



Making a low-income community zero waste

Gabriel Raj

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This report presents the experience and lessons learnt in setting up a zero-waste system in Greenways, Chennai. It was led by Gabriel Raj, Researcher with the support of Kripa Ramachandran, Researcher, and Sriram Radhakrishnan, Community Organiser at CAG, and Pennurimai Iyakkam.



CAG

Citizen consumer and civic Action Group

1. Background

One of our ongoing efforts since July 2017 has been towards establishing a zero waste community model. We have been working with Pennurimai Iyaakam in the low-income community located adjacent to the Greenways MRTS station, known as “Thideer nagar” or “RK Puram”. Nearly 3000 members live here. The whole community is organised along nine streets: RK Puram main Road, Cheran, Chozhan, Pandian, Pallavan, Anna, Gandhi, Pughs and Pughs inner lane. In order to plan an appropriate waste management system, we first set out to understand the different relevant aspects of the community, such as infrastructure, lifestyle, behaviour, facilities, environment, living standards, and the current system of waste disposal. We undertook a baseline survey in December 2017 to gather data on the number and types of entities, details about their access to sanitation, water, health facility, and collection and disposal system. We also delved in to their perception and interest towards segregation and managing their waste at source.

The community comprises of 1402 entities that can be classified into three categories:

- a) **Residential** - There are approximately 1379 residential entities in the community. When we mapped the area in November 2017 there were 1317 but since then there has been new construction but also evictions of families to slum tenements in Semmencherry and Perumbakkam.
- b) **Commercial** - There are around 20 small shops within the community that include groceries, fruits and vegetables, tea, eateries, and a hair salon.
- c) **Institutional** - There are ten institutional entities, including an orphanage and residential school located on Pughs Road, one ICDS centre, eight temples in the whole community and a church.

Greater Chennai Corporation (GCC) provides waste services through Ramky, a private contractor engaged for SWM services in Zones 9, 10 and 13. Though a tricycle with three waste workers has been allocated to collect waste in the community, this service is lacking in many ways. Residents have said that the tricycle does not come every day, and when it does, there is not fixed time. There is also no indication, such as a bell or whistle, to intimate residents that it has arrived. There are two dumpsters placed for use by the community residents - one at the start of RK Puram Main Road and the other at the start of Pughs Road. Though this is to ensure that they can be accessed by the compactor, neither is easily accessible by the residents. In the absence of proper waste collection services, residents have taken to throwing their waste in an open space between the Adyar river and the community. This is also a space used by GCC to dump construction and demolition debris. Material from asphalt Roads that are dug up for utility work can also be regularly seen to have been dumped here. A few of the streets' sewage lines have an outlet at this same point. As a result, one can see sewage, solid waste, and debris continuously added to the area, making it difficult to clear or correct permanently.



Image 1: Unsanitary waste disposal due to the lack of adequate infrastructure and services

2. Initial intervention

To start with, we requested GCC to clear the waste that had accumulated in the open space. The CI arranged for a JCB and truck to remove waste, which though substantial, was barely a scratch on the surface. It was also hardly adequate to compensate for the waste, construction debris and Road asphalt that is regularly dumped here by various government agencies. We also requested the Zone Officer and the CI to ensure that the tricycle have a regular collection system from each house, but this could not be done.



Image 2: Removal of garbage in the backyard of the community

Over seven months (September 2017 - March 2018), we organised several street plays and held street-level meetings to discuss the need for proper waste disposal and the negative consequences of unsanitary waste disposal. Over this period, we distributed 160 earthen pots with bamboo lids for home composting and three sets of concrete rings for

community composting. This was so as to divert household waste from being disposed in the dumpster or open space. Individual households were taught how to segregate their waste, compost organic waste. They were also instructed to empty them into the concrete rings once the pots were full and if they were unable to compost at home. They were to dispose their dry and sanitary waste in the tricycle or dumpster. Most of the women reported back saying that they did not have enough time to properly segregate the waste. A few women filled the pots and used them to grow plants. All in all, the disposal of mixed waste in plastic bags in the open space continued unabated.

In January 2018, we worked with the students of the residential school on Pughs Road to conduct a [waste audit](#) over three days. The study was done to determine the quantum of waste generated in the school and to understand the current waste disposal practices. Based on the insights of the audit, we helped them to set up the infrastructure and processes for waste segregation at source and composting of organic waste. We also mapped all the temples in the area and gathered information on the *thiruvizha* (festivals) the community celebrates in the temple. All of them use large quantities of plastic for decoration, food and beverage, and do not segregate the waste. In February 2018, Finally we had an opportunity to make one temple *thiruvizha* zero waste.

3. Incentivising zero waste behaviour

Based on this experience, we decided to try a different approach. In addition to source segregation, we tried door-to-door collection, community composting or organic waste, and the sale of dry waste to a scrap shop. The most element was that we incentivised the other elements by paying for segregated waste, composting, and refusing plastic bags.

3.1. Source segregation of household waste

The waste generated in the household must be segregated into three categories:

- 1) Organic waste: All cooked and uncooked food should be stored or composted in an (earthen) pot. Once the unit is full, the resident can contribute wet waste or compost in exchange for points.
- 2) Inorganic waste: All inorganic waste must be further segregated and stored as-plastic, glass, metal, cloth and paper and can be exchanged for points as well.
- 3) Sanitary waste: This includes sanitary napkins, diapers, bandages, syringes, and condoms. This must be wrapped in newspaper and handed over to the tricycle or disposed in the dumpster.



Image 3: Segregation of waste at household level

3.2. Material Recovery Facility

We set up a material recovery facility (MRF) for community-level waste management. There are concrete rings to compost the organic waste. The other was a receptacle for different dry waste materials: glass, metal, plastic, paper, and cloth, which are sorted a second time and certain materials sold to scrap shops. Multi-layered packaging, which does not have any resale value, is being retained for repurposing in the future.



Image 4: Organic and dry waste infrastructure at the MRF

3.3. Exchanging waste for wealth

Residents can earn points by giving segregated waste, composting, and refusing plastic bags at commercial entities (Table 1). They could also earn points if they volunteered for the scheme by helping collect, segregate waste, or maintain daily records.

S.No	Activities	Points
1.	Using own cloth bag or box at local shops	1
3.	Organic waste	5 per unit
4.	Dry waste: paper, plastic, cloth, glass, metal	5 per kg
7.	Compost from home compost unit	50 per kg
8.	Volunteering time for WWS	50 for 2 hours

Table 1: Points earned

We discovered that some women in the community regularly collected their hair and gave them to two members of the *narikuruvar* community in exchange for small steel utensils. This was the same principle that the women choose when designing the WWS. They suggested that we maintain community registers for the waste collected and contributed to the MRF. In exchange, they requested they not be given money, since that would be easy for the men to appropriate. Instead they suggested that we give them utensils that they could use for different household purposes. This prompted us to think of ways not just to reward good waste disposal behaviour, but to enable people to reduce and refuse waste as well (Table 2).

S.No	Activities		Points
1	Cloth bag	To replace plastic covers and plastic bags for grocery, ration and vegetables.	25
2	Compost	Good quality compost to use for plants	25
3	Wooden toilet brush	To replace plastic toilet cleaning brushes	25
4	Bamboo basket	To store plastic waste instead of plastic covers and bins.	50
5	Steel snack box	To replace plastic snacks boxes	50
6	Small steel container (thooku)	To replace plastics covers exclusively for purchase of meat.	50
7	Idly batter box	To replace plastic covers for idly batter	75
8	Lunch carrier	To replace plastic lunch boxes and packets	75
9	Steel water bottle	To replace plastic bottles	100

Table 2: Prize chart

3.4. Information, Education and Communication

We have used various types of information and communication material to support our work towards behaviour change, and complementing the infrastructure and services. The community's residents are mostly engaged in the informal sector, such as domestic work, labourers. Many of the women stay at home to take care of their families; and a few of them earn an income from activities like tailoring. In such a context, our communication medium was predominantly street plays, puppet shows, and in-person training. We also prepared posters in Tamil, though avoided making them text-heavy.

WASTE TO WEALTH SCHEME

EARN POINTS

Own carry bag or box: 1 point

Organic waste: 5 points/unit

Dry waste: Paper, Cloth, Plastic, Glass, Metal 5 points/kg

Volunteering: 50 points/ 2 hours

Compost: 50 points/kg

REWARDS

25	50
75	100

Day	Time	Type of waste	Place
Monday	11am - 1am	Organic waste	Door to door
	3pm - 4pm	Dry waste	MRF
Wednesday	11am - 1am	Dry waste	MRF
	3pm - 4pm	Organic waste	Door to door

To join the scheme
Contact: Gabriel- 8754537183

குப்பைக்கு பரிசு திட்டம்

பாயிண்ட்ஸ் சேகரிக்க வழிகள்

சேகரிக்க குப்பை / டப்பா: 1 பாயிண்ட்

மக்கும் குப்பை: 5 பாயிண்ட்ஸ் / யூனிட்

மக்களது குப்பை: பிளாஸ்டிக், துணி, கண்ணாடி, பாட்டில்கள், திரவப் பெட்டிகள் 5 பாயிண்ட்ஸ் / கிலோ

தள்ளாடி: 50 பாயிண்ட்ஸ் / 2 மணி நேரம்

உரம் தயாரித்தல்: 50 பாயிண்ட்ஸ் / கிலோ

பரிசுகள்

25	50
75	100

குப்பைகள் வாங்கப்படும் விவர அட்டவணை

நாள்	நேரம்	குப்பையகக	வாங்கும் இடம்
திங்கட்கிழமை	காலை 11.00 - 1.00	மக்கும் குப்பை	வீடுவிலாக
	மாலை 3.00 - 4.00	மக்களது குப்பை	சேமிப்பு கூண்டு
புதன் கிழமை	காலை 11.00 - 1.00	மக்கும் குப்பை	சேமிப்பு கூண்டு
	மாலை 3.00 - 4.00	மக்களது குப்பை	வீடுவிலாக

திட்டத்தில் சேர தொடர்புக்கு:
கேப்ரியல் - 8754537183

Image 5: The scheme poster prepared in English and Tamil



Image 6: Street play performance in Pugh's Road on proper waste disposal system

4. Implementation

From the pilot to the launch, and then on to expansion has required us to continuously reflect and redesign the engagement. Thus, we see the implementation phase as constantly evolving to accommodate and respond to the practical realities of the residents and other entities in the community.

4.1. Pilot and launch

In the pilot, we worked with the residents of Pandian Street (40 out of 44 houses signed up) for three-way segregation. We had heard from residents and shopkeepers that it was crucial for the scheme to involve the commercial entities. We established a token system, where commercial entities were engaged to reward every time a customer brought their own bag or box and refused a plastic bag from the shop. To replace carry bags for pre-packaged items, we offered one point if they brought their own cloth bags. For fresh produce, such as batter, fish or meat, we offered one point if they brought their own boxes or containers. Initially as part of the soft launch, the batter shop on Pandian Street and two grocery shops on Gandhi Street were involved. Within three weeks, we saw 100% compliance of the houses that had signed up, and there was a demand from other residents to extend the scheme to their streets and other commercial entities. Based on the success of the pilot, we launched the Waste to Wealth Scheme (WWS) on August 1, 2018.



Image 7: Scheme explanation with community in the weekly meeting for pilot study

4.2. Enrollment

After the scheme was successfully piloted in Pandian Street, we opened it to Anna, Pallavan, Chozhan and Cheran Streets in September. We prepared a sign-up cum resolution sheet that provided details of the collection, how to earn points and how to redeem them, and the waste collection schedules on one side. On the other side was a resolution that each household had to sign by way of their commitment to the scheme. The sheet also has a perforated slip which asks for the name and contact details of the family member who we could contact. This slip was to be left with the commercial entity and we got in touch with the family. From October 2018, residents from the remaining two streets - RK Puram Main Road and Pughs Road will be able to enrol in the scheme. We also added five commercial entities in the scheme, three of which are grocery shops on Gandhi Street where a majority of the residents purchase their goods, and two eateries. They agreed to participate by offering tokens when any customers brought their own tiffin carriers and food boxes. We have gathered information from each commercial entity as to the types and quantum of packaging material they purchase, and how much they spend. By regularly collecting this information, we intend to measure the change, if any, since the launch of the scheme. Also we are planning to involve the other commercial entities like the vegetable shop, meat shop and three tea stalls, through their participation in the waste segregation process, by collecting their waste.



Image 8: Residents buy batter in their own vessels from the batter shop

For other institutional entities, we have planned to facilitate more zero waste events. We will set up a library of books and toys (that are not made of plastic), potentially in the existing ICDS centre. To promote more sharing and reuse in the community, we will establish a workshop with tools that can be borrowed and returned, and train community members how to repair basic household appliances.

4.3. Collection and processing

During the pilot in Pandian Street, the residents suggested a schedule whereby door-to-door collection of organic waste would be on Monday mornings and Wednesday afternoons. The residents would bring their dry waste to the MRF on Monday afternoons and Wednesday mornings. However, having expanded the scheme to six streets, collection of organic waste will take place in the mornings of Mondays, Wednesdays, and Fridays, and dry waste can be disposed at the MRF in the afternoons. As part of the expanded scheme, we have also decided to collect sanitary waste from the doorstep when we collect the organic waste.



Image 9: Door to door collection of organic and sanitary waste

We have engaged a waste worker to collect the organic and sanitary waste, and receive the dry waste at the MRF and sell whatever can be sold. He will also maintain the community compost rings and dispose the sanitary waste in the municipal dumpster. We have engaged a young girl as a Community Animator. She is a resident of the community and we believe this would help us embed the process more easily. She is responsible to enrol entities in the scheme, monitor collection and disposal of segregated waste, train households on composting, and also educate women and young girls on sustainable menstruation.



Image 10: Residents dispose dry waste segregated into six categories

5. Challenges, learning and next steps

The scheme is mainly focused on bringing in a behavioural change within the community. We hope that through the scheme, the residents in the community will understand the core concept of decentralised waste management and to minimise their own ecological footprint of consumption. Though the impacts of poor waste disposal were apparent to many residents, they were unable to collectively act to change the process. The community already has to grapple with inadequate and unreliable waste services from the municipal government. There is also a constant fear of eviction from their homes and relocation to slum tenements 30-40 km away. Any engagement that relied on IEC inputs solely cannot bring the desired behaviour change. This places additional responsibility on people who are already struggling with accessing adequate water, sanitation, and land rights. However, providing only shared or community facilities in the absence of appropriate mechanisms to facilitate collective action were also bound to fail. Through a process of trial and error, we are discovering that a successful decentralised waste management system needs the right combination of individual and community infrastructure, services that are provided at the household and community levels, the inclusion of the different types of entities since they are all interdependent, and information and training support that includes an introduction to sustainable alternatives.