

**S W A C H H**  
W O R L I K O L I W A D A

**SURVEY REPORT**





Survey Report

**Survey commissioned**

for

**Project Swachh Worli Koliwada**

by

**G5A Foundation for Contemporary Culture and IDFC FIRST Bank**

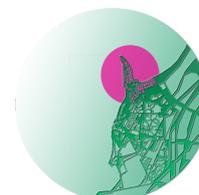
in association with

**MCGM, G South Ward, Mumbai**

to

**Triton Greentech Innovations Pvt. Ltd.**

**Survey Period:** June to September 2018



**SWACHH**  
WORLI KOLIWADA

Survey Report

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## 1. Project Swachh Worli Koliwada

### 1.1 Introduction – Project Swachh Worli Koliwada

Project Swachh Worli Koliwada is a unique, visionary project initiated on June 05, 2018 (World Environment Day) by the G5A Foundation for Contemporary Culture in partnership with the principal donor IDFC FIRST Bank Ltd., MCGM G South Ward and the Worli Koliwada community, all working together to build a self-sustained, Zero Waste neighbourhood.

Through an arts and civic based approach, aims of the project under the aegis of ‘My Neighborhood My Responsibility’ are to:

- bring community together and reinforce their sense of belonging and ownership
- reinforce social awareness, especially around the issue of solid waste, with an emphasis on the importance of segregation
- develop participatory, ground-up processes and systems, along with the community, MCGM and experts, to implement sustainable solid waste management solutions
- work together with the different agencies and stakeholders to rebuild a clean, healthy, resilient and vibrant neighborhood
- identify avenues for facilitating livelihood opportunities and equip the community with the necessary skills
- eventually develop a process model that is sustainable, scalable and replicable within the ward and eventually in the city

### 1.2. About the Partners

#### **G5A Foundation for Contemporary Culture**

The **G5A Foundation for Contemporary Culture** is a **not-for-profit organization** that encourages **contemporary art and culture** that is **experimental** and **courageous**, **good governance** that is **inclusive** and **participatory**, and **ecosystems** that are **equitable** and **resilient**.

At G5A, we believe that **art and culture** have the **power to catalyze change** for the better – by challenging people to think **critically**, **creatively**, and **courageously**.

Through a series of **diverse programs and projects** we are committed to nurturing a **vibrant, safe, and inclusive platform** that encourages the **creative** and **just** – in **thought** and **expression**.

In doing so, our endeavor is to **enrich people’s lives**, rebuild **resilient** and **responsible** communities, and **strengthen the cultural fabric** of our community and city.

**G5A cityLAB** is a key pathway of G5A that helps develop participatory and inclusive processes and systemic solutions to make our cities more liveable. By generating and facilitating ideas and interventions through an interdisciplinary approach, cityLAB attempts to create a network that reconnects individuals, empowers communities and builds creative, resilient neighborhoods.

### cityLAB

- Is a hub bringing together different stakeholders in the community to share information and best practices, with a special focus on the ideas of citizenship, liveability and sustainability
- Is an outreach initiative that reinforces awareness, skill building, empowerment and leadership, primarily through interdisciplinary art and culture programs
- Is an incubator that explores process models that enhance participatory livelihood opportunities
- Is a partnership network that will facilitate the design of a neighborhood governance (process) model, which is equitable, sustainable, scalable and replicable
- For more details, please visit [www.g5a.org](http://www.g5a.org)

### **IDFC FIRST Bank Ltd.**

**IDFC FIRST Bank Ltd.** provides a range of financial solutions to individuals, small businesses and corporates. The Bank offers savings and current accounts, NRI accounts, salary accounts, demat accounts, fixed and recurring deposits, home and personal loans, small business loans, forex products, payment solutions and wealth management services. IDFC First Bank has a nationwide presence and operates in the Retail Banking, Wholesale Banking and other banking segments. Customers can choose where and how they want to bank: 206 bank liability branches, 102 asset branches, 140 ATMs and 454 rural business correspondent centres across the country, net banking, mobile banking and 24/7 toll free Banker-on-Call service.

As part of IDFC FIRST Bank's Corporate Social Responsibility mission, the Bank partners non-profit organisations and social enterprises that use innovative solutions to solve some of society's pressing social and environmental issues. The Bank's interventions are structured in a way that they not only benefit communities directly, but create a ripple effect that sets the tone for long-lasting advantages.

The Bank funds programmes that are long-term and use a sustainable approach which involves multiple stakeholders (civil society, Government bodies, non-profit organisations). The Bank's partnerships also go beyond funding, to offer advice and guidance on strategy, and implementation of social impact programs on ground.

The CSR mission of the Bank focusses on Education, Livelihoods, Women Empowerment, Health and Financial Inclusion.

### **MCGM**

The **Municipal Corporation of Greater Mumbai (MCGM)**, also known as **Brihanmumbai Municipal Corporation (BMC)**, (formerly the **Bombay Municipal Corporation** till 1996) is the governing civic body of **Mumbai**, the capital city of **Maharashtra**. It is **India's** richest municipal corporation. The BMC's annual budget exceeds that of some of India's smaller states. It was established under the Bombay Municipal Corporation Act 1888. BMC is responsible for the civic infrastructure and administration of the city and some suburbs.

## **2. Survey**

### **2.1 Aims**

Research and survey Zones 1 and 2 of Worli Koliwada (hereinafter referred to as the 'site' or 'study area') to evaluate the existing solid waste management scenario, demographic details, people's perception on solid waste and psychographic factors to be able to propose and execute a plan for 'Zero Waste, Self-Sustained' Worli Koliwada

### **2.2 Objectives**

- To understand people and their background and lifestyle better with respect to their origin, caste, education level, occupation and their reasons for selecting the study area for residing
- To identify the present waste management system and associated practices
- To study solid waste management patterns followed by people and reasons behind it
- To study issues in the study area associated with solid waste management activities impacting the health and lifestyle of the residents
- To identify individuals interested in actively contributing (volunteering) to the solid waste management project
- To identify specific skill based needs of the people and the individuals thereby the interest in taking up courses
- To identify various aspects through which behavioural changes related to solid waste management can be achieved

### **2.3 Key focus areas**

- Demographic aspects like origin, family background, education, occupation, size of family and economic status
- Existing solid waste management methods, prevailing issues and expectations of improvement in solid waste management process
- Psychographic factors such as attitude about place, skills, aspiration towards employment and skill development needs

### 3. Executive Summary

#### 3.1 Highlights of the survey in line with the project



Figure 1: Worli Koliwada densely covered

- Worli Koliwada is densely covered by small houses and narrow lanes with houses and spaces randomly built in the study area
  - Zones 1 and 2 consist of about 2001 households
- The demographic survey showed that about 75% households of the study area are native to the region
  - Majority of the locals inhabiting the area were Hindus, belonging to the Bhandari, Boli, Agri and Maratha caste whereas Gujarati and Christian Koli were observed in minority
  - About 28% of the total population of locals were living in the area for more than 50 years
- Family size in the area varied from 2 to 10 members with an average of 3 members per household
- From the point of view of education and qualification, the population was a mix of highly and less qualified people. However, the population of less qualified people was more when compared to the ones with a degree or higher education
  - Educational fields pursued by people with higher qualifications were PhD, LLB, Chartered Accountancy, Microbiology, Engineering
  - Taxi driving was the major occupation observed in the area followed by people doing personal businesses at MSME scale

- Solid waste generated
  - Households generated following types of waste:
    - Kitchen waste such as vegetable peels, fruit peels, non-vegetarian food waste (primarily fish), spoilt food
    - Dry waste such as plastic bottles, milk bags, newspaper, books, cans
    - Bio-medical waste such as boxes of pills, syrups
    - Hazardous waste such as diapers and sanitary pads
  - On an average the total quantity of waste generated from one household was ~0.861 kg
  - ~1,723 kg of total waste was generated in Zones 1 and 2
- In the region, people face various issues relating to solid waste such as less efficient or no solid waste collection, stink of rotting wet waste in the area, open dumping, dumping of waste along the shorelines, improper drainage, no planned development, inadequate toilet facilities, mosquitoes and flies breeding on the waste
  - In the entire study area of Zones 1 and 2, community bins were provided only near the Coast Guard area
  - Navneet lane was found to be prone to excess dumping of waste
  - The bin was being utilized by people staying in Zones 1 and 2, majorly by the people from Heeraseth Chawl, Waras lane, Bhandarwada and Pakhari galli. The waste dumped in the bin contained waste mainly from commercial establishments.
- Very few people segregate waste. It was found that the study area needs more developed solid waste management system, wherein the waste is segregated more efficiently at the source and segregated waste is collected properly and regularly from every household and from the community bins. MCGM played a crucial role in daily waste collection and cleaning open dumping areas.
- Existing MCGM solid waste collection process:
  - Waste collection from households started early in the morning at 7:30 am and continued till 10 am
  - Waste collection was done using pushcarts
  - Along with door to door collection of waste, street sweeping waste was also collected
  - Waste collection was an issue for the MCGM workers due to narrow lanes, lack of contribution from people towards optimum disposal of waste and open defecation
- Open defecation was observed in the study area
  - About 56% of the households surveyed population had personal toilets in their houses whereas 44% of the households were using public toilets
  - About 56 public toilets and 615 personal toilets were observed in zones 1 and 2

### 3.2 Methodology

A reconnaissance visit was carried out in Zones 1 and 2 to get a brief understanding of the study area. Each lane falling in the study area was noted. Two applications, i.e., Locus maps and Google Earth were used for the study. The questionnaire form was divided into three sections, i.e., demographic details, solid waste details and skill development activities. Details related to demography, solid waste generation and interest of people were noted.

### 3.3 Focus/ Target Group description

- **Respondent types**

Each household was approached for a door-to-door survey. The survey was carried out during day time when the male member(s) were out for work. Hence, majority of the primary respondents were females. A focus group discussion was conducted in the area where responses were less. The focus group targeted in the area included housewives. A meeting was arranged with them to obtain information on demography, attitude about solid waste management and psychographic factors.

- **Sample Size**

Total 1099 households in the study area were surveyed. While 538 households were closed, 364 households showed no interest in taking the survey.

- **Key Focus Areas**

- **Demographic aspects like**

- Origin
- Family background
- Education
- Occupation
- Size of family
- Toilet facility
- Economic status

- **Psychographic factors such as**

- Attitude towards the place
- Skills
- Aspiration towards employment
- Skill development

- **Existing solid waste management methods, prevailing issues and expectations of improvement in solid waste management process**

- Waste collection
- Segregation of waste
- Waste disposal - attitude, behaviour, key insights
- Involvement of the local community in solid waste management

### 3.4 Challenges and limitations in carrying out the survey

- Survey team faced issues such as closed houses, no response from the locals, general ignorance and outright rejection to fill the questionnaire occurred during the survey
- Respondents may have hidden or given incorrect information in sections of the questionnaire related to waste management, given disclosure issues in admitting to actual practice of waste collection, disposal, dumping, littering, open defecation

### 3.5 Key findings

- **Need gaps and opportunities**

It is a foregone observation that solid waste management in densely populated urban areas consisting higher population in the low income groups, is a challenge for local municipalities considering the common features of congestion, inaccessibility, and lack of awareness on part of the local residents. It is difficult to provide adequate infrastructure or ensure its maintenance due to such constraints. The same was observed in the present survey in the study area. However, this challenge also spells out an opportunity in terms of more and more involvement of the local residents in implementing a solid waste management system in partnership with MCGM. Solid waste is a resource is a well-proven fact and taking up end-to-end waste management opens up a wide variety of opportunities. To name a few:

- Onsite composting of waste leading to potential sale of compost and/ or urban farming
- Upcycling of dry waste
- Tie-ups with waste recyclers for commercially trading dry waste
- Inviting CSR funds towards waste management

Although the number of people segregating waste was less, it was found during the survey that about 96% of households agreed to use compartmentalized dustbins for solid waste segregation. This is an encouraging observation because waste segregation at the household level is not only dependent on individual's willingness but also on the prevalent social norms. Hence, a particular section can be targeted first wherein awareness sessions on waste segregation can be carried out while providing the residents with community bins for separate waste disposal and a person may be appointed for monitoring the same. The locals did not store wet waste in the house for a long time and hence, in such areas community bins can be useful, solving the issues of paucity of space within households. Also, this facility may lead to people acquiring the habit of regular waste disposal at a community level and later also at the region level, without hampering their present waste disposal timings.

### 3.6 Recommendations

- The study area was majorly influenced by improper waste handling practices and the main reason found was lack of awareness. In other areas where solid waste was being segregated into wet and dry waste categories, the people were unaware about the importance of proper disposal of solid waste in the dustbins. A major awareness activity needs to be initiated in the region wherein people are not just told about segregation of waste but also are explained about the necessity of disposal of waste in dustbins and finally to the waste handlers.
- Rag-pickers play a major role in waste management, and integrating them with the waste management system can ensure a respectable and financially satisfactory future for them. A Self Help Group (SHG)

of rag-pickers can be made and they can be trained as skilled waste dealers, who can directly sell the dry waste to the waste recyclers.

- As per the SWM Rules 2016, waste collection should be conducted door-to-door and hence, every household should be targeted. Proper waste collection facilities such as dustbins, wherever required should be provided. Awareness among commercial waste generators to keep containers for waste collection should be done. Create public awareness through information, education and communication campaign and educate the waste generators. Sanitary workers to be provided with proper Personal Protection Equipment (PPE).
- City and ward-level initiatives are critical for building a sustainable, replicable, scalable process model. Proper segregation would lead to better options and opportunities for scientific disposal of waste. Community participation in waste management should be initiated in the study area. This should be based on the principle of cooperation and partnership amongst Community Based Organizations (CBOs), Non-Government Organizations (NGOs) and the MCGM for managing civic services at the local level. A local committee can be established which will look after the smooth functioning of the system with respect to the planning and implementation.

#### 4. What is a Survey

A Survey is defined as a research method used for collecting data from a pre-defined group of respondents to gain information and insights on various topics of interest. Surveys can have several purposes and can be carried out in many ways depending on the methodology chosen and the objectives to be achieved.

The data is usually obtained through the use of standardized procedures the purpose of which is to ensure that each respondent is able to answer the questions without bias that could influence the outcome of the research or study. A survey involves asking people for information through a questionnaire, which can be distributed on paper, although with the arrival of new technologies it can also be conducted through various web portals or phone applications.

Effective survey questions are the cornerstones for the success of any survey and subsequently for any research study. Whether it is a personal face-to-face survey, email survey, SMS survey, web intercept survey or a mobile application based survey, the single common denominator that determines how effectively one is able to collect accurate and complete responses is the survey question.

Multiple choice questions are the most common type of survey questions, in which some of the popular question types are: dichotomous questions (having two possible answers, e.g. Yes/No type), semantic differential scale questions (a scale between two opposites, with the respondent indicating how close or far they are from the two options e.g., Happy- - - - Sad), rank order questions (where respondent ranks options on the basis of importance/ liking/ preference), rating scale questions (assigning numerical weights to options; such as Likert's scale) and open-ended questions (questions encouraging the respondent to give their opinion without being curtailed by multiple options).

There are many advantages of using surveys:

- A cost-effective way of reaching a large audience
- A way of collecting a lot of information in a short span of time
- Allows anonymity (if desired by the respondents)
- Allows statistical analysis
- Allows respondents to answer at their convenience, at a time and location where they are comfortable

Demographic surveys seek basic information about respondents that allows the survey designer to understand where each person fits in the general population. Typically, these surveys cover factors such as age, caste, place of origin, ethnicity, gender, marital status, income, time since residing, education and employment.

**Demographic survey and its relation to survey of the study area for waste management:**

A demographic survey is particularly significant from the perspective of effective solid waste management, as it has been proved by research that waste generation, its segregation, its disposal and its final fate are very deeply affected by a variety of demographic factors such as age, gender, education level, type of employment, and religious and cultural practices (Manaf et al. 2009, Beigl et al 2004). A properly managed effective waste management program increases the health and environmental quality of the country and survey is a crucial tool to help:

- Ascertain the baseline conditions, both qualitative and quantitative
- Identify all stakeholders
- Identify potential individuals who will participate in local waste management

The amount of municipal solid waste is highly variable and the accumulation of waste depends on several factors such as the number of inhabitants sharing a container, GDP per capita, lifestyle, time of the year, etc. Therefore, the considered waste collection problem is stochastic by nature (Nuortio, T., 2006).

## 5. Introduction to Solid Waste Management

Waste can be defined as material that is unwanted or unusable and no longer has any value to the person who is responsible for generating it. Various synonyms such as rubbish, garbage, refuse or trash have been used when referring to waste.

However, the term Municipal Solid Waste ('MSW') largely refers to non-hazardous solid waste from the kitchen and post-consumer waste obtained from houses, streets and public places, shops, offices, and hospitals. Management of such waste is most often the responsibility of waste generators, government bodies like municipal or other authorities. Although solid waste from industrial processes is generally not considered MSW, it nevertheless needs to be taken into account when dealing with solid waste because it often ends up in the MSW stream.

A typical waste management system consists of following elements:

- Waste generation and storage
- Segregation at household level
- Primary waste collection and transport to a transfer station or community bin or an appropriate collection area/ center
- Street sweeping and cleaning of public places
- Management of the transfer station or community bin or the collection center
- Secondary collection and transport to the waste disposal/ processing site
- Secondary segregation (manual and mechanical)
- Waste processing/ treatment (recycle and upcycle)
- Waste disposal in landfills

Human activities create waste, and the ways in which the waste is handled, stored, collected, and disposed of can either protect or pose risks to the environment and to public health. In urban areas, solid waste is generated by households, commercial and industrial enterprises, health care and institutional activities, as well as on the streets. In many cities, such MSW contains human and animal excrement as well as hazardous chemical pollutants. These may lead to diseases and injuries, especially among children, rag pickers, and employees in the waste management sector.

Solid waste management ('SWM') includes activities and processes namely segregation, recovery, storage, collection, recycling, processing, treatment or safe disposal. A proper SWM seeks to minimize health, environmental and aesthetic impacts of solid waste. In urban areas, problems and issues of municipal solid waste management ('MSWM') are of immediate importance. Most governments and local bodies have acknowledged the importance of MSWM but rapid population growth overpowers the capacity of most municipal authorities to provide even the most basic services.

Solid Waste Management Rules, 2016 [superseding The Municipal Solid Wastes (Management and Handling) Rules, 2000] notified by Ministry of Environment, Forest and Climate Change, made by Central Government in exercise of the powers conferred by the Environment (Protection) Act, 1986] applies to every municipal authority responsible for collection, segregation, storage, transportation, processing and disposal of municipal solid wastes.

### **Some major rules according to Solid Waste Management Rules, 2016:**

#### **Duties of waste generators:**

- Segregate and store the waste generated by them in three separate streams namely bio-degradable, non-biodegradable and domestic hazardous wastes in suitable bins and handover segregated wastes to authorized waste pickers or
- Wrap securely the used sanitary waste like diapers, sanitary pads etc., in the pouches provided by the manufacturers or brand owners of these products or in a suitable wrapping material as instructed by the local authorities
- Store separately construction and demolition waste, and dispose off as per the Construction and Demolition Waste Management Rules, 2016
- Store horticulture waste and garden waste generated from her/his premises separately in her/his own premises and dispose of as per the directions of the local body from time to time
- No waste generator shall throw, burn or bury the solid waste generated by her/him
- Every street vendor shall keep suitable containers for storage of waste generated during the course of her/his activity
- All resident welfare and market associations shall ensure segregation of waste at source by the generators as prescribed in these rules, facilitate collection of segregated waste in separate streams, handover recyclable material to either the authorized waste pickers or the authorized recyclers
- All gated communities and institutions with more than 5,000 sq. m area shall, ensure segregation of waste at source by the generators as prescribed in these rules, facilitate collection of segregated waste and handover accordingly

**Duties and responsibilities of local authorities and village Panchayats of census towns and urban agglomerations:**

- Prepare a solid waste management plan as per state policy and strategy on solid waste management
- Arrange for door-to-door collection of segregated solid waste from all households including slums and informal settlements, commercial, institutional and other non-residential premises
- Establish a system to recognize organizations of waste pickers or informal waste collectors and involve them in the process
- Facilitate formation of Self Help Groups and integrate them in the door-to-door management
- Setup material recovery facilities or secondary storage facilities with sufficient space for sorting of recyclable materials; bins for storage with appropriate color codes
- Establish waste deposition centers for domestic hazardous waste and give direction for waste generators to deposit domestic hazardous wastes at this center for its safe disposal
- Direct street sweepers not to burn tree leaves collected from street sweeping and store them separately and handover to the waste collectors or agency authorized by the local body
- Provide training on solid waste management to waste-pickers and waste collectors
- Collect separately waste from sweeping of streets, lanes and by-lanes daily, or on alternate days or twice a week depending on the density of population, commercial activity and local situation
- Set up covered secondary storage facility for temporary storage of street sweepings and silt removed from surface drains
- Collect horticulture, parks and garden waste separately and process in the parks and gardens, as far as possible
- Transport construction and demolition waste as per the provisions of the Construction and Demolition Waste management Rules, 2016
- Educate workers including contract workers and supervisors for door-to-door collection of segregated waste and transporting the unmixed waste during primary and secondary transportation to processing or disposal facility
- Ensure that the operator of a facility provides personal protection equipment including uniform, fluorescent jacket, hand gloves, raincoats, appropriate foot wear and masks to all workers handling solid waste and the same are used by the workforce
- Create public awareness through information, education and communication campaign and educate the waste generators
- Allow only the non-usable, non-recyclable, non-biodegradable, non-combustible and non-reactive inert waste and pre-processing rejects and residues from waste processing facilities to go to sanitary landfill. Detailed SWM Rules, 2016: [http://www.moef.nic.in/sites/default/files/SWM%202016\\_0.pdf](http://www.moef.nic.in/sites/default/files/SWM%202016_0.pdf)

## 6. Survey Study Area

Worli Koliwada is an area located in the southern part of Mumbai, which is a part of the seven islands that formed Mumbai. It is home to various settlers belonging to communities such as Koli, Agri and Bhandari. Also, many people from other parts of the country have found a home in the area. This area is home to the Worli Fort, which is a heritage monument. The Worli Koliwada area also falls in the Coastal Regulation Zone – III and hence, is declared as sensitive as per the Coastal Zone Regulation Notification, 2011 as it is bound by sea from three sides. It is also sensitive from a Defence perspective, as the Indian Coast Guard has active operations abutting it. An additional factor that makes Worli Koliwada sensitive from a security viewpoint is its proximity to the Bandra-Worli Sealink.



Figure 2: Google Earth Imagery of Study Area

The geology of the area is largely rocky. The houses in the area are quite densely packed. A google earth imagery of the study area is presented in Fig. 1 and study area for survey have been marked.

Entire Worli Koliwada has been divided into eight zones on the basis of major roads and landmarks; following are the demarcations set by the G5A cityLAB team:

- Zone 1: Waras Lane to Bhandarwada Lane to Navneet Lane
- Zone 2: Bhandarwada Lane and Navneet Lane to Pakhari Galli
- Zone 3: Pakhari Galli to Sankalp Lane
- Zone 4: Sankalp Lane to Cemetery
- Zone 5: Cemetery to Ghoda Dabka Ground
- Zone 6: Ghoda Dabka Ground to Sai Baba Temple
- Zone 7: Sai Baba Temple Road to Church
- Zone 8: Church to Worli Tip Jetty

## Survey Report

The survey was carried out in the first two zones i.e., Zones 1 and 2. The study area consists of about 2001 households. Out of the total, 1099 households were surveyed. However, 538 households were closed. 364 households showed no interest in taking the survey.

## 7. Survey Methodology

A reconnaissance visit was carried out in Zones 1 and 2 to get an initial hold and understanding of the study area. Each lane falling in the study area was noted. Two applications, i.e., Locus maps and Google Earth were used for the study. Area and boundaries of the study site were marked using Google Earth imagery and Locus map was used to understand the boundaries of the zone and track completion of the areas of the two zones.

The questionnaire form was divided into three sections: Demographic, solid waste and psychographic details.

- a. **Demographic data:** In demographic data, details related to locality, nativity, number of persons in a family, age, caste, education, occupation, income, use of smart phone, skills, area of the house, toilet facility, and attitude (like/ dislike) regarding their place of residence were noted.
- b. **Solid Waste:** Type of waste generated, quantity of waste generated, segregation of waste, containers used for collection, storage and disposal of waste, fate of dry waste (whether dumped or sold to scrap dealers), issues related to solid waste, health issues, suggestions for improvement of solid waste collection/ disposal and readiness to contribute to solid waste management were assessed through the questions in this section.
- c. **Psychographic details:** Attitude of people towards the place, lifestyle, interest of people in various skill development activities and their willingness to learn new things and ways in which they would like to contribute to Project Swachh Worli Koliwada were gauged through the questions in this section.

A soft copy of the form is given as Annexure I.

The survey was conducted for a period of 25 days with a team of 3 members. The households were approached by the surveyors. Time taken for filling each form was between 15 to 25 minutes. The people living in the locality were from diverse locations and hence, the language for communication used was Marathi and Hindi. The time selected for conducting the survey was from 9 am to 5pm.



Figure 3: Interaction with the locals



Figure 4: Interaction with the locals

## 8. Survey Key Focus Areas

### 8.1 Demographic Details

#### 8.1.1 Nature and distribution of population in the study area

**Natives:** The locals inhabiting the area were majorly Hindus, belonging to the Bhandari, Koli, Agri and Maratha caste. On the basis of demographic survey, it was found that about 75% households of the study area are native to the region.

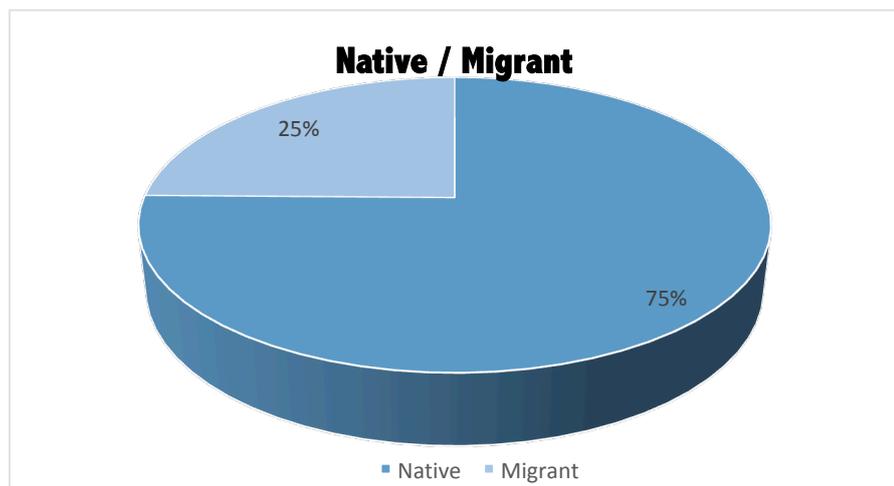


Figure 5: Percentage of native and migrant households in the study area

However, Mumbai is considered a melting pot with migrants from other parts of Maharashtra and India relocating here for employment opportunities. Same was found to be true for the study area i.e conversely, estimated population of migrants in the study area was found to be

25%. People originally from Rajasthan, Karnataka, Andhra Pradesh, Bihar, Himachal Pradesh made up the remaining numbers.

**Different castes of population:** In the entire study area, maximum people were found to belong to Agri caste i.e. 12% of the total population; followed by Maratha (11%), Bhandari (10%), Koli (7%) and Christian (5%). About 13% of the study area comprised of Maharashtrian population belonging to various castes like Sutar, Teli, Vani, Chambhar, Malvani, Matang Samaj, Jaibhim, Ghati, Gavali, Gurav, Shimpi, Kurbi, Kori, Shetigar, Vaishya. Whereas 41% of the population was found to be other Non- Maharashtrian.

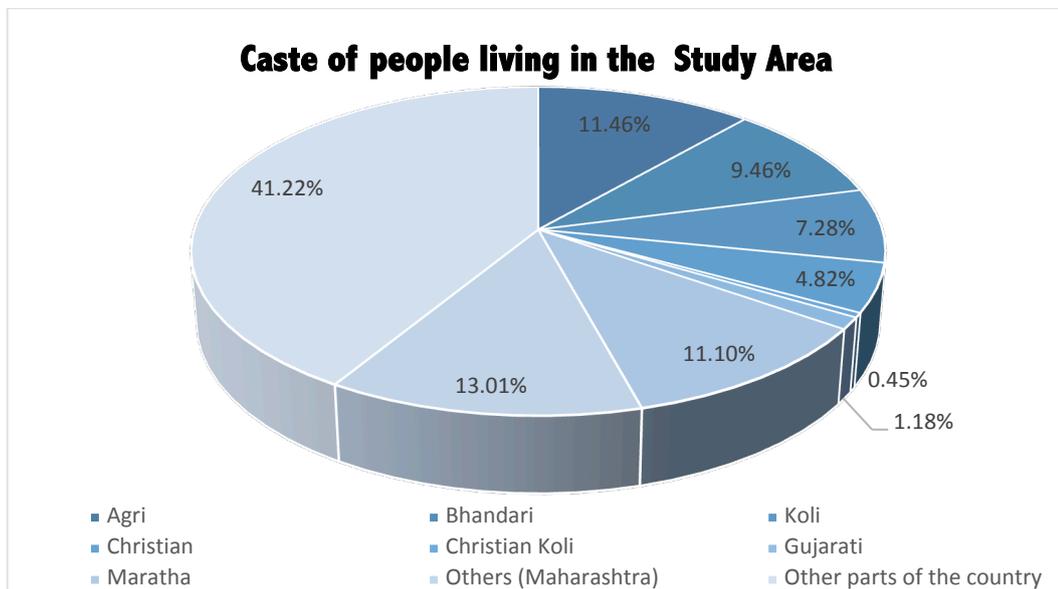
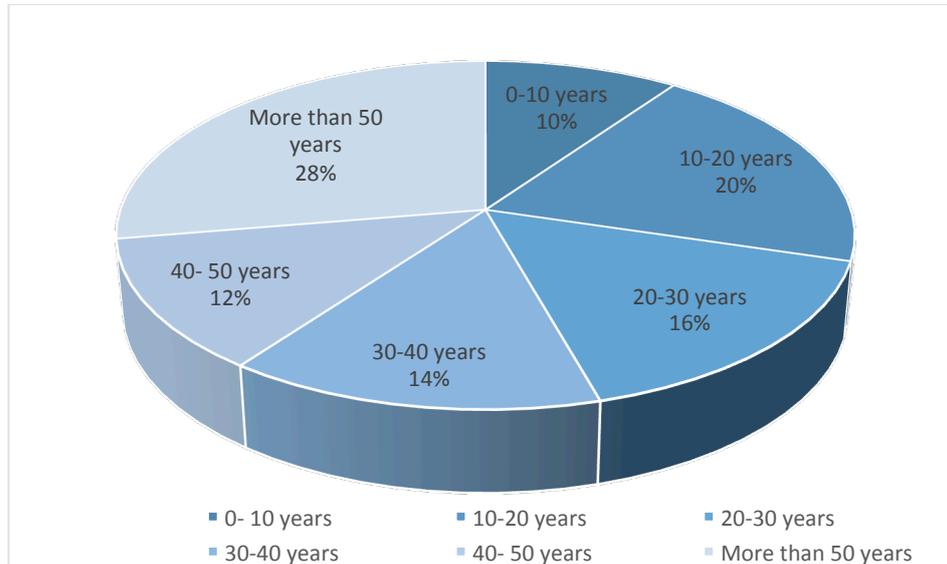


Figure 6: Caste of people living in the study area

**Religious beliefs also impact solid waste management systems and practices. Waste such as garlands, incense boxes, food served in temples or other religious places are thrown in the sea. Also, people believe in various days as being holy and avoid consuming non-vegetarian food on those days. Such days include Monday, Tuesday, Thursday, Friday and Saturday. Hence, proportion of meat and poultry related waste in the total wet waste generation on Sunday and Wednesday were found to be higher when the amount of non-vegetarian food consumption was higher.**



**Figure 7: No. of years since people have been living in the study area**

The population of locals living in the area since more than 50 years covers about 28% of the total population. About 20% are living in the area since 10-20 years, followed by 16% from 20-30 years, 14% from 30-40 years and 12% from 40-50 years. Only 10% population is fairly new staying there for less than 10 years

### 8.1.2 Family Size

The family size helps in determining the development in the region as well as the economic background and also to some extent can help for better planning of systems and infrastructure for the area. The family size in the area varied from 2 to 10 members. While a 3-member family was found to be most common.

### 8.1.3 Education

Education has a fundamental role to play in personal, professional and social development. It leads to a deeper and more harmonious form of human development and thereby helps to reduce poverty, ignorance, exclusion and oppression. A part of the population in the study area has also shifted to the area for education purpose.

Out of the surveyed population, 22.83% of the population had not completed SSC, 24.87% had completed their education up to SSC and 52.30% of the population had completed education beyond SSC.

### 8.1.4 Special Skills

Very few people mentioned about their skills. A diagrammatic representation of which is given in Fig 7. below. Among the surveyed households skills such as drawing, dancing, playing football, cooking, photography, music, tailoring, computers, mehendi, teaching and driving were reported. Among the individuals who mentioned about their skills, 37% had art related skills, 37% had drawing skills and 20% were good in sports.

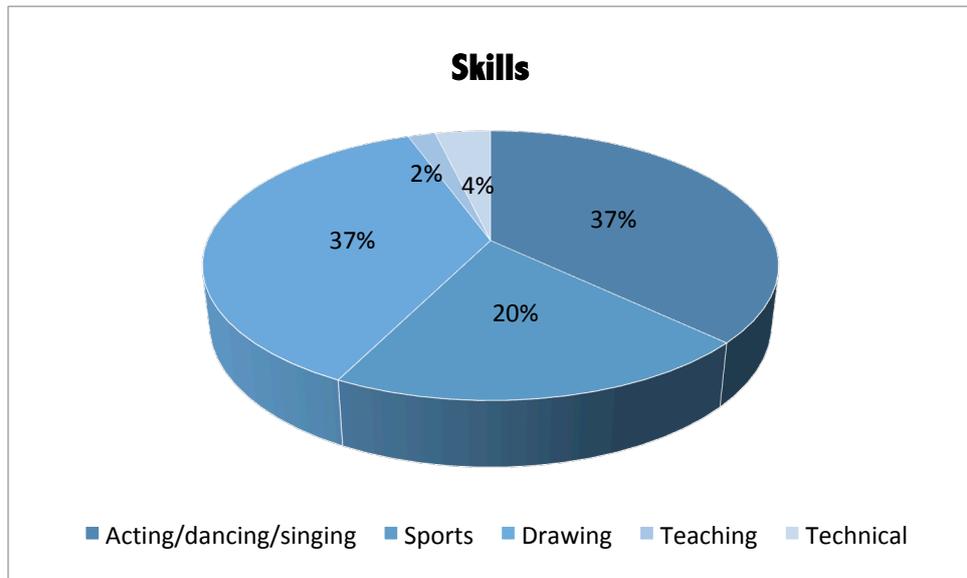


Figure 8: Special skills of people in the study area

### 8.1.5 Profession

People with higher qualifications like PhD, LLB, Chartered Accountancy, Microbiology, Engineering were also found. However, the population of less qualified people was more when compared to the ones with a degree or higher education. Education among females in the area was quite low.

Major population in the area was that of taxi drivers by profession followed by people doing personal MSME businesses. Other occupations like tailoring, teaching, electricians, tourism, were also observed in good number. People also worked as saree sellers, photographers, garage workers, in animation industry, army, in construction, as cooks, food stall owners, shopkeepers, accountants, lawyers, bus conductors, real estate agents, MCGM workers.

### 8.1.6 Lifestyle

- **Area of the Houses**

The study area is densely covered by small houses and narrow lanes built in the study area. The houses seemed to be built without proper planning and thus, the shape and sizes of households were not fixed or standard. Houses mainly have a rectangular shape, with kitchen and bathroom at one corner without proper separation from the living room. 61% of households were between 100-200 sq. ft. area, 28% lived in even less than 100 sq. ft area, 6% have area between 200-300 sq. ft, 3% lived in spaces between area of 300-500 sq. ft., whereas households with an area more than 500 sq. feet were found to be least (2%).

The living room was usually seen to be used as a bedroom also. Some houses have one more additional floor along with the ground floor. Very few houses in the study area had their roof covered with compact concrete material. Most houses had their roof made of rectangular roofing sheets.

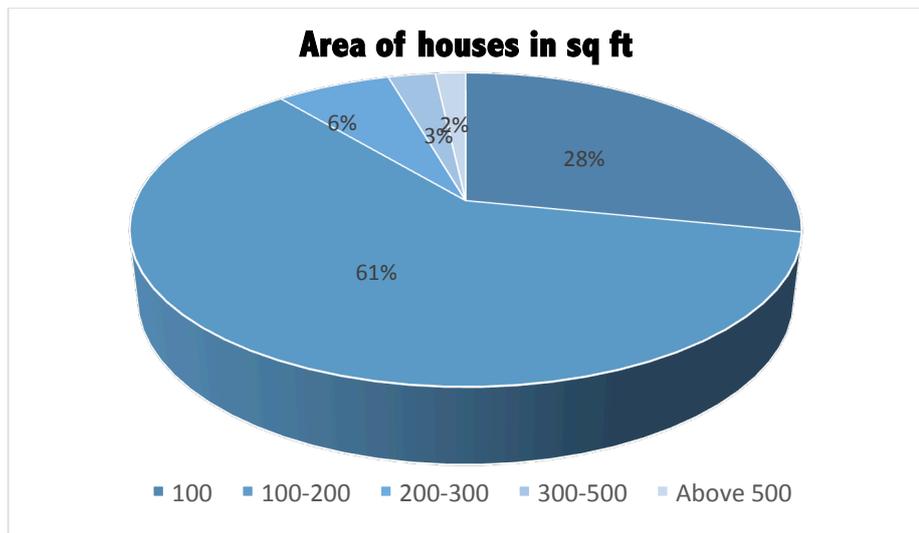


Figure 9: Area of the houses in sq. ft.

- **Attitude about the study area**

The study area is situated at a prime location in South Mumbai and has various facilities, easy transportation connectivity, communication towers, availability of local and affordable market/ shops, schools and colleges being nearby. Worli Koliwada area is also known for the Worli Fort, which is a heritage site of historic importance. Hence, the place has become a feasible option for the migrating crowd. The people staying in the area were found to be fond of the Worli Sea link, which is a major tourist attraction.



Figure 10: Worli Sealink

Various temples like Gofa Devi Temple, Sai Baba Temple are other spots popular among the residents. Community bonding was reflective in the fact that many respondents appreciated the friendliness and warmth of their neighbourhood and the same was observed as being one of the reasons they liked living in the area.



Figure 11: Fish Market

However, along with the various reasons for liking the place, there are various challenging aspects in the study area which people disliked. Few of the reasons cited were the unplanned development, narrow lanes and lack of toilet facilities. Also, during rainy season, water accumulation causes discomfort in commuting and also becomes a breeding ground for mosquitoes and thus, leading to unhygienic conditions and diseases. These were also the seasonal challenges mentioned by the people in the study area. Open dumping and no regular cleaning of drains were other issues reported by people.

**Near the community bin, there is a canal which is connected to the waste water treatment plant. Community felt that the same is not operating well and hence, was mentioned to be one of the causes for breeding of mosquitoes. Another aspect found about the attitude of people towards waste disposal is that they do not prefer community bins close to their houses due to the odour, unhygienic disposal and over spilling of waste.**

- **Smart phones availability and usage habits**

The use of smart phone in the country has risen up to a considerable level. Smart phone use depends upon three factors, i.e., need of the phone, education and income status of the people. There were about 1163 smart phone users in the study area.

• **Toilet Facility:**

The houses in the study area lack toilet facility due to space constraint, lack of drainage facility and insufficient area/ space for construction. About 56 public toilet seats and 615 personal toilets were observed in zones 1 and 2. Out of the households surveyed, 56% of the population had personal toilets in their houses. Toilets have been provided by MCGM in the study area, which mainly were being used by people who have no toilet facility in the house. Also, in areas like Near Kashibai cottage there are common washrooms which are shared between 3-4 houses. Open defecation was also observed in the study area, the reason for which was found to be longer waiting time for the toilet. As per norms [Swachh Bharat Mission (Urban) Guidelines], one community toilet seat for every 35 men and one community toilet seat for every 25 women has been recommended. On the basis of the survey, about 5% of the population (residing near Golfadevi Mandir) mentioned that they used shoreline area for open defecation.

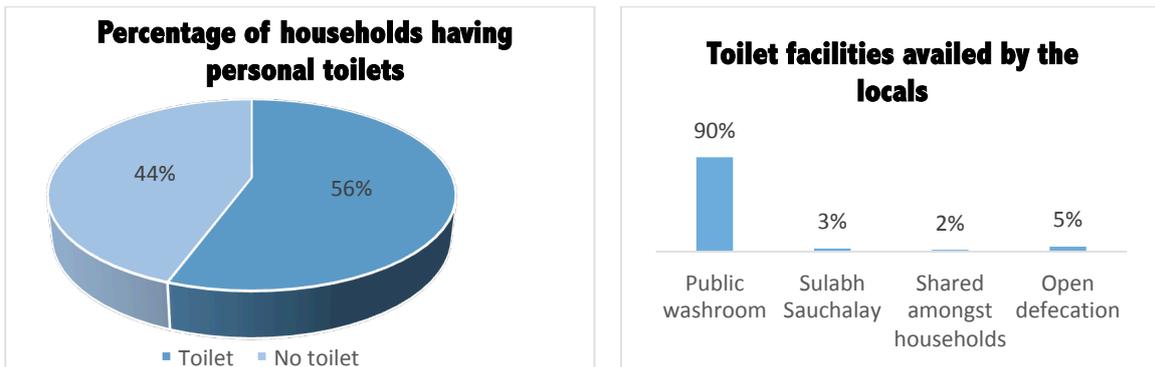


Figure 12: Toilet facilities availed by people in the study area



Figure 13: Toilet Facility in Navneet Lane

After interacting with people in few localities, such as near Golfadevi temple, it was found that in spite of having personal toilets, people go for open defecation along the seaside. The reason mentioned was the habit of using shoreline for open defecation since a long time.

## 8.2 Solid Waste

Socio-economic development and solid waste management are correlated with each other. To increase standards of living it is necessary to manage solid waste and generate awareness about its challenges and effects of solid waste management. To implement any solid waste management system leading to development of any area, a basic study of its solid waste related activity is required. This helps in analyzing the gaps and in understanding people's perception regarding its management.

### 8.2.1 Solid waste generation

- On an average the total quantity of waste generated from each household is ~0.861kg.
- The total waste generated in Zones 1 and 2 is ~1723 Kg

### 8.2.2 Solid waste segregation and disposal

- Solid waste type and storage

During the survey it was found that the households generated following types of waste:

- **Kitchen waste:** Vegetable peels, fruit peels, non-vegetarian food waste (primarily fish), spoilt food
- **Dry waste:** Plastic bottles, milk bags, newspaper, books, cans
- **Biomedical waste:** Boxes of pills, syrups
- **Hazardous waste:** Diapers and sanitary pads

The people in the study area used plastic bags, plastic bins and metal bins for storing of waste in the households. About 7% of surveyed households used plastic bags for collection of waste, 91% used plastic bins while 1% use metal bins for disposal of waste. Smaller households also used cardboard and cloth bag for waste storage.

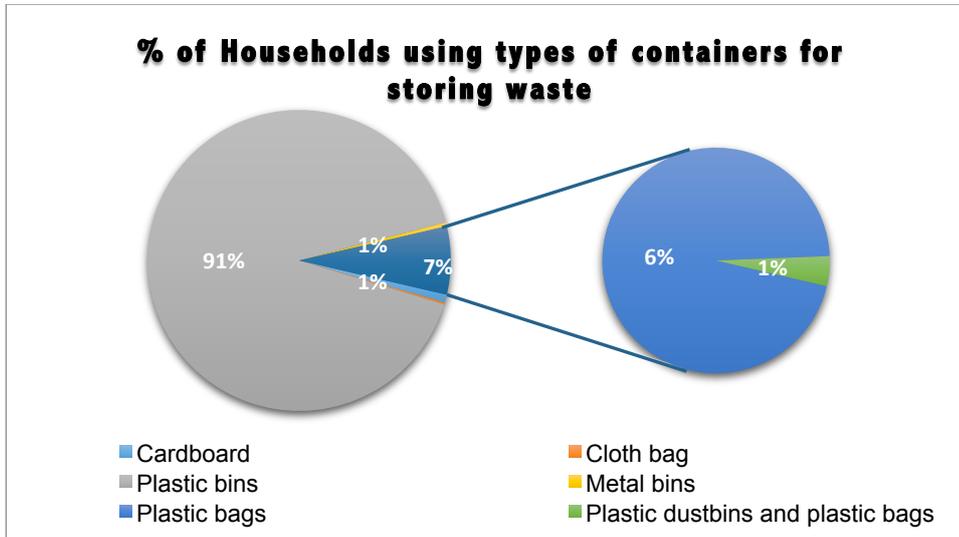


Figure 14: Households using types of containers for storing waste

Cardboard is mainly used for storing dry waste. About 1% of the population also used both plastic dustbins as well as plastic bags.



Figure 15: Containers used for storage and disposal of waste



Figure 16: Containers used for storage and disposal of waste

- **Segregation of solid waste**

Segregation of solid waste refers to the separation of solid waste into wet waste and dry waste, the purpose of which is to recycle dry waste easily and to use wet waste as compost. No proper waste segregation was observed in the study area. Reasons mentioned for the same were that the community bin was not separate for dry and wet but rather common and also that the collected waste was mixed later on despite segregation, and lack of awareness.

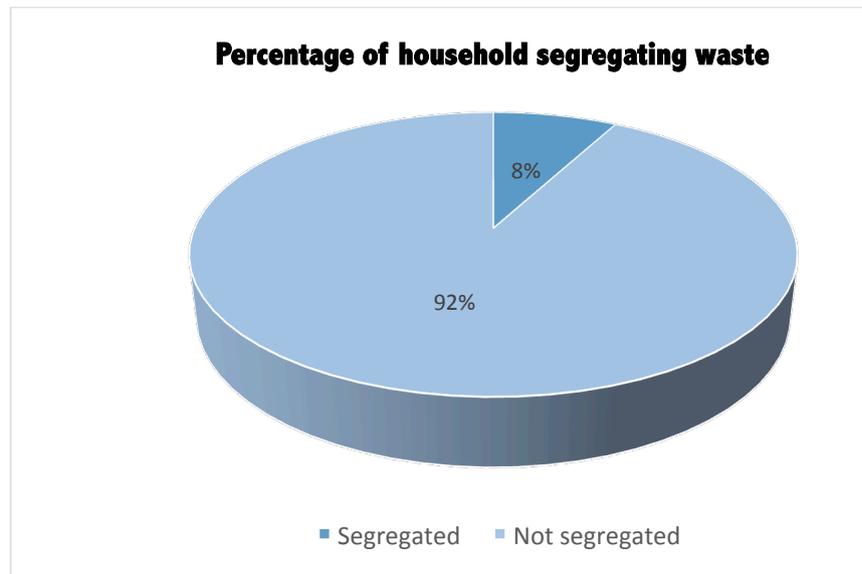


Figure 17: Status of solid waste segregation in the study area

About 92% of the households did not carry out segregation of solid waste. A small number forming about 8% of the households mentioned that they carried out segregation of solid waste using two dustbins or keeping wet waste separately in plastic bags. Major reason found for carrying out segregation was to avoid the dustbin getting dirty.

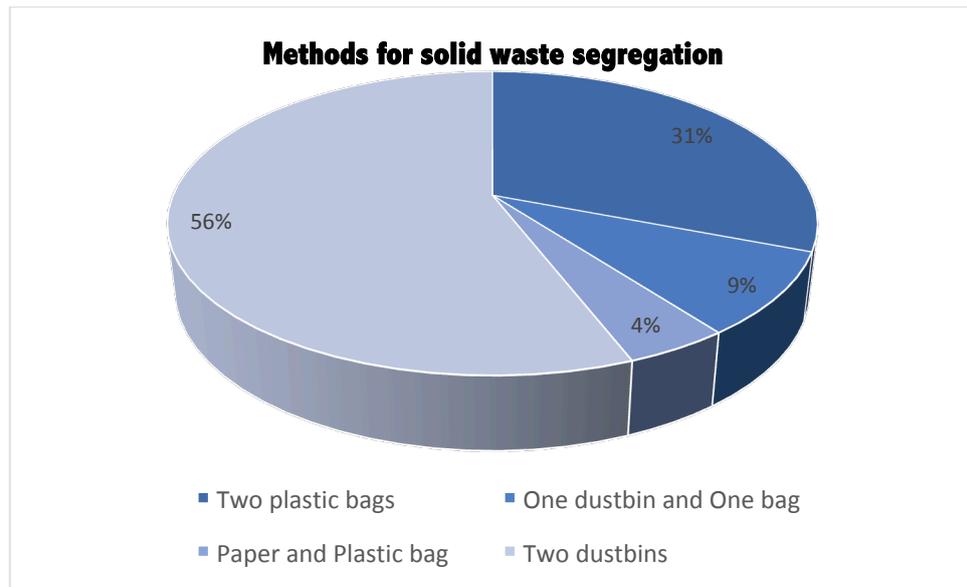


Figure 18: Methods of solid waste segregation

### 8.2.3 Solid waste disposal - attitude, behaviour, key insights

People in the region used plastic bags, plastic dustbins, cardboard and cloth bags for disposal of waste. About 49% of people threw their solid waste directly from their plastic dustbins, whereas 50% used plastic bags to dispose of solid waste. A negligible number of respondents used cardboard and cloth bag for disposal of solid waste.

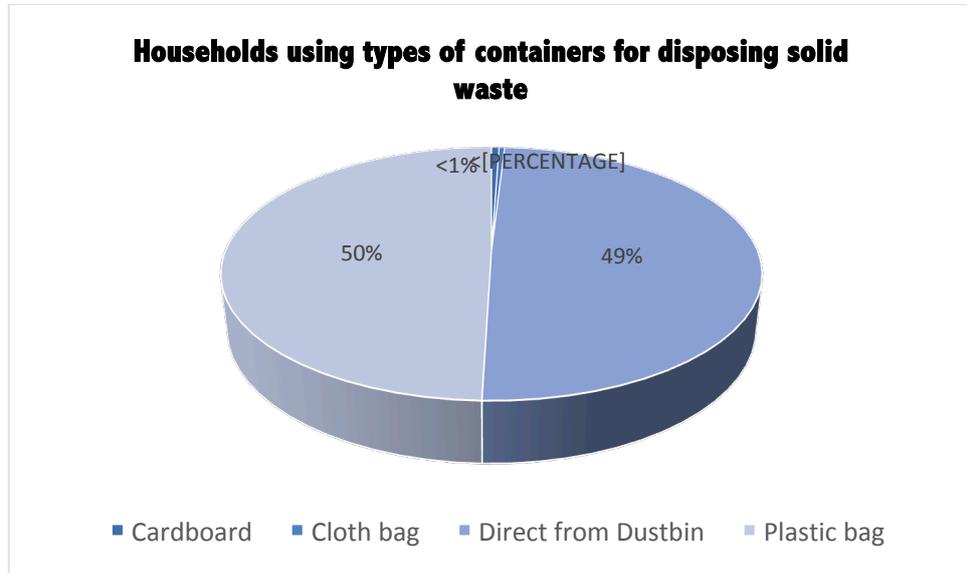


Figure 19: Households using types of containers for disposing solid waste

The solid waste was disposed into the community bin, MCGM Ghanta Gadi, trash cart or was being dumped openly on land or in sea. The waste was disposed mostly during early morning and at night. People mainly from the Pakhari Galli, Golfadevi Temple, few from Navneet Lane and rarely from Heeraseth Chawl disposed their waste in Ghanta Gadi. Community bin near Coast Guard area was being used extensively by people from the Heeraseth Chawl and Waras Lane to dispose of their waste. Trash cart was used by people from Bhandarwada, Amar Prem Lane and Navneet Lane to dispose their waste. People from Golfadevi Mandir, Buddha Galli, Navneet Lane, Pakhari Galli, Omkar Mandal disposed of their waste in open sea, whereas people from Navneet Lane also mentioned about disposal of waste by them in open.

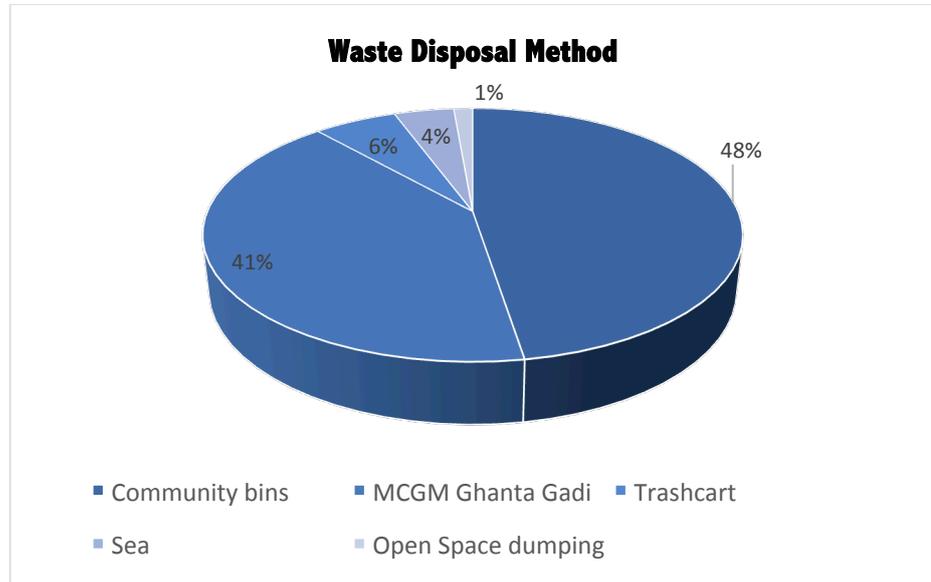


Figure 20: Waste disposal methods

About 48% of households disposed of their waste in community bins while 41% of households dumped their waste in Ghanta Gadi; 6% of population disposed their waste in trashcart and remaining 5% preferred open dumping.

**The people in the study area do not store wet waste in their houses for a long time and prefer throwing it in the community bin or along the shoreline in open.**



Figure 21: Waste disposal in community bin



Figure 22: Waste disposal in the Trash Cart

The solid waste disposal time in the area was mostly in the early morning or late at night. About 59% of households disposed their solid waste at night from 6pm to 12 am. 22% of the households disposed their solid waste from 6am to 10am. 5% of households disposed their waste during afternoon time while 8% had no fix waste disposal time.

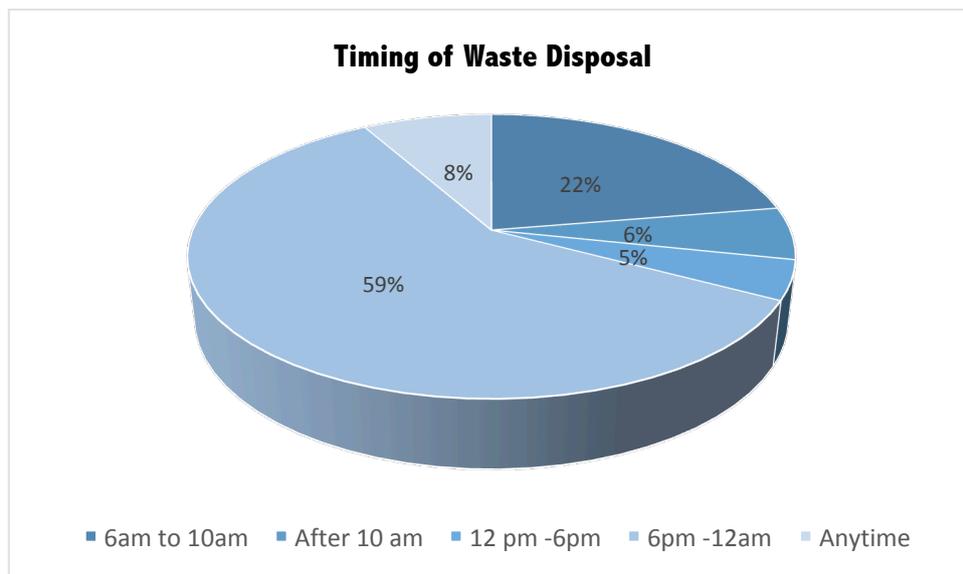


Figure 23: Timing of Waste Disposal

The waste disposal was mostly done by the female member of the family and the percentage of the same was found to be 31% compared to the male population of 21% disposing waste.

About 30% of households mentioned that waste disposal was done by any member of the family. In some households, waste was disposed of by servants.



Figure 24: Waste disposal by family members

Also, dry waste was sold by the locals to nearby scrap dealers or waste collectors who visit the lanes. Waste such as newspaper, books, metal, plastic bottles are sold to the waste buyers. This was the practice with respect to reusing/ recycling waste.

#### 8.2.4 Role of MCGM in solid waste management and challenges:

- MCGM played a crucial role in daily waste collection and cleaning open dumping areas and community bins
- Existing process
  - Waste collection from households started early in the morning at 7:30 am and continued till 10 am
  - Pushcarts were used for the collection process
  - Alongwith door-to-door collection process, street sweeping waste was also being collected by MCGM
- Challenges faced

Waste collection process was an issue for the MCGM workers due to narrow lanes, lack of contribution from people towards disposal of waste, open dumping and open defecation

### 8.2.5 Willingness to pay maintenance fee

The people in the region were willing to pay a maintenance fee for solid waste management. About 69% households agreed to pay INR 10-20 per month followed by 14% willing to pay INR 20-30 per month. Negligible number of people agreed to pay more than INR 30 per month. Also, 15% of the households were not willing to pay any fee.

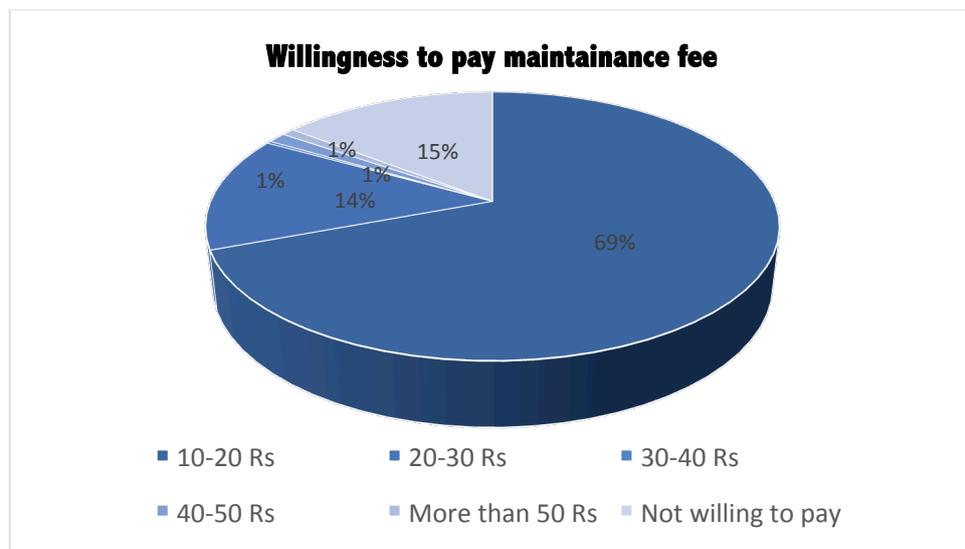


Figure 25: People willing to pay maintenance fee

**The reasons mentioned for not paying were:**

- Already paying to workers for cleaning their lane
- Waste disposal already done by them in the community bins
- Cleaning of the lanes by themselves sometimes
- Unwilling to pay to private parties as they wanted the government body to do the work
- In areas like Golfadevi Mandir, the respondents mentioned that they did not need anyone for maintenance as they themselves disposed their waste in the Ghanta Gadi at night, which passes from the nearby road

### 8.2.6 Contribution of locals in Solid Waste Management

Few people are interested in contributing towards solid waste management by:

- Maintaining their own waste management system and disposing it appropriately
- Cooperating if any activity is carried out
- Participating in a group activity
- Volunteering in various solid waste management activity
- Creating awareness among people
- Increasing people's participation in solid waste management
- Segregating solid waste

### 8.2.7 **Issues pertaining to solid waste**

Improper waste management leads to various issues in an area. It reduces the aesthetic value of the area. Solid waste dumped attracts disease causing scavengers like rodents. Also, wind flow brings bad odour to people living in the surrounding area.

The groups at risk from the unscientific disposal of solid waste include the population in areas where there is no proper waste disposal method. Other high-risk groups include population living close to an open waste dump and those whose water supply has become contaminated either due to waste dumping or leakage from landfill sites. Uncollected solid waste also increases the risk of injury and infection. Direct and unscientific handling of solid waste can result in various types of infectious and chronic diseases, with the waste workers and the rag pickers being the most vulnerable.



Figure 26: Roadside dumping of waste



Figure 27: Dumping of waste at shorelines



**Figure 28: Open drains clogged with waste**

In the study area, people face various solid waste related issues such as less efficient collection of waste, inaccessibility to households leading to lack of regularity and punctuality among the MCGM workers, stink of rotting wet waste in the area, open dumping, improper drainage, unplanned development, mosquitoes breeding on the waste.

The locals suggested various improvements with respect to solid waste issues. They recommended that the development in the area should be planned; garbage should be cleaned on a daily basis, time to time cleaning of drains and timely cleaning of toilets.

Out of surveyed households, negligible numbers of people were prone to jaundice, dengue, malaria, fever, cough and cold.

### **8.2.8 Challenges/gaps in segregation, collection, disposal, management**

#### **Segregation**

About 96% of households agreed to use compartmentalized dustbins for solid waste segregation. This will also be dependent on collection pattern by MCGM / NGO and the system and infrastructure followed in the neighbourhood. 4% of the households denied to use compartmentalized dustbins citing reasons like less space to store waste, no major wet waste generated, lack of interest in contributing to the cause.

#### **User maintenance fee**

The people who mentioned about paying fee, also mentioned that they would pay only if their neighbours were also willing to pay. They alone would not pay the fee when the service is being availed by everyone.

**Insufficient infrastructure**

Another issue in the region was lesser community dustbins with compartments and door-to-door solid waste collection activity. The people in the study area did not store wet waste and preferred immediate disposal after generation. Thus, providing compartmental community bins adequate in number and size at strategic points play a major role.

**8.2.9 Challenges & limitations of the survey**

- Issues such as closed houses, no response from the locals, general ignorance and outright rejection to fill the questionnaire occurred during the survey
- Respondents may have hidden or given incorrect information in sections of the questionnaire related to solid waste management, given disclosure issues of information in admitting to their actual practice of littering, open defecation

**8.3 Psychographic details**

• **Aspirations for self and family**

A major group of people showed no interest in any activity relating to solid waste, the reason being lack of time and lack of awareness. About 36% of the households were ready to attend workshop while 64% showed no interest.



Figure 29: Interest of people in attending workshops

The people who showed interest also mentioned that their attendance will depend on their availability and could attend the workshops with prior information.

## 9. Conclusion and Recommendations

### 9.1 Conclusion

#### 9.1.1 Inadequate infrastructure and system

It was found that the study area had improper solid waste management system. The households lacked segregation and did not have efficient collection system for solid waste. The solid waste was mixed and thrown in the community bin located near Coast Guard office. Owing to overflowing community bins, it can be concluded that number of community bins was lower than the requirement, collection from community bins and public area was irregular and infrequent which led to disposal of waste in open. As a part of survey, it was observed and found that people had to wait for longer period to be able to use the community toilet. This would lead to a conclusion that irrespective of meeting the toilet-to-population ratio, the number of community toilets were less in the region as this was also one of the reasons found for open defecation.

#### 9.1.2 Lack of awareness

A major reason for improper solid waste management at household level was found to be lack of awareness among the people about the concept of solid waste management and benefits/ effects on the community if they segregated their solid waste. Very few people in the locality sold their dry waste to the scrap dealers.

#### 9.1.3 Perception

The most important aspect of successful solid waste management is to ensure that one's perception regarding waste is changed – solid waste must be understood and considered as a resource. Solid waste generators must understand what happens to waste once they dispose it of into the dustbin, how the story of solid waste goes beyond the dustbin and how it helps millions earn their livelihood. Also, it is necessary to generate respect and admiration for the waste handlers, rag pickers, scrap dealers and waste collectors as being the messengers of cleanliness or 'Swachhata Doots'.

#### 9.1.4 Interest in participating in skill development activity

The interest of people in attending various skill development activities was less and their decisions on attending the same would strictly depend on their availability.

## 9.2 Recommendations

Any plan or new operation, which involves the contribution of a large community cannot be optimally applied in a group lacking awareness on the concerned issue. In many locations in spite of adequate facilities and planning, solid waste management fails due to lack of awareness among residents in maintaining cleanliness of the city. It will be nearly impossible for the civic body to provide better surroundings if residents do not make an effort to deposit waste into the bins and stop the practice of throwing garbage onto the road (Kumar S. Bhattacharya et al, 2009).

### 9.2.1 Awareness

The study area was majorly influenced by improper waste handling practices. The main reason was found to be lack of awareness. In other areas where solid waste was being segregated into wet and dry categories, the households were still unaware about the importance of proper disposal of solid waste in the dustbins and effects of segregation. A major activity that needs to be initiated in the study area is awareness, wherein people are not just told about segregation of waste but are also explained about the necessity of disposal of waste in dustbins and finally to the waste handlers. A wholesome approach needs to be taken where people are introduced to various aspects of solid waste from cradle to grave, covering the impact on the aesthetic value of the place, health of the people, hygiene and pollution.

### 9.2.2 Working towards developing a streamlined SWM system

The present solid waste management system was partly responsible for improper waste disposal in the region. The people in the region complained about the irregularity of the waste collectors, less efficient cleaning of waste and no waiting time for people to dispose of solid waste.

#### **Awareness about importance of segregation of waste and proper disposal**

The local community can be made aware about the importance of segregation of waste into wet and dry waste at primary level and also about importance of proper disposal of waste in the dustbins. This could lead to a behavioural change in the community and help introduce, implement and streamline a solid waste management system in the region.

#### **Sufficient number of community bins at strategically planned locations**

The area had less number of community bins as the garbage was seen to be spilling out of the bins and the situation was worse on days like Thursday and Monday. A proper estimation

of waste that is generated on daily basis and other exceptional days needs to be considered and capacity of and number of bins should be increased accordingly. The collection bins must be appropriately designed with features like containers with lids. They should also have a large enough capacity to accommodate 20% more than the expected waste generation in the area. Also, 2 separate community bins for wet and dry waste should be placed strategically in all zones, making it easily accessible to people.

### **Personal Protective Equipment**

Waste being heterogeneous in nature also contains hazardous substances. The waste handlers were found to handle waste without any safety gears. All the waste handlers should be given proper training in waste collection and should be made aware of utilization of safety gears.

The MCGM workers can be an active part of shoreline cleaning. The waste piled up during cleaning by “Beach Warriors” was irregularly collected by the workers. The MCGM workers can contribute in collecting waste from the shoreline and dispose it appropriately and correctly. Demolition waste was also an issue in few parts of the study area. This waste would be recommended to be cleared on timely basis by MCGM workers.

### **9.2.3 Sustainable Waste Disposal Techniques**

During the survey it was found that, at the level of waste generation and collection, there was no source segregation of compostable waste from the other non-biodegradable and recyclable waste. Proper segregation at source of waste generation would lead to better resource recovery and options for scientific disposal of waste.

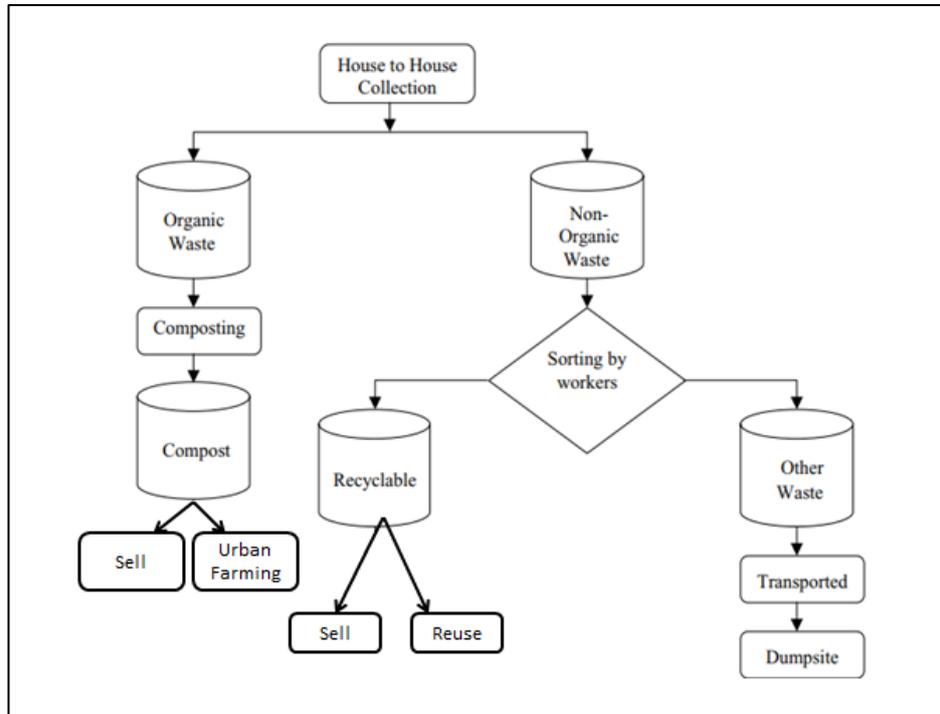


Figure 30: Optimal waste management strategy

Activities such as door-to-door collection would lead to efficient collection of MSW. MSW should be segregated at source and the wet waste generated can be used for composting. Community participation in MSW management should be initiated in the study area. This should be based on the principle of cooperation and partnership amongst Community Based Organizations (CBOs), Non-Governmental Organizations (NGOs) and the MCGM for managing civic services at the local level. A local committee can be established which will look after the smooth functioning of the system with respect to planning, implementation and monitoring. Rag pickers may be organised and trained and they can collect MSW and sort them out further - process biodegradable waste and sell the recyclable material. The MCGM may be approached for technical help in construction of composting system in these areas and give priority attention to such areas for other civic services. In this scheme, NGOs play a very important role by organising rag pickers and giving them necessary training for collecting and composting waste (Rathi S., 2007).

**For minimum quantity of hazardous waste**

If any waste (majorly Hazardous Waste) is disposed into landfill, sanitary landfills with liners can be used. Basically, a sanitary landfill is an open dump in which each day's waste is

covered with a few inches of soil. When the landfill has reached its uppermost capacity, a foot or more of soil is placed on top as a cover. Frequently, the cover can be seeded with grasses and other vegetation. If operated properly, the sanitary landfill greatly reduces the odors, vermin, or many of the other obnoxious characteristics of the open municipal dump. (Lee G. F et al, 1991).

#### **9.2.4 Upliftment of ragpickers**

Ragpickers sustain themselves by collecting, segregating, sorting MSW and then trading it. In doing so, they help clean up a significant proportion of the 143,000 metric tonnes per day (MTPD) of waste generated in India where the approximate quantity of solid waste generated in Mumbai is over 7,600 MTPD. A lot of garbage clearing is thus done informally by ragpickers who work without any job security, salary or dignity. Further, they are regularly exposed to injuries, infections and respiratory diseases apart from poverty, humiliation, harassment and sexual abuse on the streets. Hence, introducing ragpickers in MSW management is a boon for the MSW management system as well as for the ragpickers, who can uplift their standard of living.

## 10. Glossary: For terms and definitions

**Auto-tipper:** A four-wheeled vehicle used to facilitate the collection of garbage and its proper disposal

**Biodegradable waste:** Biodegradable waste includes any organic matter in waste which can be broken down into carbon dioxide, water, methane or simple organic molecules by micro-organisms and other living things

**Coastal Regulation Zone – III:** CRZ-III areas are those areas that are relatively undisturbed and also include rural and urban areas that are not substantially developed

**Community bins:** They are large bins, which are shared by all the residents in a particular back lane. They replace the separate domestic bins currently used by each household.

**Compartmentalized dustbins:** Compartmentalized dustbins contain two compartments and can hold wet and dry waste separately

**Domestic Hazardous Waste:** Chemical products such as cleaning solvents, paints, pesticides, disposed of by residential consumers. These wastes may also contain substances that can catch fire, react with other chemicals, explode, or are corrosive or toxic.

**MCGM:** Municipal Corporation of Greater Mumbai

**Non-biodegradable waste:** Non-biodegradable wastes are those that cannot break down or degrade for many years. These are waste that cannot change into manure and they pile up causing pollution.

**Personal Protective Equipment:** Personal Protective Equipment refers to protective clothing, helmets, goggles, or other garments or equipment designed to protect the wearer's body from injury or infection.

**Ragpickers:** It is a term for someone who makes a living by rummaging through refuse in the streets to collect material for salvage.

**Reconnaissance visit:** Reconnaissance is a mission to obtain information by visual observation of an area by mixed teams of local people and technical experts. They are used to familiarise everyone with the physical environment and key issues at the start of many community planning processes and to review progress at intervals.

**Respondent:** A person who replies to something, especially one supplying information for a questionnaire

**Sanitary workers:** A person employed to collect, haul away, and dispose of garbage

**Scrap dealers:** A scrap dealer is a person who is buying waste scrap and then sells it on for profit

**Self Help Group (SHG):** A Self-Help Group is a financial intermediary committee usually composed of 10–20 local women or men

**Swachhata-MoHUA App:** The Swachhata-MoHUA is the official app of Ministry of Housing and Urban Affairs (MoHUA), GOI. The app enables a citizen to post a civic-related issue (eg; a garbage dump) which is then forwarded to the city corporation concerned and thereafter assigned to the sanitary inspector of the particular ward.

## 11. References:

- Nuortio, T., Kytöjoki, J., Niska, H., & Bräysy, O. (2006). Improved route planning and scheduling of waste collection and transport. *Expert systems with applications*, 30(2), 223-232.
- Manaf, L. A., Samah, M. A. A., & Zukki, N. I. M. (2009). Municipal solid waste management in Malaysia: Practices and challenges. *Waste management*, 29(11), 2902-2906.
- Beigl, P., Wassermann, G., Schneider, F., & Salhofer, S. (2004). Forecasting municipal solid waste generation in major European cities.

## 12. Annexure: Survey form in English

### Swachh Worli Koliwada

Solid Waste Management Survey

Facilitated by: Triton Greentech Innovations Pvt Ltd (TGIPL)

From June 20, 2018 onward

### Area

Worli Koliwada, G South Ward, Mumbai

**Focus Site** (to begin with, from June to August/September)

**Zone 1:** Waras Lane to Bhandarwada Lane & Navneet Chowk

**Zone 2:** Bhandarwada Lane, Navneet Lane to Pakhari Galli

**Focus Group** (to begin with, from June to August/September)

Residents of Zone 1 and 2

### Survey Objectives

1. To understand the life of residents in terms of:
  - o their geographical background, family composition
  - o educational qualifications, household income and the source(s)
  - o aspirations - for self and family
  - o discovering skills and talent
2. To understand the current solid waste management practices - attitudes, buying behavior, solid waste collection and disposal
3. To gauge the impact of current solid waste management practices over health and lifestyle

**Questionnaire**

Lane no: \_\_\_\_\_ Lane name: \_\_\_\_\_  
 Building name: \_\_\_\_\_ House no: \_\_\_\_\_  
 Landline no: \_\_\_\_\_

Geographical Origin:  Native  Migrant (Origin: \_\_\_\_\_)  
 Caste:  Koli  Agri  Christian Koli  Christian  Bhandari  Other (please specify \_\_\_\_\_)  
 House Possession:  Owned  Rented  
 If owned, staying here since: \_\_\_\_\_ (probe: ask the year)  
 If rented, staying here since: \_\_\_\_\_ (probe: ask the year)  
 Rent tenure:  0-1 years  1-2 years  2-5 years  >5 years

**Demographics**

**Primary Respondent Details:**

Name: \_\_\_\_\_  
 Gender:  Male  Female  Don't Wish to Specify  
 Marital Status:  Married  Unmarried  Divorced  Single Parent  Widow/Widower  
 Profession:  Service (  Government  Private )  Business/ Self Employed  Unemployed  Retired  
 Elaborate on the profession: \_\_\_\_\_  
 Income in INR (if they wish to mention): \_\_\_\_\_ (monthly)  
 Phone Details:  
 Mobile no: \_\_\_\_\_  
 Smart Phone:  Y  N  
 Email ID: \_\_\_\_\_

**Family Details:**

Name:  Relation to the primary respondent:	Age:	Gender: <input type="radio"/> M <input type="radio"/> F <input type="radio"/> Don't Wish to Specify (DWTS)	Phone #  Smart Phone? <input type="radio"/> Y <input type="radio"/> N	Email ID:	Special Skills: <b>Technical Skill</b> (probes are mechanical, engineering, related to computers/ technology)  <b>Soft Skill</b> (probes are communication skills, team player, good at problem solving, self confidence)  <b>In the Arts</b> (probes are singer, dancer, plays an instrument, crafts, cooking)
	Education:	Occupation:	Income:		

Name:  Relation to the primary respondent:	Age:	Gender: <input type="radio"/> M <input type="radio"/> F <input type="radio"/> DWTS	Phone #  Smart Phone? <input type="radio"/> Y <input type="radio"/> N	Email ID:	Special Skills: <b>Technical Skill</b> (probes are mechanical, engineering, related to computers/ technology)  <b>Soft Skill</b> (probes are communication skills, team player, good at problem solving, self confidence)  <b>In the Arts</b> (probes are singer, dancer, plays an instrument, crafts, cooking)
	Education:	Occupation:	Income:		

Name:  Relation to the primary respondent:	Age:	Gender: <input type="radio"/> M <input type="radio"/> F <input type="radio"/> DWTS	Phone #  Smart Phone? <input type="radio"/> Y <input type="radio"/> N	Email ID:	Special Skills: <b>Technical Skill</b> (probes are mechanical, engineering, related to computers/ technology)  <b>Soft Skill</b> (probes are communication skills, team player, good at problem solving, self confidence)
	Education:	Occupation:	Income:		





3. \_\_\_\_\_

What are the three things you dislike (if any)? (please note that the 'place' in this case is the house and the neighborhood)(probe: Qualitative – Pollution (air and noise), stench / ; Quantitative - garbage / sicknesses / narrow lane/ lack of educational institutes/ lack of medical amenities)

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

If solid waste emerges as one of the dislike area, then move into the next section saying, "Talking about solid waste..."

If not, ask if solid waste is an area of concern and move into the next section

### Understanding the solid waste management practices

#### 1. Solid waste generation

1.1 What kind of waste is generated in your household on a daily basis?

Category of solid waste	Description
Kitchen (wet waste)	
Dry Waste (Recyclable, Reusable)	
Medical Waste	
Electronic Waste	
Hazardous Waste	

1.2 How much waste do you generate on a daily basis?

- 0-200gms       200-400       400-600gms  
 600-800gms       800gm-1kg       >1kg

1.3 Do you segregate?  Y  N

If yes, how? \_\_\_\_\_  
 And what do you do with that segregated waste? \_\_\_\_\_

If no, why? \_\_\_\_\_

#### 2. Solid waste collection

2.1 What type of container(s)/ material are used for waste collection?

Survey Report

- Plastic Bag       Cardboard       Metal       Cloth Bag  
 Plastic Bin       None       Others ( \_\_\_\_\_ )

2.2 Any material that is not discarded in the dustbin? Please elaborate

\_\_\_\_\_

-

2.3 How do you discard that material?

- Reuse       Sell it to a local scrap dealer shop  
 Sell it to a scrap dealer collector (on rounds)

2.4 If a scrap dealer, mention the details (name of the shop and in terms of a collector, the frequency of her/his visit to the lane and the timing)

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**3. Solid waste disposal**

3.1 What type of container(s)/ material is/are used for solid waste disposal?

- Plastic Bag       Cardboard       Metal       Cloth Bag  
 None       Others ( \_\_\_\_\_ )

3.2 How do you dispose this waste?

- MCGM Community Bins       MCGM Ghanta Gaadi       MCGM Compactor  
 Open Space Dumping       Burial       Open air burning  
 Dump in the sea       Others ( \_\_\_\_\_ )

3.3 At what time/ time slots in the day do you dispose this waste?

- Morning       Afternoon       Evening       Night      Time: \_\_\_\_\_ am/pm

3.4 Who within your family usually disposes this waste?

- Mother       Father       Children       Others ( \_\_\_\_\_ )

**4. Solid Waste and health Implications**

4.1 Are there any issues that you are facing with the current solid waste disposal system? If yes, please elaborate.

\_\_\_\_\_

4.2 If so, are there any health concerns/ disease epidemics? (probe: mention the names of diseases that your family has suffered in the last 2 years)

\_\_\_\_\_

4.3 What do you think can be done to improve the situation?

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4.4 (on a separate note, additionally) Talking about illnesses/ disabilities, is/ are any of your family members suffering from any of the below mentioned diseases:

- Diabetes  
 Cardiac problems      If yes, elaborate \_\_\_\_\_  
 Respiratory diseases      If yes, elaborate \_\_\_\_\_  
 Mental disabilities      If yes, elaborate \_\_\_\_\_  
 Physical disabilities      If yes, elaborate \_\_\_\_\_

**5. Accountability, Ownership & Responsibility:**

5.1 How do you think you can help improve the situation? *(probe: volunteering / activating community circle / thinking solutions with the team / doing my bit as a moral citizen)*

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(suppose you were to volunteer.....)

5.2 How many hours in a week can you contribute to work with us?

*(probe: we will be conducting awareness sessions, workshops, programs to create awareness and developing solutions in a participatory manner)*

- 0-2 hours       3-4 hours       5-6 hours

Please specify the day(s) as well (for e.g. Saturday) \_\_\_\_\_

5.3 What time in the day is the most preferred slot?

- Morning       Afternoon       Evening

5.4 Who else from your family could contribute time for such programs?

Name 1: \_\_\_\_\_

Name 2: \_\_\_\_\_

Name 3: \_\_\_\_\_

5.5 If a compartmentalized (for wet and dry waste) dustbin is provided, would you install it in your house?

- Yes       No (Why? \_\_\_\_\_)

5.6 Would you be willing to pay maintenance fee every month for services that ensure regular solid waste pick-up from your house and cleaning your lanes?

*(watch out for body language, gestures describing discomfort and make a note of the same)*

- Yes (How much?  ₹10 -₹20       ₹20 -₹30       ₹30 -₹50       >₹50

No (Why? \_\_\_\_\_)

**6. Aspirations for self and family**

6.1 Solid waste if reused properly, can also be a resource and a source of income. If we were to conduct skilling/ training workshops, would that interest you?

Yes (Who would you nominate from your family for such workshops? \_\_\_\_\_)

No (Why? \_\_\_\_\_)

6.2 If interested, can you pay a nominal fee?

Yes (How much \_\_\_\_\_?)

No

6.3 Talking about skilling/ training, are there any specific skills that you feel that your children or anyone in your family need to learn? If so, what would those be?

Starting a business/ Business Management

Financial Literacy

Personality development

English/ Spoken English

Learning an art form

Others ( \_\_\_\_\_)

**Surveyor's Note**

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### 13. Annexure: Survey form in Marathi

**स्वच्छ वरळी कोळीवाडा**  
घनकचरा व्यवस्थापन सर्वेक्षण

करणारे : ट्रायटन ग्रीनटेक इनोव्हेशन प्रायव्हेट लिमिटेड  
२० जून २०१८ पासून पुढे

**क्षेत्र**

वरळी कोळीवाडा, जी दक्षिण विभाग, मुंबई

मुख्य लक्ष क्षेत्र (जून ते ऑगस्ट/ सप्टेंबर पर्यंत सुरवातीला)  
झोन १: वारस लेन पासून भंडारवाडा लेन आणि नवनीत चौक  
झोन २: भंडारवाडा लेन, नवनीत लेन ते पाखरी गल्ली

**लक्षित गट** (जून ते ऑगस्ट/ सप्टेंबर पर्यंत सुरवातीला)  
झोन १ आणि २ मधील रहिवासी

**सर्वेक्षण उद्देश**

- रहिवाश्यांचे जीवनमान समजून घेण्यासाठीचे मुद्दे
  - त्यांची क्षेत्रीय आणि कौटुंबिक पार्श्वभूमीची माहिती
  - शैक्षणिक, आर्थिक माहिती
  - जगण्याच्या आकांक्षा - स्वताच्या आणि कुटुंबाच्या
  - कौशल्य आणि प्रतीभेचा शोध
- घनकचरा व्यवस्थापन समजून घेणे - लोकांचा दृष्टिकोन, विकत घेण्याची क्षमता, सध्याच्या कचरा गोळा करणे आणि विल्हेवाट लावण्याच्या पध्दती
- सध्याच्या घनकचरा व्यवस्थापनच्या पध्दतीचा रहिवाश्यांच्या आरोग्यावर आणि जीवनशैलीवर होणारा परिणाम

**प्रश्नावली**

लेन नं: \_\_\_\_\_ लेनचे नाव: \_\_\_\_\_  
 बिल्डिंगचे नाव: \_\_\_\_\_ घर नं: \_\_\_\_\_  
 घरातील दूरध्वनी नं: \_\_\_\_\_

क्षेत्रीय मूळ:  स्थानिक रहिवासी  स्थलांतरित (मूळ गाव : \_\_\_\_\_)

जात:  कोळी  आगरी  खिश्चन कोळी  खिश्चन  भंडारी  इतर (कृपया कोणती  
 \_\_\_\_\_)

घर मालकी:  स्वतःचे  भाड्याचे

जर स्वतःचे तर केव्हा पासून राहतायत: साल \_\_\_\_\_ (किती वर्ष \_\_\_\_\_)

जर भाड्याचे तर केव्हा पासून राहतायत: साल \_\_\_\_\_

भाड्याचा कालावधी:  ०-१ वर्ष  १-२ वर्ष  २-५ वर्ष  > ५ वर्ष

**रहिवाश्यांची माहिती**

**प्रथम माहिती देणार्याचा तपशील:**

नाव: \_\_\_\_\_

लिंग:  पुरुष  स्त्री  सांगण्याची इच्छा नाही (सांडना)  
 वैवाहिक स्थिती:  विवाहित  अविवाहित  घटस्फोटीत

एकल पालक  विधवा / विधुर

व्यावसायिक माहिती:  नोकरी (  सरकारी  खाजगी )  धंदा/ स्वयंरोजगार

बेरोजगार  निवृत्त

धंद्याची जास्त माहिती द्या: \_\_\_\_\_

उत्पन्न रु (सांगण्याची इच्छा असल्यास): \_\_\_\_\_ (मासिक)

**फोन तपशील:**

मोबाईल नं: \_\_\_\_\_

स्मार्ट फोन:  हो  नाही

इ मेल : \_\_\_\_\_

कुटुंब सदस्यांची माहिती:

नाव:	वय:	लिंग:	फोन नं	Email ID:	विशेष कौशल्य:
प्रथम माहिती देणार्याशी नाते:		<input type="radio"/> पु	स्मार्ट फोन: हो <input type="radio"/>		तांत्रिक कौशल्य*
		<input type="radio"/> स्त्री			<input type="radio"/> नाही
		<input type="radio"/> सांझा			
	शिक्षण:		व्यवसाय:	उत्पन्न:	कला गुण***

\*(उदा. यांत्रिक, अभियांत्रिकी, कॉम्प्युटरविषयी इत्यादी)  
 \*\*(उदा. संभाषण कौशल्य, आत्मविश्वासपूर्ण, सर्वसमावेशक, संकट निवारक इत्यादी)  
 \*\*\*(उदा. गायन, नृत्य, नाट्य, वाद्य, स्वयंपाक करणे इत्यादी)

नाव:	वय:	लिंग:	फोन नं	Email ID:	विशेष कौशल्य:
प्रथम माहिती देणार्याशी नाते:		<input type="radio"/> पु	स्मार्ट फोन: हो <input type="radio"/>		तांत्रिक कौशल्य*
		<input type="radio"/> स्त्री			<input type="radio"/> नाही
		<input type="radio"/> सांझा			
	शिक्षण:		व्यवसाय:	उत्पन्न:	कला गुण***

\*(उदा. यांत्रिक, अभियांत्रिकी, कॉम्प्युटरविषयी इत्यादी)  
 \*\*(उदा. संभाषण कौशल्य, आत्मविश्वासपूर्ण, सर्वसमावेशक, संकट निवारक इत्यादी)  
 \*\*\*(उदा. गायन, नृत्य, नाट्य, वाद्य, स्वयंपाक करणे इत्यादी)

नाव:	वय:	लिंग:	फोन नं	Email ID:	विशेष कौशल्य:
प्रथम माहिती देणार्याशी नाते:		<input type="radio"/> पु	स्मार्ट फोन: हो <input type="radio"/>		तांत्रिक कौशल्य*
		<input type="radio"/> स्त्री			<input type="radio"/> नाही
		<input type="radio"/> सांझा			
	शिक्षण:		व्यवसाय:	उत्पन्न:	कला गुण***

\*(उदा. यांत्रिक, अभियांत्रिकी, कॉम्प्युटरविषयी इत्यादी)  
 \*\*(उदा. संभाषण कौशल्य, आत्मविश्वासपूर्ण, सर्वसमावेशक, संकट निवारक इत्यादी)  
 \*\*\*(उदा. गायन, नृत्य, नाट्य, वाद्य, स्वयंपाक करणे इत्यादी)

Survey Report

नाव: प्रथम माहिती देणार्याशी नाते:	वय:	लिंग: <input type="radio"/> पु <input type="radio"/> स्त्री <input type="radio"/> सांइना	फोन नं स्मार्ट फोन: हो <input type="radio"/> <input type="radio"/> नाही	Email ID:	विशेष कौशल्य: तांत्रिक कौशल्य* इतर कौशल्य** कला गुण***
	शिक्षण:	व्यवसाय:	उत्पन्न:		

\*(उदा. यांत्रिक, अभियांत्रिकी, कॉम्प्युटरविषयी इत्यादी)  
 \*\*(उदा. संभाषण कौशल्य, आत्मविश्वासपूर्ण, सर्वसमावेशक, संकट निवारक इत्यादी)  
 \*\*\*(उदा. गायन, नृत्य, नाट्य, वाद्य, स्वयंपाक करणे इत्यादी)

नाव: प्रथम माहिती देणार्याशी नाते:	वय:	लिंग: <input type="radio"/> पु <input type="radio"/> स्त्री <input type="radio"/> सांइना	फोन नं स्मार्ट फोन: हो <input type="radio"/> <input type="radio"/> नाही	Email ID:	विशेष कौशल्य: तांत्रिक कौशल्य* इतर कौशल्य** कला गुण***
	शिक्षण:	व्यवसाय:	उत्पन्न:		

\*(उदा. यांत्रिक, अभियांत्रिकी, कॉम्प्युटरविषयी इत्यादी)  
 \*\*(उदा. संभाषण कौशल्य, आत्मविश्वासपूर्ण, सर्वसमावेशक, संकट निवारक इत्यादी)  
 \*\*\*(उदा. गायन, नृत्य, नाट्य, वाद्य, स्वयंपाक करणे इत्यादी)

नाव: प्रथम माहिती देणार्याशी नाते:	वय:	लिंग: <input type="radio"/> पु <input type="radio"/> स्त्री <input type="radio"/> सांइना	फोन नं स्मार्ट फोन: हो <input type="radio"/> <input type="radio"/> नाही	Email ID:	विशेष कौशल्य: तांत्रिक कौशल्य* इतर कौशल्य** कला गुण***
	शिक्षण:	व्यवसाय:	उत्पन्न:		

\*(उदा. यांत्रिक, अभियांत्रिकी, कॉम्प्युटरविषयी इत्यादी)  
 \*\*(उदा. संभाषण कौशल्य, आत्मविश्वासपूर्ण, सर्वसमावेशक, संकट निवारक इत्यादी)  
 \*\*\*(उदा. गायन, नृत्य, नाट्य, वाद्य, स्वयंपाक करणे इत्यादी)

**क्षेत्र आणि जीवनशैली समजून घेणे**

घराची जागा :  १०० स्क्वे. फू.  १००-२०० स्क्वे. फू.  २००-३०० स्क्वे. फू.  
 ३००-५०० स्क्वे. फू.  >५०० स्क्वे. फू.  
 ५०० स्क्वे. फू पेक्षा जास्त असल्यास कृपया स्पष्ट करा \_\_\_\_\_

स्वतःच्या घराचे चित्र काढा (जागा आणि परिसराचा विचार करून):

घरात शौचालय :  आहे  नाही

नसल्यास खालील पैकी कोणती सुविधा वापरता ?

- सार्वजनिक शौचालय  
 सुलभ शौचालय  
 इतर (कृपया जास्त माहिती द्या \_\_\_\_\_ वेळ \_\_\_\_\_)

तुम्ही राहता त्या जागेतील कोणत्या तीन गोष्टी जास्त आवडतात? (जागा म्हणजे घर अथवा परिसर) (गुण उदा. - मैत्रीपूर्ण शेजार, चांगले सामाजिक वातावरण, उत्सवी वातावरण अथवा दिसणाऱ्या गोष्टी उदा. - मोकळी जागा, समुद्र, देवळे, जवळज असणार्या बाजार, बस, इत्यादी सेवा)

१. \_\_\_\_\_
२. \_\_\_\_\_
३. \_\_\_\_\_

तुम्हाला कदाचित न आवडणार्या तुमच्या जागेतील ३ गोष्टी? (जागा म्हणजे घर अथवा परिसर) (गुण उदा. - आवाजाचे, हवेचे प्रदूषण, दुर्गंधी अथवा दिसणाऱ्या गोष्टी उदा. - कचऱ्याचे डिग, आजारपणे, विचोब्या गल्ल्या, कमी शैक्षणिक संस्था, आरोग्याच्या कमी सुविधा, इत्यादी )

१. \_\_\_\_\_
२. \_\_\_\_\_
३. \_\_\_\_\_

जर घ.क.व्य. हि एक नावडती गोष्ट असेल तर पुढील भाग सुरु करा पण जर घ. क. व्य. बदल काही तक्रार नसेल तर घ.क.व्य. बदल मत विचारून पुढील भाग सुरु करा.

घ.क.व्य. समजून घेणे.

**१. घ. क. निर्माण**

१.१ रोज घरात कोणत्या प्रकारचा कचरा निर्माण होतो?

घ. क. ची श्रेणी	वर्णन
स्वयंपाघारातील(औला कचरा)	
सुका कचरा (पुन्हा वापर / पुन्हाचक्रांकीत करण्यासारखा)	
औषधी/ वैद्यकीय कचरा	
इलेक्ट्रॉनिक कचरा	
धोकादायक कचरा	

१.२ रोज तुमच्याकडे किती कचरा निर्माण होतो?

- ०-२०० ग्रा       २००-४०० ग्रा       ४००-६०० ग्रा  
 ६००-८०० ग्रा       ८००.ग्रा-१कि       > १कि

१.३ तुम्ही कचऱ्याचे वर्गीकरण करता का?       हो  नाही

जर हो असेल तर कसे?

\_\_\_\_\_

आणि तुम्ही वर्गीकृत कचऱ्याचे काय करता?

\_\_\_\_\_

जर वर्गीकरण करत नसाल तर का करत नाही?

\_\_\_\_\_

**२. घ.क. जमा करणे**

२.१ घ. क. जमा कश्यात करता?

- प्लास्टिकच्या पिशवीत       पुठ्याच्या खोक्यात       धातूच्या डब्यात       कापडी पिशवीतून  
 प्लास्टिकच्या डब्यात       वरीलपैकी काहीही नाही  इतर (\_\_\_\_\_ )

२.२ काही कचरा कचऱ्याच्या डब्यात टाकतच नाही असे होते का? कृपया स्पष्ट करा

\_\_\_\_\_

\_\_\_\_\_

२.३ तुम्ही कचऱ्याचे विल्हेवाट कशी लावता?

- पुन्हा वापरता  जवळच्या भंगारवाल्याला विकता  फेरीवर येणाऱ्या भंगारवाल्याला विकता

२.४ जर भंगारवाल्याला विकत असाल तर दुकानेचे नाव इत्यादी जर फेरीवाल्याला विकत असाल तर तो/ती तुमच्या गल्लीत किती वेळा येते? किती वाजता येते?

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### ३. घ. क. विल्हेवाट

३.१ तुमचा कचरा फेकण्यासाठी काय वापरता?

- प्लास्टिकची पिशवी  पुठ्याचा खोका  धातूचा डब्बा  कापडी पिशवी  
 वरीलपैकी काहीही नाही  इतर (\_\_\_\_\_)

३.२ तुमचा काचारा कुठे फेकता?

- वृ.मुं.म.पा च्या सार्वजनिक डब्ब्यात  वृ.मुं.म.पा च्या घंटा गाडीत  वृ.मुं.म.पा च्या कॉम्पक्टरमध्ये  
 उघड्या काचऱ्याच्या डीघावर  पुरून टाकता  उघड्यावर जाळून टाकता  
 समुद्रात फेकता  इतर (\_\_\_\_\_)

३.३ दिवसच्या कोणत्या वेळात तुम्ही तुमचा कचरा फेकता?

- सकाळी  दुपारी  संध्याकाळी  रात्री वेळ: \_\_\_\_\_ वाजता

३.४ तुमच्या कुटुंबातील कोण कचरा फेकण्याचे काम करते?

- आई  वडील  मुले  इतर (\_\_\_\_\_)

### ४. घ.क. आणि आरोग्य

४.१ सध्याच्या घ.क. व्य. मुळे तुम्हाला काही त्रास होतो आहे का? होत असल्यास स्पष्ट करा

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४.२ होत असल्यास आरोग्याच्या तक्रारी आहेत का? असल्यास कोणत्या? (उदा. कावीळ, डेंग्यू, मलेरिया इत्यादी कोणते आजार गेल्या २ वर्षांत आपल्या कुटुंबातील कोणाला झाला होता का ?)

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४.३ ही परिस्थिती बदलावी म्हणून काय करावे असे तुम्हाला वाटते?

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४.४ कर्चार्थामुळे होणार्थां आजारांव्यातिरिक्त इतर कोणते आजार/ अपंगत्व तुम्हाला अथवा तुमच्या कुटुंबातील कोणाला आहेत का?:

- मधुमेह
- हृदयविकार                      जर असेल तर स्पष्ट करा \_\_\_\_\_
- श्वसनविकार                      जर असेल तर स्पष्ट करा \_\_\_\_\_
- मानसिक आजार                      जर असेल तर स्पष्ट करा \_\_\_\_\_
- शारीरिक अपंगत्व                      जर असेल तर स्पष्ट करा \_\_\_\_\_

५. जबादारी आणि स्वामित्व:

५.१ तुम्हाला स्वतःला ही परिस्थिती बदलण्यासाठी काय करता येईल असे वाटते? (उदा. स्वयंसेवा देवून, लोकसहभाग वाढवून,सांघिक उपाय शोधून,दक्ष नागरिक म्हणून स्वतःचे कर्तव्य पूर्ण करून)

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(समजा तुम्ही स्वयंसेवक म्हणून काम करणार असाल तर.....)

५.२ आठवड्यातून किती तास आम्हाला वेळ देवू शकाल?

(उदा. जर आम्ही काही जनजागृतीचे कार्यक्रम, वर्कशॉप, अथवा इतर काही कार्यक्रम घेणार असू तर)

- ०-२ तास     ३-४ तास     ५-६ तास कृपया काही विशेष दिवस देणार असाल तर स्पष्ट करा (उदा शनिवार अथवा रविवार इत्यादी) \_\_\_\_\_

५.३ दिवसातला कोणता वेळ तुम्ही देवू शकाल?

- सकाळ     दुपार     संध्याकाळ

५.४ तुमच्या कुटुंबातील इतर कोणी ह्या कामाकरता वेळ देवू शकेल का?

नाव १: \_\_\_\_\_

नाव २: \_\_\_\_\_

नाव ३: \_\_\_\_\_

५.५ जर तुम्हाला ओला आणि सुका कचरा वेगळा ठेवण्यासाठी कचरा डब्बा दिला तर तो तुम्ही तुमच्या घरात ठेवण्यासाठी परवानगी द्याल का?

- हो     नाही (कारण काय? \_\_\_\_\_)

५.६ तुमच्या घरातील कचरा रोज उचलण्यासाठी आणि तुमची गल्ली स्वच्छ ठेवण्यासाठी तुम्ही दर महिन्याची काही फी देण्यास तयार आहात का? ( लक्ष्य द्या- खरोखर काय प्रतिसाद आहे)

- हो (किती?  ₹१०-₹२०     ₹२०-₹३०     ₹४०-₹५०     >₹५०)

नाही (का? \_\_\_\_\_)

**6. स्वताच्या आणि कुटुंबाच्या आकांक्षा विषयी**

६.१ घ. क. जर योग्य प्रकारे हाताळला तर तो एक संसाधन होवू शकतो आणि उत्पन्नाचा स्रोत बनू शकतो जर आम्ही तुम्हाला ह्या संदर्भात काही प्रशिक्षण दिले तर तुम्ही अथवा तुमच्या कुटुंबातील कोणी ते घेण्यासाठी उस्सुक असेल का?

हो (कुटुंबातून कोण? \_\_\_\_\_)

नाही (कारण काय? \_\_\_\_\_)

६.२ जर इच्छा असेल तर तुम्ही ह्यासाठी काही फी देवू शकाल का?

हो (किती \_\_\_\_\_?)

नाही

6.3 कौशल्य विकासासाठी काही विशेष प्रशिक्षण घेणे तुम्हाला तुमच्यासाठी/ तुमच्या मुलांसाठी/ कुटुंबातील कोणासाठी गरजेचे वाटते का? जर हो असेल तर कोणते? ?

उद्योग सुरु करणे

आर्थिक साक्षरता

व्यक्तिमत्व विकास

इंग्लीश संभाषण

कलाविषयक प्रशिक्षण

इतर ( \_\_\_\_\_)

**सर्वेक्षण करणार्यांच्या नोंदी**

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# SWACHH

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