportation and ₹900/MT for tipping and processing. These estimates are consistent with ranges reported by sector institutions such as the Centre for Science and Environment, which highlight typical costs between ₹500–₹1,500 per ton and tipping fees in the range of ₹800–₹900 per ton.

Attribution: A 40% attribution is applied, aligned with the organic waste fraction (40–50%) typically manageable through composting interventions and supported by national SWM guidelines.

Outcome 2: Reduction in Garbage Vulnerable Point (GVP) Cleaning Cycles

The program has contributed to the elimination of Garbage Vulnerable Points (GVPs), thereby reducing the need for repetitive municipal cleaning cycles. Based on operational assumptions:

- In Noida (Pankh intervention areas), an average of 2 cleaning cycles per month over 11 months (22 cycles annually) has been avoided.
- In Nithari, a similar assumption of 2 cleaning cycles per month over 12 months (24 cycles annually) has been applied.

Additionally, the program has enabled the transformation of GVPs through beautification. In Nithari, it is assumed that 100 GVPs were eradicated, with an estimated beautification cost of ₹66,296 per site, aligned with available program data. This estimate is conservative when compared to municipal benchmarks, where beautification costs are observed at approximately ₹1.3 lakh per GVP.

Attribution: A 70% attribution is applied, recognizing the program's direct role in waste system strengthening and GVP elimination, while accounting for municipal co-responsibility.

Outcome 3: Reduction in Drain Cleaning Costs

Improved waste management practices have resulted in reduced clogging of drains, thereby decreasing the frequency of mechanized drain cleaning. It is assumed that cleaning frequency has reduced from daily operations to once every 2–3 days (average 2.5 days).

For valuation, one drain cleaning event is approximated as one hour of JCB machine usage, with an estimated hourly cost of ₹584, derived from a daily hire rate of ₹4,674. This estimate remains conservative as it excludes additional costs such as labour, supervision, and waste disposal.

Attribution: A 60% attribution is applied, as reduced clogging is strongly linked to improved solid waste practices, while acknowledging external factors like rainfall and municipal maintenance systems.

Outcome 4: Employment Generation

The program has created direct livelihood opportunities through the engagement of sanitation workers, referred to as *Green Friends*. In Nithari, approximately 34 workers were employed for waste and drain management activities, earning an average monthly income of ₹14,000, thereby contributing to local economic resilience.

Attribution: A 90% attribution is applied, as these jobs were directly created and funded under the program intervention.

3. Assigning Financial Value to Project Outcomes

Based on the above assumptions, the financial value of each outcome was calculated using standard SROI methodology. All values are presented in INR and rounded for clarity. Where

applicable, persistence of outcomes beyond Year 1 has been adjusted using conservative drop-off assumptions.

1. Reduced Landfill Transportation and Disposal Costs

The value of landfill diversion is calculated based on the difference between baseline waste (pre-intervention) and post-intervention waste volumes, adjusted for a 40% diversion rate.

- **Noida (Pankh)**
    - Baseline waste: 405.742 MT/year
    - Post-intervention waste: 243.445 MT/year
    - Waste reduction: 162.297 MT/year
    - **Monetized Value:** ₹1,86,641
- **Nithari**
    - Baseline waste: 2,150.912 MT/year
    - Post-intervention waste: 1,290.547 MT/year
    - Waste reduction: 860.365 MT/year
    - **Monetized Value:** ₹9,89,419

2. GVP Eradication and Cleaning Cost Savings

The financial value includes avoided cleaning cycles and one-time beautification investments.

- **Noida (Pankh)**
    - GVPs eradicated: 74
    - Value per GVP: ₹1,12,276
    - **Total Value:** ₹83,08,424
- **Nithari**
    - GVPs eradicated: 100
    - Value per GVP: ₹1,73,792
    - **Total Value:** ₹1,73,79,200

3. Drain Cleaning Cost Reduction

- **Nithari (Year 1 Value):** ₹35,82,774

This reflects reduced frequency of mechanized cleaning due to improved waste practices.

4. Employment Generation – Green Friends

- **Nithari (Year 1 Value):**
  34 workers × ₹14,000/month × 12 months = **₹57,12,000**

This represents direct income generation attributable to the program.

4.Adjusted social value and SROI calculation

Core SROI adjustment assumptions

- Deadweight: 10%
- Attribution: 80%
- Drop-off: 20% for benefits assumed to continue into Year 2
- Net adjustment multiplier applied to each monetized value: Attribution × (1 − Deadweight) = 0.80 × 0.90 = 0.72

Table: Adjusted Social Value

Outcome	Year 1 gross value	Year 2 gross value (20% drop-off where applicable)	Deadweight	Year 1 adjusted value	Year 2 adjusted value	Total adjusted value (2 years)
1. Reduced landfill transport & disposal cost	₹11,76,061	₹9,40,848	10%	₹8,46,764	₹6,77,411	₹15,24,174
2. GVP eradication cost savings	₹2,56,87,624	₹2,05,50,099	10%	₹1,84,95,089	₹1,47,96,071	₹3,32,91,161
3. Drain cleaning cost reduction	₹35,82,774	₹28,66,219	10%	₹25,79,597	₹20,63,678	₹46,43,275
4. Employment generation – Green Friends	₹57,12,000	₹0	10%	₹41,12,640	₹0	₹41,12,640

Total Adjusted Social Value (2 years): ₹4,35,71,251 (₹4.36 crore)

Location – Wise Social Value:

Location	Year 1 gross	Year 2 gross	Total adjusted (2 years)
Noida	₹84,95,065	₹67,96,052	₹1,10,09,604
Nithari	₹2,76,63,394	₹1,75,61,115	₹3,25,61,646

Combined	₹3,61,58,459	₹2,43,57,167	₹4,35,71,251

1. SROI ratio

Formula: **SROI = Total Adjusted Social Value ÷ Total Project Investment**

To help you interpret implications, the base-case ratio would be:

$$\text{SROI} = \frac{\text{Total Adjusted Social Value}}{\text{Total Project Investment}}$$

Project Expenditure = ₹2.90 crore

SROI = **1.50** *(*₹1.50 of social value generated for every ₹1 invested)