

# **IDI Report: A Qualitative Analysis of the Kodungaiyur Dumpyard's Impact on Human Rights.**

## **Introduction**

The Human Rights Impact Assessment Study conducted by CAG in Kodungaiyur, seeks to understand the impact of unsustainable business practices relating to plastics on the human rights of people living and working around the Kodungaiyur dump yard. Today, Kodungaiyur is the location for one of Chennai's two major dump yards, the other being located in Perungudi. Of the fifteen zones in the city, mixed waste from eight zones is sent to the dumpyard at Kodungaiyur, making it a massive dumping ground for mixed waste. The residents and people, conservancy workers, informal waste pickers and scrap shop workers working in Kodungaiyur have suffered severe impacts on their health, property, economy, environment, enjoyment of socio-cultural dignity, freedoms and cultural life, as a result of being forced to live with and amidst the discards of the city of Chennai, one of the highest producers of unsegregated mixed waste amongst Indian cities.

While their distress is evident to even the untrained eye, there has been no systematic attempt to assess the human rights impacts of unsustainable business practices on the residents and workers of Kodungaiyur from their unsolicited co-optation into residing and working in and around Chennai's largest dump yard. In order to overcome this gap in data, CAG conducted two research studies between October 2018 and June 2019 to understand the health impacts of people living and working around the Kodungaiyur dump yard. The team collected non-invasive health data (self-reported symptoms experienced and perceived) for 67 respondents for two periods of three months each spread over four focus groups- residents and non-residents (conservancy workers, informal waste pickers, scrap shop workers). The exercise, known as 'symptoms diary' is an exhaustive record of a respondents health status for a period of three months, typically spanning over pre-monsoon, monsoon and post-monsoon months in the city.

In addition to the symptoms diary exercise, in-depth interviews (IDIs) were also conducted among 50 respondents, some of whom were also recruited from the symptoms diary exercise to gain a more nuanced understanding of their health statuses. The in-depth interviews of residents and non-residents help identify and understand other issues relating to health, social, property, and environment arising from the dumped unsegregated waste.

## **Research Methodology:**

IDIs were conducted among 50 respondents, some of whom were the participants of the symptoms diary exercise. There are broadly two groups, residents of Kodungaiyur (18 respondents), and non-residents or people working in Kodungaiyur (32 respondents). The latter group can be further subdivided into three categories, conservancy workers, informal waste pickers and scrap shop workers.

The interview questions can be divided into the following broad themes or categories:

1. Socio-economic context setting : These questions are meant to identify areas of residence, means of livelihood, as well as distribution of population in terms of age and gender. This helps establish the proximity of residence to the dumpyard, as well as to understand the socio-economic status of residents.
2. House and Property: This section helps understand housing dynamics in terms of ownership and renting property, which in turn helps understand the inherent obstacles preventing relocation or the reasons which perpetuate their stay therein.
3. Right to Environment and Health: This section is subdivided to understand the impacts of the dumpyard on air, water, soil, and peaceful environment. These rights are enshrined under Article 21 - right to life of the Indian Constitution. The section helps understand and analyse the impacts of the dumpyard on the environs of the people and the resulting physical and mental health impacts.
4. Social Perceptions: These questions cater to understanding the differential treatment meted out and the impacts of the stigma and ostracization faced by people on account of living/working in the dumpyard.
5. Access to basic services: This section explores access of the residents to basic government services, healthcare facilities and possession of social security documents.
6. Disaster and Safety: Refers to disasters and accidents on account of living/working in proximity to the dump yards.
7. Occupational Hazards (in case of non-residents): This section explores the impact of conditions at work and their impact on the employees, be it in the form of physical injuries incidental to the nature of work or provisions available for leave etc.

## **Findings from Residents:**

Socio- economic setting:

In the residents group, there are 17 respondents. Respondents are proportionally distributed in terms of gender; there are 9 female and 8 male respondents. The respondents interviewed range between the ages of 30 to 83, with the average age of the group being 48 years.

Most of the respondents reside in various areas around the Kodungaiyur dumpyard, including Kannadasan Nagar, Rajasekar Nagar, Ambedkar Nagar, Ezhil Nagar, Nethaji Nagar, Patel Nagar, Krishnamoorthy Nagar and majorly in RR Nagar. Kodungaiyur dumpyard lies in Kodungaiyur, which is a part of Zone 4-Tondiarpet of the city of Chennai. All of the above locations are situated within 3 km, with some areas such as Ezhil Nagar and RR Nagar being

100 feet from the boundaries of the Kodungaiyur dumpyard. Almost all of the respondents have shifted to their current locations in Kodungaiyur between 1980's to the 2000's, with the exception of one respondent who has stayed in the same area since birth. The group of respondents have been staying at their current locations for a period ranging from a minimum of 8 years to a maximum of 43 years, with the average length of stay being 22 years.

Prior to their stay at the current locations, most of the respondents (10 respondents) were living in the same city. Majority of them were staying in other areas within the same Zone 4 -Tondiarpet, few others in Zone 1 - Thiruvotriyur and one respondent in Zone 13- Adyar. The rest came from other cities in Tamil Nadu and one respondent was living in Andhra Pradesh prior to this. The majority (eight respondents) made the shift because they purchased property herein in the 1980's and 1990's as land value was cheaper here in comparison to other localities. Few of the female respondents migrated after marriage since their husband's houses were located in Kodungaiyur. Other respondents shifted as their relatives were living here. One respondent relocated to Kodungaiyur as they were forced to vacate their earlier house and were given alternative accommodation in Kodungaiyur.

For their livelihood, few of the respondents run small time grocery and tailoring establishments and others are employed as watchmen, manual labourers, cooks and drivers. Quite a few of the women are housewives. Apart from two respondents who travel 6-7 km to reach their workplace, most of them live in the same area as their place of work. The households are mostly nuclear families consisting of 3-4 members and an average monthly income of 14,000 to 15,000 rupees. The majority of the expenditure goes on groceries and daily household expenses including water and electricity bill, and rent (in case, they live in rented property). School fees are another major source of expenditure for families with children. Medical bills ranging from Rs 2000 - Rs 5000 monthly are also incurred for most families, amounting to on an average of 14 % of their monthly income.

#### House and Property:

Twelve of the respondents own the property in which they stay and have an 'allotment certificate' in proof of their title/ possession rights of the house they reside in. Others who do not own the property perceive 'advance' given to the house owner as proof of the tenancy arrangement. There is mixed opinion on the ease of renting/buying property in the area. However, almost all the respondents indicated the presence of a strong brokerage system in the community mediating residential transactions. Most of them state that the land value has gone up relative to other places in Chennai, meaning that buyers and builders are more likely to purchase and build in Kodungaiyur. There are few respondents who state that the cost of land has gone down due to the presence of the dumpyard. The closer the property is to the dumpyard lower the value, for instance the Krishnamoorthy Nagar 1st street is near the dump yard, hence 1 square feet costs Rs.3000 whereas in Bharathi Nagar which is 1 km away from the dump yard, 1 sq.feet costs Rs.5000. Lots of new buildings and constructions have come up in recent years, however a substantial portion of these are renovations in the form of additional floors to existing buildings.

#### Right to Environment:

## Right to Clean Air:

There is a clear violation of the right to clean air of the residents of Kodungaiyur. Smoke and dust in the air is almost a daily phenomenon due to the burning of garbage in the dumpyard, burning of dead bodies in the crematorium nearby, and constant inflow and outflow of the dump trucks. Two respondents state that burning in the dumpyard has not been carried out for the past few years, however smoke from the other sources still remains. Apart from the smoke and dust, all respondents state that there is an extremely bad stench as a daily phenomenon from rotting garbage and dead animals including dogs and rats in the dumpyard, sewage in the Captain Cotton Canal and Buckingham Canal, as well as smell of burning plastic and tyres from the dumpyard and a plastic recycling factory located nearby. This smell tends to intensify during the monsoon season and when strong winds blow. The respondents state that this smell results in abdominal issues including vomiting, nausea, roiling stomach pain, loss of appetite, eye problems including irritation and watering, and nervous system issues such as headache and dizziness. Most respondents wanted to be aware about the air quality and its health impacts. This information had not been provided so far by the government officials. The only exception is during the elections when contesting candidates talk about the negative impacts of the dumpyard; but following the elections, no action is taken.

## Right to Water:

Drinking water is provided by the corporation as well as purchased by the residents. There are two main sources of corporation water, tap water and water from the corporation lorry. The tap water is often mixed with sewage resulting in it being undrinkable, therefore corporation water is provided through tanks and lorries. There are also a couple of private water lorries operating in the area; one pot of water averages between Rs 10- Rs 12. 12 out of the 17 respondents, purchased can water from the shops as the corporation water from the taps was mixed with sewage and hence unfit for drinking purposes. The majority of the residents purchased drinking water from the shops and a few from the private lorries. This is also reflected from the expenditure breakdown of most residents (refer to the Section on Socio-Economic Context Setting) who reported spending Rs 1000 - Rs 2000 monthly on purchasing water. This heavy reliance on purchase of water from the shops and private lorries indicate that residents do not want to rely on the corporation water, which is often unfit for drinking as mentioned above.

Similar sources exist for water for household purposes. Residents especially from RR Nagar, report that the corporation water from the pipelines is mixed with canal water. However, there is more reliance on corporation water (including pipelines, lorries and hand-pumps) over private water lorries for household purposes. This can be for two reasons. Firstly, drinking water is a priority for health reasons and hence households do not mind shelling out extra expenditure on the same. Secondly, the quantity of household water required would be vast in comparison to drinking water. Hence, the residents would likely not be able to afford the same as they are mostly low-income households.

The frequency of water supply across most localities in Kodungaiyur, (as surveyed in this report) is available on average on a daily basis for an hour in the morning, usually between 6am - 7am. However, it is more problematic in RR Nagar wherein the water is supplied only once every 4 to 5 days. Some residents of RR Nagar reported that the hand-pumps supply only canal water and therefore, the corporation provides water in lorries and tankers on a weekly basis only.

The quality of both the tap water and ground water from the borewell is unfit for drinking purposes. The groundwater in the area is salty and astringent and is often yellow in color, due to the pollutants and dust mixed in that water. The poor quality of groundwater in Kodungaiyur has been confirmed through a study conducted by the Centre of Water Resources, Anna University<sup>1</sup>. It revealed that the groundwater was contaminated by leachate in areas in a radius of 500 metres from the Kodungaiyur dumpyard., Ezhil Nagar, Rajarathinam Nagar (RR Nagar), Krishnamoorthy Nagar and MKB Nagar were especially affected. The concentration of heavy metals in the water also exceeded permissible limits in Krishnamoorthy Nagar, Ezhil Nagar, and RR Nagar as per the study.

The corporation water supplied through the taps smells of bleach and is contaminated with sewage, mud and canal water on most days, and is especially worse during the monsoon season. All of the respondents reported the contamination of water on a daily or seasonal basis (during the monsoon season). One resident from Nethaji Nagar even reported worms in the corporation water. The water can therefore be used only for bathing, cleaning, toilet and other household purposes. For drinking water, the residents affirm that they have to rely on lorry water and cans as was stated in the earlier paragraph on sources of drinking water.

All of the respondents have experienced health problems due to the poor quality of water; most suffered from abdominal and intestinal problems such as vomiting, diarrhoea and dysentery, and skin problems such as rashes and white patches on the body. Residents from RR Nagar reported that since the water from the taps is of such poor quality due to the contamination of sewage, they have all experienced health impacts. Therefore, the corporation is supplying water in the lorries to the RR Nagar residents on a bi-weekly basis.

#### Right to Clean Soil:

Most respondents stated that there was some green cover in their locality in the form of coconut, neem and drumstick trees. They affirmed that the soil was black soil and was home to termites, caterpillars, earthworms and even some snakes. Few residents stated that the soil was good enough to support the growth of plants and trees. Couple of others expressed the opinion that the soil was of poor quality and one resident from Krishnamoorthy Nagar even stated that 10 feet below the ground, there was plastic mixed up with the soil.

#### Right to Noise-free Environment:

The most prominent sound in the area is vehicular noise, especially from the dump trucks operating to and from the dump yard from morning to night, and dogs barking at night. Residents stated that there was a high percentage of dogs in the dumpyard as they scavenge and reproduce in the dumpyard. Some of the residents attributed the same to the dumping of

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<sup>1</sup> <https://www.thehindu.com/news/cities/chennai/the-seeping-poison/article5019859.ece>

medical waste and waste from a slaughterhouse in Kannigapuram, and even open defecation in the dumpyard, which apparently the dogs feed on. The noise from the dump trucks/bob cats/JCV is even more acute in RR nagar and Ezhil Nagar as these localities are situated adjacent to T.H Road. T. H Road leads to the Kodungaiyur Dumpyard Road, which in turn leads to the entrance to the dumpyard. The residents from the above two localities are subject to constant noise pollution from the dump-trucks plying from morning to night. The two residents from Ambedkar Nagar reported loud crushing and grinding sounds from a plastic recycling factory nearby.

#### Right to Health:

Most residents suffered from health problems pertaining to the respiratory system, skin, abdominal and intestinal system, and the skeletal muscular system. Other commonly afflicted symptoms include blood disorders and problems affecting the central nervous system. These findings validate the [findings of the symptoms diary](#), wherein the skeletal muscular system, respiratory system, and the abdominal and intestinal system were reported as the top three most affected body parts by the respondents of the symptoms diary exercise. Apart from the above disorders, a high percentage of cancer cases are prevalent in Kannadasan Nagar, Ambedkar Nagar and Krishnamoorthy Nagar.

For treatment of these disorders, most people accessed pharmacies, government health service facilities (state-run government hospitals and primary health centres run by the Greater Chennai Corporation), and private sector health centres (private hospitals and clinics) in that order respectively. Most respondents chose to visit pharmacies in their respective localities of residence for the obvious reason of ease of access. Among the government hospitals, Stanley Hospital (George Town) was the most accessed. Rajiv Gandhi Government General Hospital (Poonamallee High Road), ESI Hospital (Thiruvallur), Government Peripheral Hospital (Tondiarpet), Communicable Diseases Hospital/Cholera Hospital (Tondiarpet) were the other hospitals visited by the respondents.

Most of the residents are mentally stressed from income issues and financial concerns. Two of the respondents reported stress due to living so close to the dumpyard, they worry about the impacts of the dumpyard on the local residents of the area including themselves. In spite of all respondents reporting stress and low mental health, none of them have taken any measures to seek professional treatment for the same. Most choose to ignore the problem, and one respondent even mentioned alcohol usage to alleviate mental pain. This could be because of the stigma/insufficient awareness about mental health problems, or even the lack of easy access to mental health professionals in the area who are equipped to deal with these concerns. However, few of them prefer to talk things over with their friends and family members or turn to spirituality in order to lighten their burdens.

#### Social Perceptions:

All of the residents stated that they have been stigmatised for living near the dumpyard. The residents face exclusionary treatment because of the unhealthy environment in which they are residing, and the diseases they are believed to be carrying as a result. They are discriminated against socially because of their residence close to the dumpyard; people take advantage of them in terms of taking things from them on credit and not making the necessary payments

later on. Finding a bride/groom in these areas especially RR Nagar and Krishnamoorthy Nagar, is hard to come by as families might not be willing to marry their daughters into families who live in Kodungaiyur. Even the residents of Kodungaiyur reported that they would rather marry their children to people living outside of Kodungaiyur. Some others reported that often people from the same area get married to each other as it is difficult to find willing spouses from outside of Kodungaiyur.

Despite the stigma and ostracization, most respondents were not willing to shift their place of residence as they owned the property in which they were residing (refer to the Section on Socio-Economic Context Setting). Those who live in rented property have tried to find alternative accommodation outside of Kodungaiyur, but failed as the rent and the advance in those areas was out of their budget. The residents feel disappointed and hurt that no attempt is being made to shut down the dumpyard; government officials and foreigners visit the dumpyard, but beyond the visit no further action is taken. The only step that is taken is the cleaning of the canal during monsoon season, following which all the collected garbage is promptly filled into the dump trucks and taken to the dumpyard.

#### Access to basic services:

Most government services are accessible to the respondents, some easier than the others. For instance, Government ICDS/Anganwadi/Balwadi services, bus stops as well as primary schools are located within walking distance for most of the respondents. Some others like the ration shop, primary health centre, ward office, government colleges are located a bit far away, on an average between 2 - 7 km and are accessed by some residents through walking or share auto. In terms of services provided by the government, electricity and sometimes water provision keeps getting disconnected. When the connection gets cut, residents ring up and complain to the concerned government official.

In terms of social security documents, all of the residents possess Aadhar card, Voter ID, most of them have the ration card and bank accounts, some others the PAN card and Driver's License. Most of the respondents are not a part of any welfare scheme. Few of them are enrolled under health insurance schemes such as the Amma health insurance scheme, Kalaingar health insurance and Chief minister health insurance scheme. With the exception of one resident, none of the residents have any savings scheme or property insurance.

There is no clarity on the medical camps conducted in the area, most are unaware and others have mixed opinions on the frequency of these camps, ranging from weekly to monthly to yearly. One resident states that the ward counsellor organises them on a yearly basis, and the rest state that they are organised by private groups. With regards to Information, Education and, Communication (IEC) campaigns organised by the government, most of the respondents said that the same had not been organised or had been organised by the Resident Welfare Association and some NGOs. Only a couple of them held that an IEC campaign on dengue fever had been conducted by the government.

#### Disaster and Safety:

Several respondents have also reported recurring accidents caused due to compactors and garbage trucks especially in the TH Road, Krishnamoorthy Nagar junction. Dog bites are also a frequent phenomenon due to the high percentage of dog population in the dumpyard. (refer to the Section on right to noise-free environment). During the time of floods and cyclones, the garbage from the dumpyard flows into their homes and surrounding areas.

### **Findings from Non-Residents:**

#### **Socio- economic setting:**

The non-residents group consists of three subdivisions of respondents; 12 conservancy workers, 11 informal waste pickers and 10 scrap shop workers amounting to 33 respondents in all. There are a proportional number of male and female respondents, ranging from years ] 18 to 71 with the average age of the group being 57 years.

The non-resident group of respondents are spread out in terms of residence in various localities around the Kodungaiyur dumpyard. Some of them are concentrated in areas like Ezhil Nagar, RR Nagar, and MGR Nagar and the rest live spread out in other areas including MKB Nagar. Kannadasan Nagar, Krishnamoorthy Nagar, Korukkupet, Kabali Nagar, MKB Nagar etc. The observation as per the current group of non-resident respondents is that the conservancy workers live in areas further away from the Kodungaiyur dumpyard including Chetpet, Mintkatpada etc, but the scrap shop workers and especially the informal waste pickers tend to live closer to the dumpyard in areas like RR Nagar and Ezhil Nagar.

Most of the respondents in this group have spent 17 years on average in their current profession. Almost all of the informal waste pickers were introduced to their profession when they were children, some were even as young as five years old. Children suffer disproportionate health, social and economic impacts of dealing with waste, in comparison to their adult counterparts and even other children who are not involved in this livelihood.<sup>2</sup> Conservancy workers earn more in comparison to other livelihoods, the average income for informal waste pickers and scrap shop workers ranges from Rs.4000 -Rs.7000. Few of the informal waste pickers state that income is dependent on the materials found in the dumpyard, and hence is not constant. Most of the income goes on groceries and rent. A significant proportion (Rs. 1000 - Rs. 2000) is spent on medical bills and activities like smoking and drinking in the case of few scrap shop workers and informal waste pickers. They state that without drinking and smoking, performing their daily jobs is an impossible task.

#### **House and Property:**

All of the respondents live in rented property, apart from two conservancy workers and one informal waste picker and one scrap shop worker. Those who own property have an 'allotment agreement or patta' to show for proof of ownership. Others perceive 'advance' and rent given to the house owner as proof of the tenancy arrangement, like in the case of the

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[https://www.ucl.ac.uk/dpu-projects/drivers\\_urb\\_change/urb\\_environment/pdf\\_hazards\\_pollution/IIED\\_hunt\\_indiachildren.pdf](https://www.ucl.ac.uk/dpu-projects/drivers_urb_change/urb_environment/pdf_hazards_pollution/IIED_hunt_indiachildren.pdf)



residents group of respondents. Most state that it is difficult to procure property due to financial constraints and low income. Again, most respondents stated that it is difficult to rent property due to the advance and rent being very high in proportion to their income. One respondent (informal waste picker) stated that he does not mention his livelihood for fear that house owners might discriminate on that basis.

Right to Environment:

Right to Clean Air:

All of the respondents mentioned the presence of smoke due to burning of the dumpyard, dead bodies, plastic and tyres as well as decaying smell of garbage and dead animals from the dumpyard on a daily basis. In comparison to the responses from the residents, the non-residents clearly mentioned the smell of burning plastic and tyres as contributing to smoke and bad smell. This clarity of recognition could come from their experience of handling materials such as plastic and rubber as part of their jobs. They affirmed that the smell worsens during the monsoon season and due to the winds blowing. Vomiting, headache, eye and throat irritation were mentioned as the primary health effects of the constant nauseating smell and smoke. Most wanted to be aware about the air quality and stated that there had been no prior warning given by the government or otherwise regarding air quality standards. One respondent from MGR Nagar working as a scrap shop worker stated that people in his community would discuss bad air quality and its impact on them but did not know what to do about it.

Right to Water:

Most conservancy workers bring their own water from home, some drink from the tea shops nearby and a couple drink from the taps available on the roads/public places where their work takes them. Only one conservancy worker mentioned the availability of water at the place of work. Some of the conservancy workers mentioned that they were not allowed to access water from the tap at their workplace due to the stigma attached to them on the basis of their daily occupation. Almost all of the informal waste pickers also bring their own water from home, one respondent even mentioned that few (4-5) of them pool together to buy a 30 rupees water bottle to take it inside the dumpyard, which is their place of work. Couple of the informal waste pickers drink the water from bottles which they find when scavenging garbage in the dumpyard. Like the others, the scrap shop workers in the current group also bring water from home, with the exception of one respondent who mentioned the availability of canned water at the workplace. For other purposes, the respondents use water from the tap or go back home to use water for other purposes. The respondents described the water quality to be bad as the water was contaminated with sewage, mud and lather, and therefore black in colour. The informal waste pickers stated that during monsoons, they suffer from skin rashes and stomach infections as the garbage was mixed with rain water. Since the tap/hand pump water is contaminated, water is supplied on a weekly or bi-weekly basis through lorries and tankers. This has resulted in problems of water scarcity for almost all of the respondents, as the arrival of these vehicles is inconsistent.

### Right to Clean Soil:

All of the respondents stated that the soil was black in colour and fertile enough to support the growth of trees such as coconut, neem, drumstick, acacia, guava, mango etc as well as plants like tomato, chillies, brinjal, pumpkin etc.

### Right to Noise-free environment:

The respondents stated that vehicular noises from dump trucks, water lorries, autos, buses, bull-dozers and cranes was a constant phenomenon, in addition to the sound of barking dogs at night. One of the respondents reiterated a statement made by another respondent from the non-residents group, that the presence of an increased number of dogs in the dumpyard was due to the dumping of meat waste.

### Right to Health:

Most non-residents suffered from health problems pertaining to the respiratory system, skin, and the skeletal muscular system. Other commonly afflicted symptoms include blood disorders and eye infections. These findings validate the [findings of the symptoms diary](#), wherein the skeletal muscular system, respiratory system, and the abdominal and intestinal system were reported as the top three most affected body parts by the respondents of the symptoms diary exercise. Skin and respiratory infections are predominant due to the bad air quality (refer to the previous section on right to air) and the toxins they are exposed to as part of their working conditions (refer to the following section on Occupational Hazards). Bone injuries and fractures are commonly reported again due to their working conditions. (refer to the following section on Occupational Hazards)

For the treatment of health problems, most respondents visited government hospitals, mainly Stanley Hospital, Minjur Government Hospital and KMC Hospital. A significant number of respondents also took pharmacist-prescribed medication from medical shops in their respective localities. Few respondents also went to private hospitals and clinics.

There was mixed opinion on the prevalence of cancer, some people had heard of cancer cases through word of mouth, whereas others were unaware of the same. Apart from two respondents, most admitted that they had experienced mental problems. Most attributed the same to family squabbles and some others to financial concerns. Two of the conservancy workers and one informal waste picker attributed experiencing stress due to the stigma and discrimination they face on the basis of their livelihood. One scrap-shop worker stated that he was stressed that he might lose his job due to the plastic ban in 2019. None of them sought professional medical help for the same, choosing instead to talk with their family and friends or seek peace through spirituality. Some even turned to alcohol and tobacco as a means of relieving stress.

### Social perceptions:

Most of the respondents have experienced stigmatisation and discrimination. The conservancy workers are targeted by the general public on the basis of their uniform,

especially in Ezhil Nagar and are treated as untouchables by the general public and even by family. One of the informal waste pickers mentioned the difficulty of finding housing and abuse at the hands of officials who work in the Kodungaiyur dump yard. There was mixed opinion on the ease of finding a spouse. Those who mentioned that it was difficult stated that the only way to find a spouse was to get married to one of their own relatives. Even those who mentioned that it was easy, held that it was easy as their relatives lived in the same area. This allows for the assumption to be made that there are a number of incestuous marriages in the area resulting from limited social mobility and interactions. Few others held that they had gotten married to people working in the same profession.

Most of the respondents had attempted to shift to alternative livelihoods but failed due to various reasons including financial concerns (lack of money to set up a business or buy vehicle licence), age factor etc. Even those who did not try cited lack of alternative skills as the primary factor that inhibited them from making the attempt. The respondents were unaware about the frequency of cleaning operations in the canals; those that knew gave varying answers ranging from once every three years, to yearly and every monsoon season.

#### Occupational Hazards:

All of the respondents experienced body odour issues due to the lingering smell of the garbage that remains on them even after work. The conservancy workers held that this was because they physically segregate the biodegradable and nonbiodegradable waste with their bare hands, no amount of face masks and hand gloves is able to protect them from the smell. Further, dealing with improperly disposed body waste and sanitary napkins further augments the problem. In the case of scrap shop workers, since they deal with plastic on a daily basis, the chemical smell of plastic covers remains on their hands.

Lack of waste segregation results in the conservancy workers and informal workers facing injuries due to being pricked by broken bottles, needles, nails and pins. Scrap shop workers also face similar injuries apart from being hurt during the process of breaking down metal and plastic. Further, some of the conservancy workers even face back pain due to the pulling of the heavy vehicle day in and out. Most of the respondents did not have access to a first-aid kit for dealing with their injuries and instead had to deal with their injuries by themselves.

Informal waste pickers cannot afford to take even a day off as it reduces their monthly income and in the case of scrap shop workers and conservancy workers it depends on their employers and very often their salary is cut for leave of absence in the case of the former and leave denied unless and until it is sick leave in the case of the latter.

#### Access to basic services:

Most of the respondents have a bank account, and all of the respondents are in possession of their Aadhar card, Voter ID and ration card. Apart from few of the scrap-shop workers, who are enrolled under the Chief Minister Health Insurance scheme, the other respondents are not enrolled in any health or pension scheme. A number of health camps (3-4 on a yearly basis) have been conducted; respondents reported that the same have been conducted by college students with no specification as to what college these students belong to. With regards to

information, education and awareness campaigns by the government, the conservancy workers state that they have launched campaigns for educating people about source segregation and few of the scrap-shop workers vouched for the same. However, the scrap shop workers state that they are not aware of any campaign/education program conducted by the government.

Disaster and Safety:

Dog bites, and accidents involving dump trucks resulting in limb loss and even death were commonly reported by all the respondents. During the time of floods and cyclones, respondents reported outflow of garbage including plastic covers, sticks, coconut shells etc from the dumpyard.

### **Conclusion:**

While the symptoms diary exercise gives us an insight into the quantitative aspects of health conditions suffered by the residents and workers in Kodungaiyur, the in-depth interview report takes us one step further in terms of also documenting the impacts of the landfill on other aspects of daily life, be it housing, social environment, etc. The report also explores the negative impacts of the presence of the dumpyard on the environment and consequently health, through a firsthand account from the residents and workers themselves. The presence of the dumpyard sets in motion negative impacts on the environment, economic capacity and social and cultural conditions. The study establishes an understanding of how the different factors do not stand in isolation but are often interrelated and build on each other. For instance, the cost of property in Kodungaiyur is cheap due to the presence of the dumpyard and its negative environmental impacts. People with limited economic resources are forced to live therein, but face discrimination and stigma on account of the same. With limited social mobility and economic barriers, ensuring generations are also not able to shift out and secure better living and working conditions. Therefore, it sets in motion a vicious cycle, which can be addressed only if attempts are made to address the presence of the dumpyard, in addition to making consolidated and consistent improvements in all other facets previously mentioned.

