Report
Rehmat Nagar
Rag Picker's Colony

The Story of Waste
Location: Rourkela, Odis-ha
Ward No. 31
Land: Rourkela Steel Plant (RSP)

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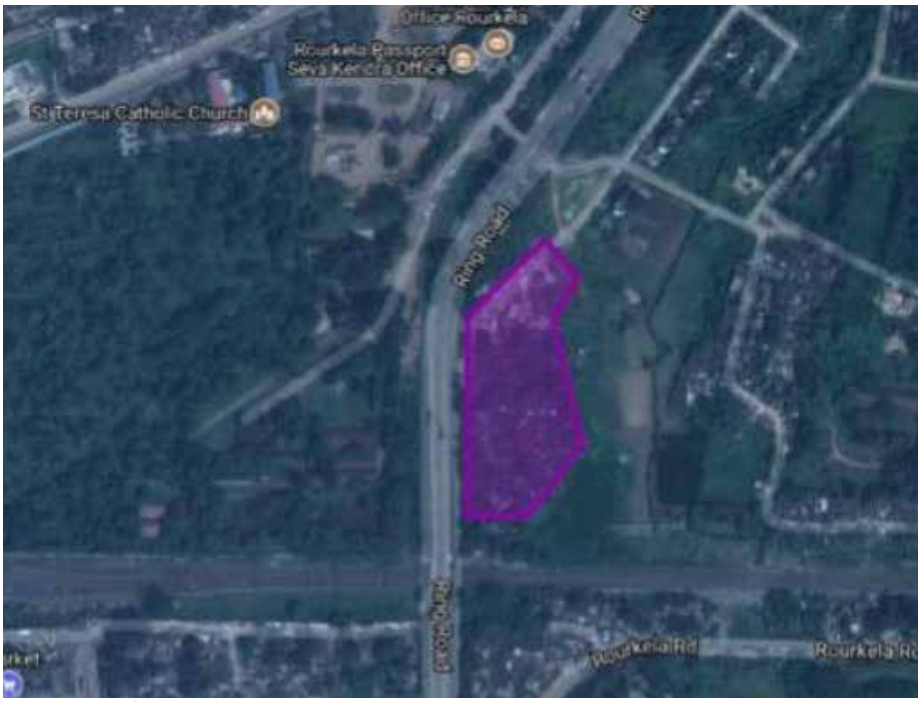
Introduction

Brief about the settlement

Rehmat Nagar is a 65-year-old settlement located on a low-lying patch of land owned by Rourkela steel plant (RSP). It has outer ring road at its front edge and railway track at its right edge. It is surrounded with a swamp from other two edges. There are around 265 houses and 1180 people living in this basti and make their living by being involved in rag picking / kabaadi work. The entire population in the basti has migrated from Midnapur, Khadagpur (West Bengal). The residents are referred to as Bangladesh refugees.



Location of Rehmat Nagar Basti in Rourkela, Odisha

The settlement lack basic necessities and face immense living challenges. There are no water, sanitation and education facilities in the area. The houses lack individual toilets and almost 92 percent of people defecate in open. The streets have no *pacca* drains and currently the wastewater is channeled through informal drains to a swamp behind. The area gets flooded every monsoon forcing people to shift to upper areas, streets gets choked and overflow into the houses. There is no legal water supply connection in the settlement, handpumps and other informal sources like bringing water in buckets from water supply line in nearby areas are the only source of water. Less than 5 percent children go to formal school, the settlement has no Anganwadis. The community has built a mosque and Madarsa which provides basic education to the children. Only couple of houses have legal electricity connections and the rest have drawn power illegally or live without it. Coal and wood is used as cooking fuel, adding to the health problems of people.

The community's strength is in it's livelihood activities of collecting and segreggating dry waste of the city and they form a major role in the dry waste value chain of the city. It's stength also lies in its cultural knowledge of materials and construction techniques which can be observed in the their *'jugaad'* skills to make their living.

Rehmat Nagar settlement map showing houses and settlement edges.

Image of the railway line which also forms one of the edge of the settlement. Women carrying water in bucket taken from RMC water line across the railway track.

This is one of the poorest basti in Rourkela comprising of rag picker families. It is required to upgrade the settlement and improve their lives with an access to basic services and integrate their development with city policies like NULM (National Urban Livelihood Mission), IHHL (Individual Household Latrine) for the provision of toilets and livelihood opportunities. Besides improving their quality of lives, it is also important to integrate this community with the solid waste management systems of the city. It is important to recognize their strengths of *'jugaad'* , innovate use of construction materials, their skills and techniques of building their houses and build over their strengths through community interactions and participation.

In order to get deeper understanding of the settlement baseline survey is conducted and detailed study on houses, water, sanitation and livelihood is done which will further be discussed in this report.

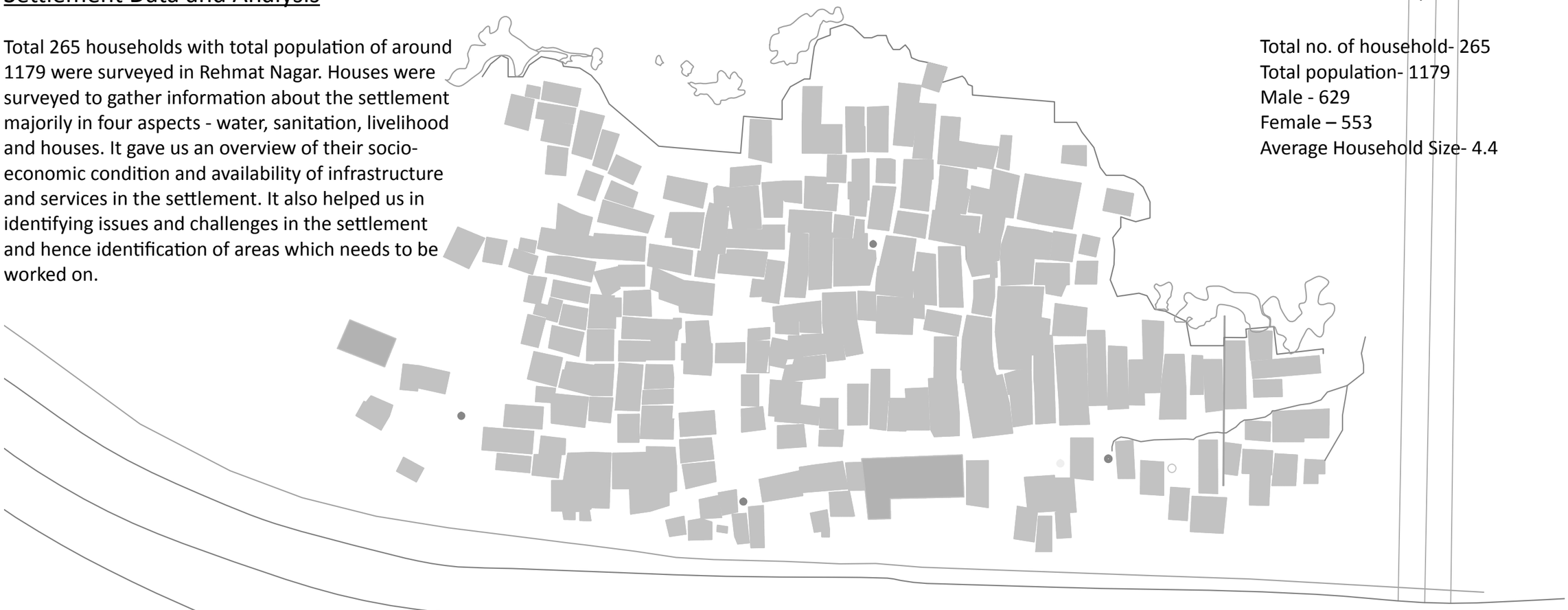
Dry waste collected by people in the settlement to sell it to medium and large aggregators.

Settlement Data and Analysis

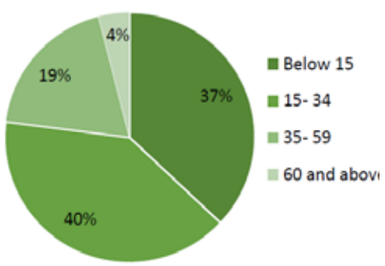
Total 265 households with total population of around 1179 were surveyed in Rehmat Nagar. Houses were surveyed to gather information about the settlement majorily in four aspects - water, sanitation, livelihood and houses. It gave us an overview of their socio-economic condition and availability of infrastructure and services in the settlement. It also helped us in identifying issues and challenges in the settlement and hence identification of areas which needs to be worked on.

Source: Baseline survey conducted in 2017 by CURE.

Total no. of household- 265
Total population- 1179
Male - 629
Female – 553
Average Household Size- 4.4

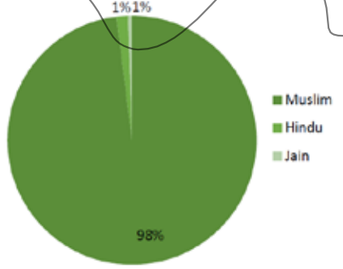


Age Composition



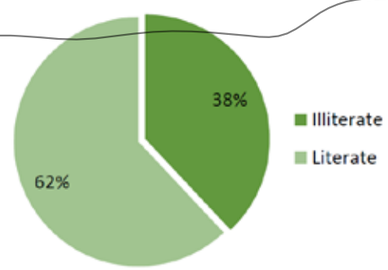
Majority of young population indicating majority of population is at their productive age hence high GDP of the settlement.

Religious Profile



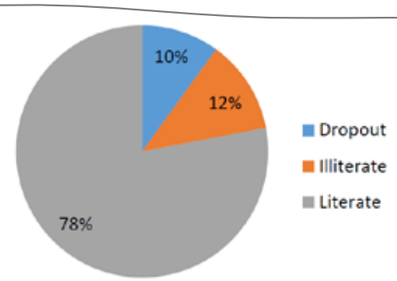
Majority of population is Muslim hence community is characterized by the mosques and madrasas which forms community spaces in the settlement.

Literacy Rate



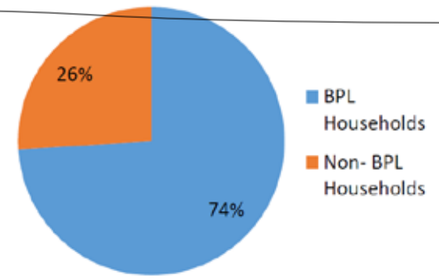
Majority of population is illiterate out of which 22% children and teenager are illiterate and drop outs from schools.

Population of Age 5-18



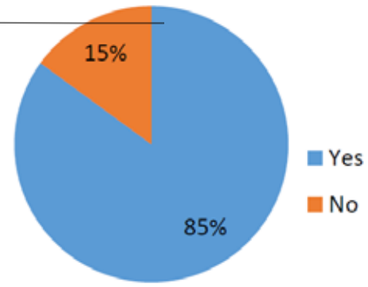
The inability to spend on education and disinterest in education are the major reasons cited for dropping out of school. Financial constraints, domestic responsibilities and lack of school facilities in neighbourhood leads more girls to drop out than boys.

Status of BPL Households



Population which lies below poverty line get some extra benefits through government schemes like subsidy in electricity bill and Ration at much cheaper price than the market rate.

Bank Acount



The bank account does not result in access to credit, 70 percent of households who borrow money, source loans from relatives or neighbours, while the count of households obtaining loans from banks is less than 6 percent. This signifies the reliance of social capital in the lives of people living in the settlement.

Understanding the community

Photo Documentation

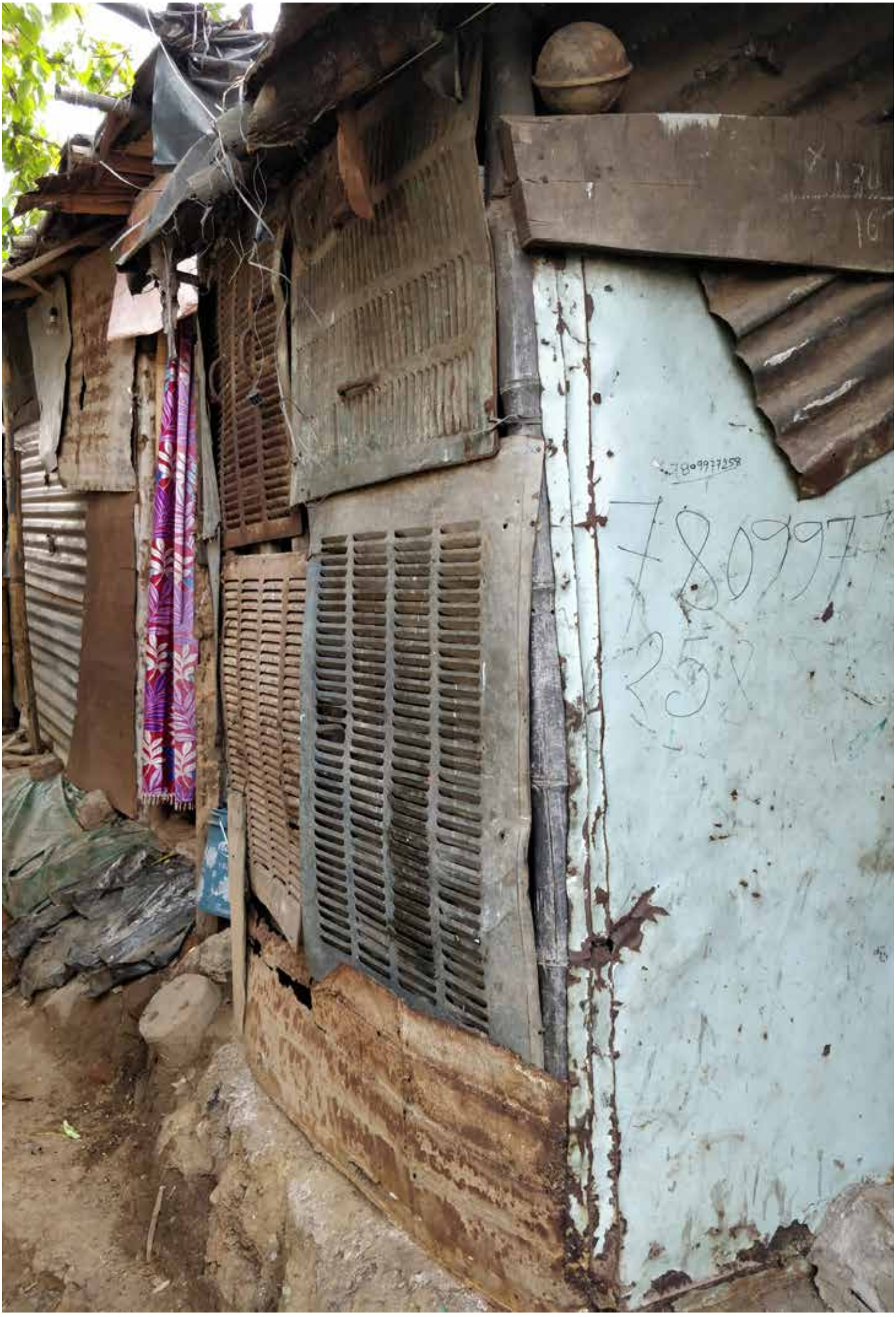
Waste is an essential part of the community, which provides them with two basic necessities for living - shelter and livelihood. It is interesting to observe in the community the innovate and creative use of the waste material in construction of their houses and making other material of their requirement. The windows in some of the houses are made outs of air cooler's jaali, wall partitions with tin cans and wooden boards. The skill of *'jugaad'* is maintaining and constructing their basic infrastructure can be observed in the whole settlement. Tha handpumps are covered with rubber tyres to protect its handle from any damage while withdrawing water from it, exhaust fans if cannot be installed in the fragile partitions is just placed outside the house with a hole in the partition wall.
Influence from their cultural and geographical background is also observed in some of their building techniques. The use of bamboo to make partitions, roofs and shelves in house, double *'chulah'* made of mud for cooking which is made in their villages, it also reduces cooking time for women.
All these *'jugaad'* techniques provides temporary solutions to people but also imposes challenges. It is very challenging to live in houses made of tin partitions in the heat of Rourkela where maximum temperature reaches to almost 49 degrees in summers. Cooking on *'chulahs'* required burning of coal and due to lack of open space and ventilation its smoke can cause health concerns to the residents. The site imposes other challenges as well – due to low lying area it gets flooded during rains and water gets seeped into the houses due to temporary partitions.

To have a detailed understanding of the waste materials used in the community and to identofy their skills and strengths a photo documentation was done in the settlement.

Thermocol box used as a tea table by one of the households.

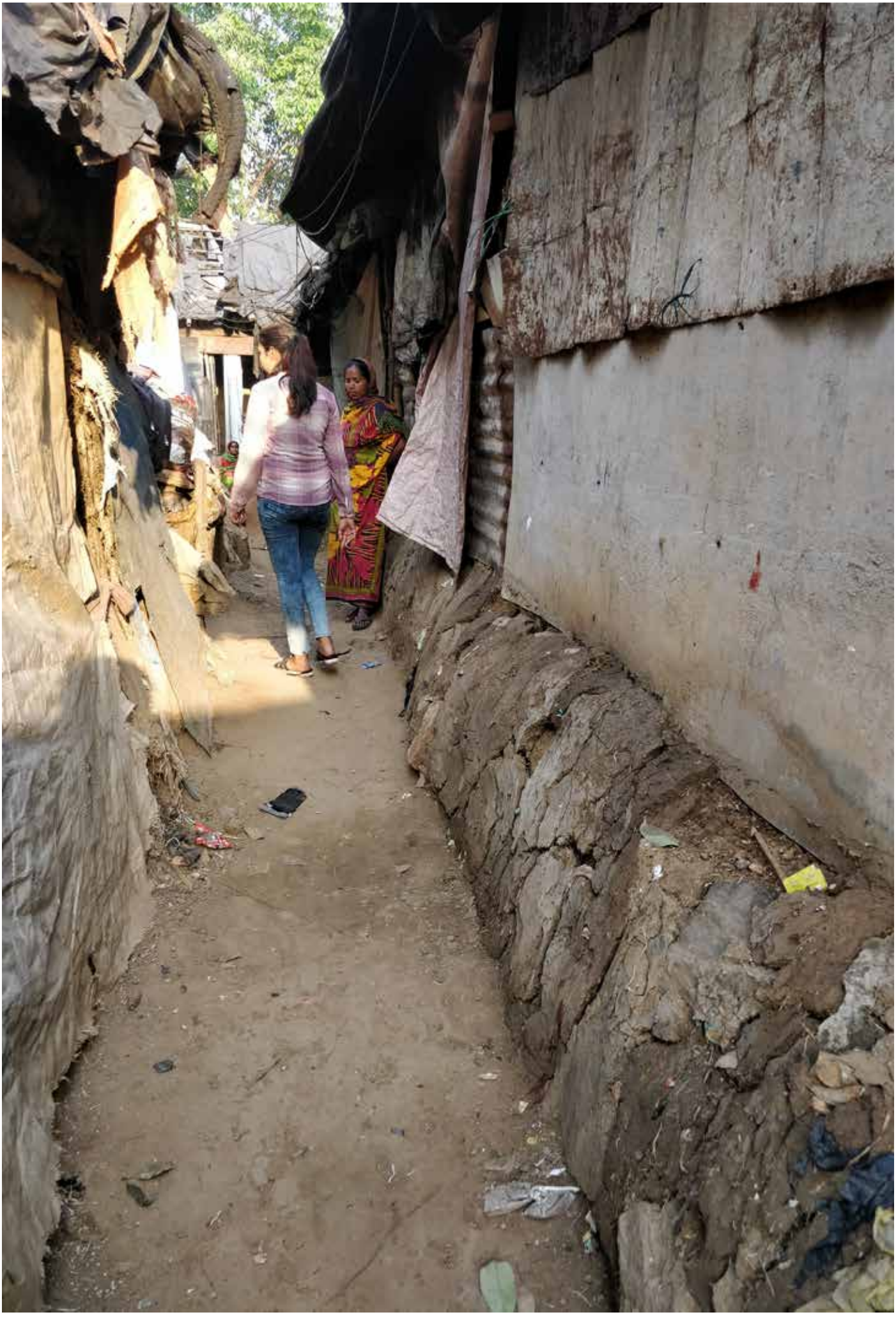
Single 'Chullah' (used for cooking) converted into double 'chullah' reducing their cooking time.

Doors made of Bamboo framing and waste tin cans



Outer partitions and windows made of aircooler doors

Floors made of mud plaster



High Plinth level of the houses to protect houses from flooding during rains.

Air cooler covers are used for covering the outer partition of house, also provides ventilation in the house.

Windows made of bricks

House wall partition detail - made of Bamboo framing and tin covering

Women making wigs out of hair waste.

Tyres are used to avoid damage of handpump handle while withdrawing water from it.

Materials used creatively to make windows

Some houses are toilets under SWM scheme of getting subsidies for the toilets.

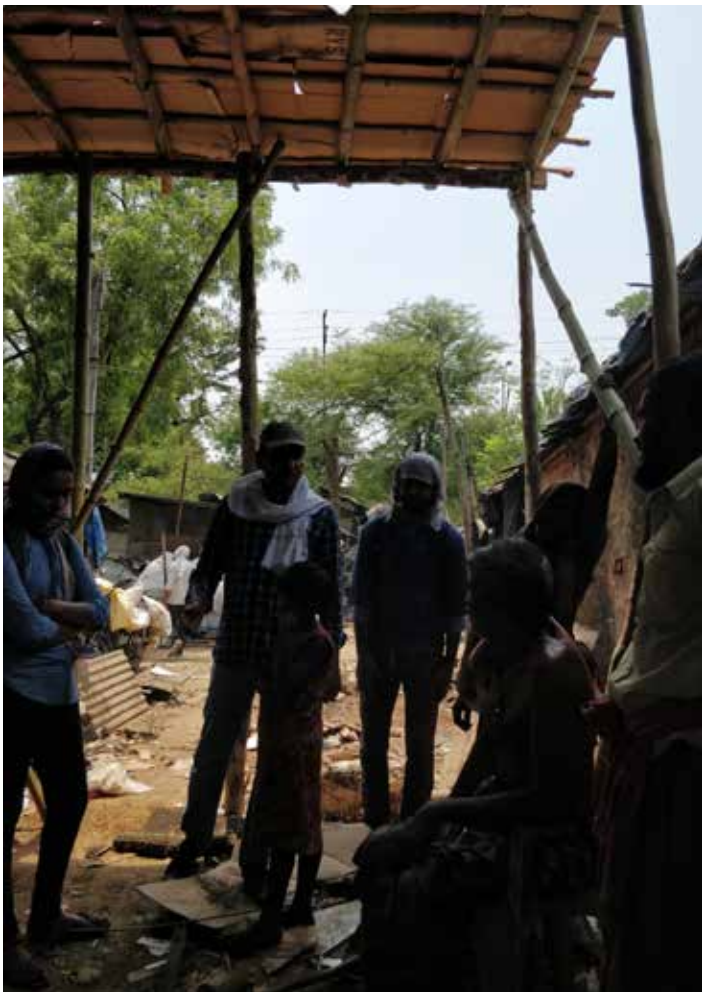
People are building toilets with a single septic tank made of concrete rings.

Houses

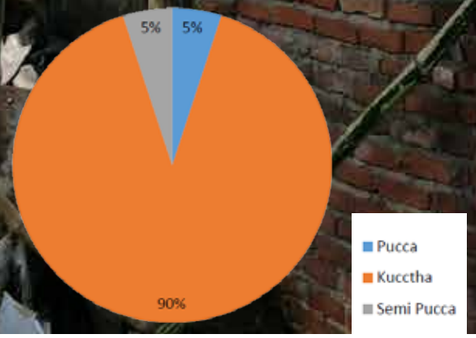
Houses Study

Map showing the location of 5 houses studied in detail.

It was observed that people have built their houses with all waste material like broken wooden boards, cardboards and tin sheets. To have a detailed understanding of the waste materials used in their house construction and how these materials are linked to the network of their livelihood, five houses were studied in detail. Their construction techniques, materials used, space utilization and activities were documentated. Based on this study, improvements in existing houses and appropriate place to build household toilets can be suggested. The materials can further be linked to ther livelihood and and city systems.

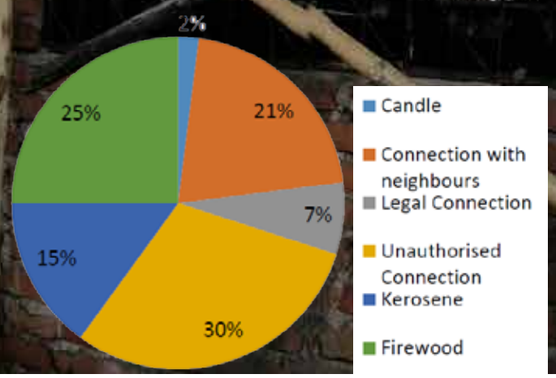


Data and Analysis



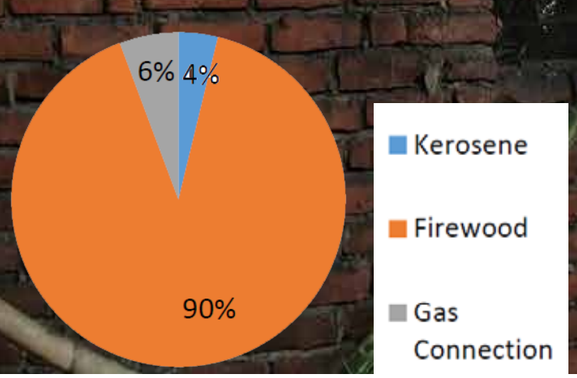
Housing Status

Houses in Rehmat Nagar have an interesting character, majority of them are Kucctha houses with 90 percent made up of scrap. Roofs structure is of bamboo covered with Plastic sheet or Asbestos sheet. Only 5 percent of houses are pucca with brick wall and roof and 5 percent are semi pucca with brick wall of asbestos or tin sheets.



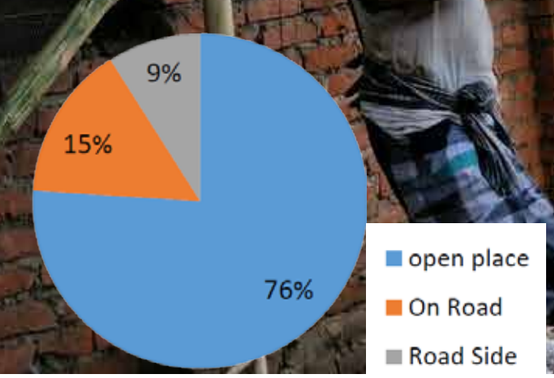
Electricity Connection

Only 7 percent of the households are having legal electricity connection. While 25 percent use firewood and 15 percent use kerosene. 30 percent of households have unauthorised electric connection that means they don't have electric meters at their home and don't have to pay electricity bill. Also, 21 percent of households are having shared electric connection. To avoid connection charges and hustle they opt for shared connection in which they pay some amount to the one they took connection or sharing the electricity.



Fuel for Cooking

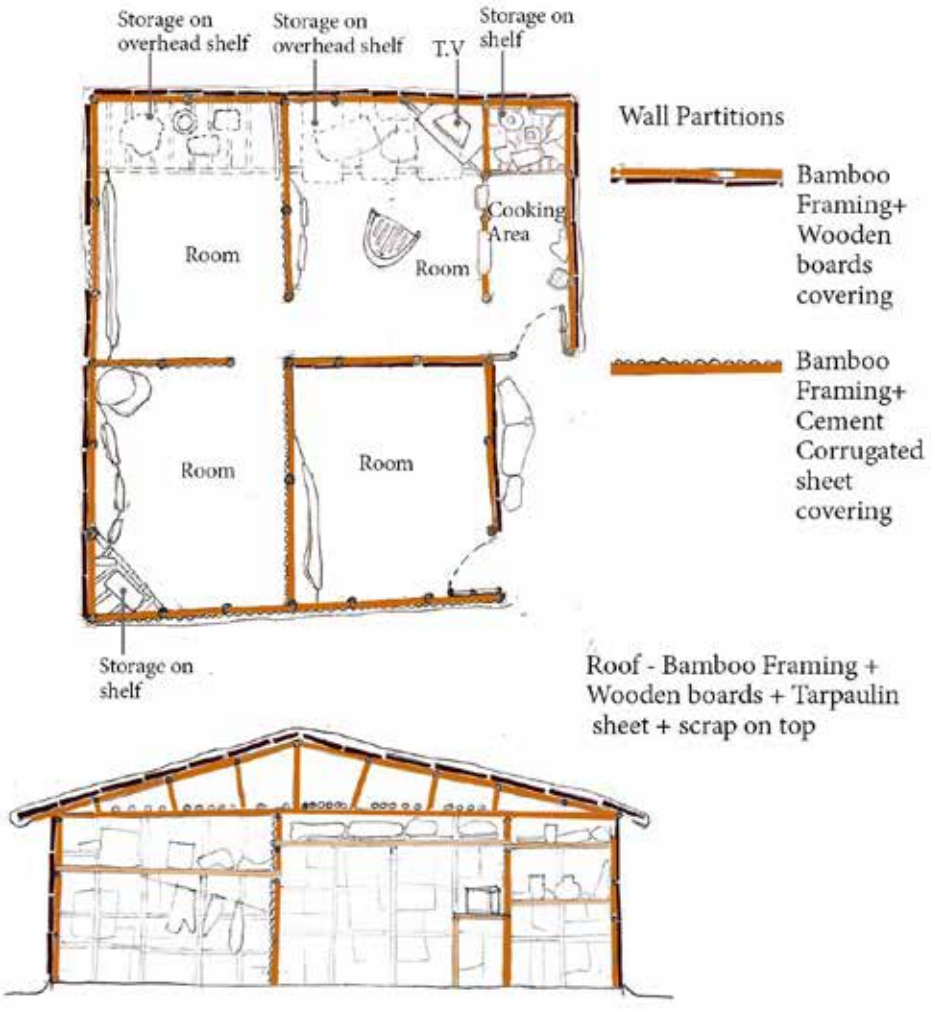
Only 6 percent of total household use LPG as a fuel for cooking while other 96 percent rely on some other sources like 90 percent use firewood and 4 percent of them are using kerosene heater for cooking. They have a traditional ways of cooking for which they make chullah out of mud that's why the use of firewood for cooking is much higher here than any other basti.



Household Waste

Rehmat Nagar doesn't have facility of Door to Door collection unlike rest of the rourklea that's the reason 76 percent of total household throw their garbage at open place, 15 percent on road and 9 percent at road side. This is the reason basti seems to be dirty and waste get accumulated at the edges of roads and improper drains which leads to breeding of mosquitoes and higher cases of malaria and dengue were noticed in through the survey.

House No. - 32



No. of People live in the house - Male and Female

Materials used - Bamboo framing+wooden board covering, Bamboo framing+ cement corrugated sheet covering, Roof- Bamboo framing+wooden boards+tarpaulin sheet+scrap on top

Cost of materials- All the materials used were bought from the nearby market in Rourkela - wooden boards Rs. 5/kg, Tin sheet - Rs. 10-15/kg, Bamboo- Rs. 150/piece. Extension of each room costs approx. Rs.10,000/-.

Incremental construction- The house was constructed incrementally, room adjacent to the cooking area was built first and the second room was constructed afterwards and third and fourth room were constructed when the sons got married.

Who contructed - Bamboo is used for the structural stability, mistri was hired to do the bamboo work and family was involved in doing the coverings and flooring. Toilets is not contructed due to lack of space and money, as said by the householder.

Maintenance- The house requires repair in every 4-5 years and tarpaulin sheet requires to be changed every year.

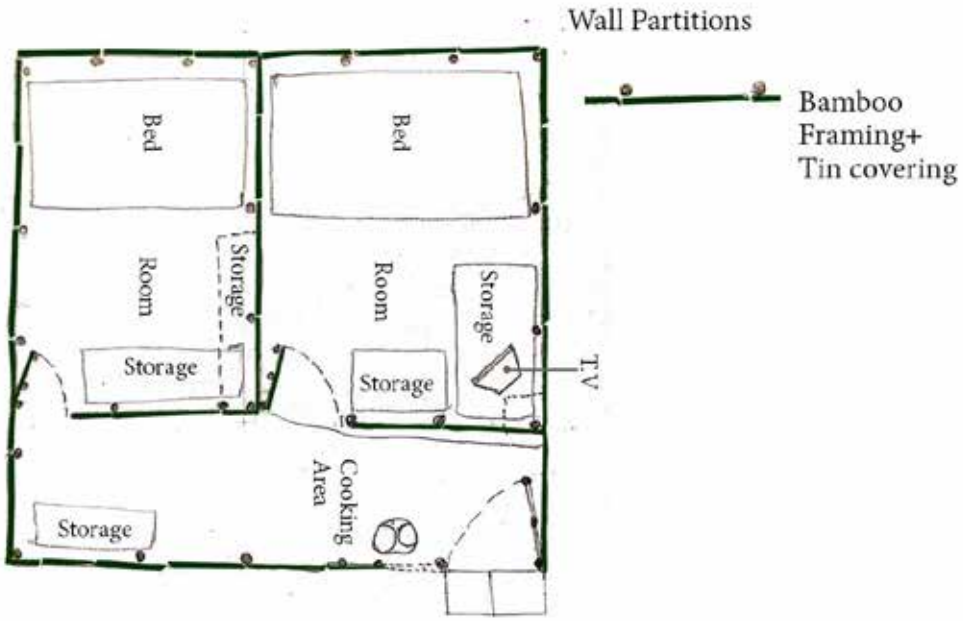
Means of Livelihood- Head of the family is takes ferry to collecttin and metal waste, wife goes for rag picking, both the sons are carpenter and mistri, one daughter is married and other daughter doesn’r go to school due to mentall illness.

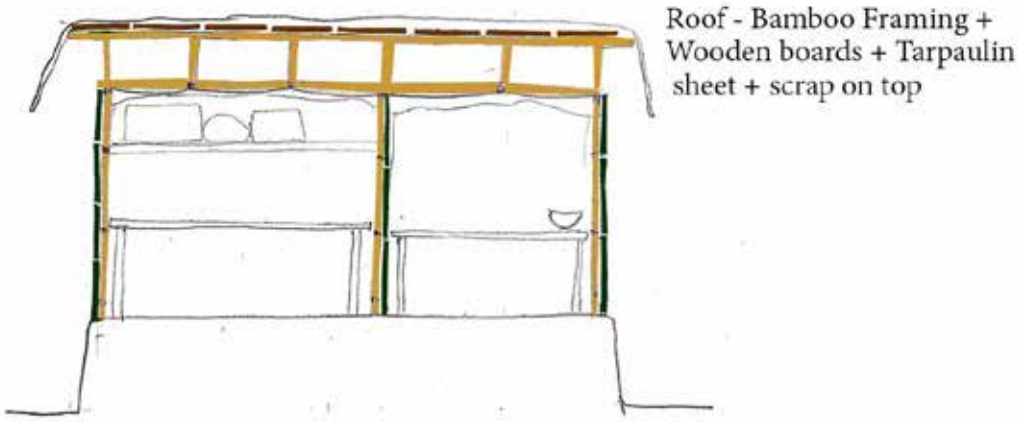
Exterior view of the house.

Shelves in the house made of bamboo for storage

Partitions made of bamboo structure and tin covering

House No. - 149





No. of People live in the house - five - 2 children, husband, wife and wife's brother

Materials used - Bamboo framing+tin covering, Roof- Bamboo framing+wooden boards+tarpaulin sheet+scrap on top
Cost of materials/house- Constructing complete house costs around Rs. 30,000-35,000/-
Incremental construction- Constructed right side room first, then second room was costructed and then gallery and cooking area was constructed.
Who contructed - Mistri constructed the house, householders only did labour, mud floor and chulha.
Maintenance- Constructed 20-22 years ago, renovated the complete house 2-3 years ago, only minor rovations they do yearly. Complete house renovation costs around Rs. 20,000-25,000/-
Means of Livelihood- Wife goes for ferry of tin and metal . They go in train and whatever they collect they sell in the respective locations only.

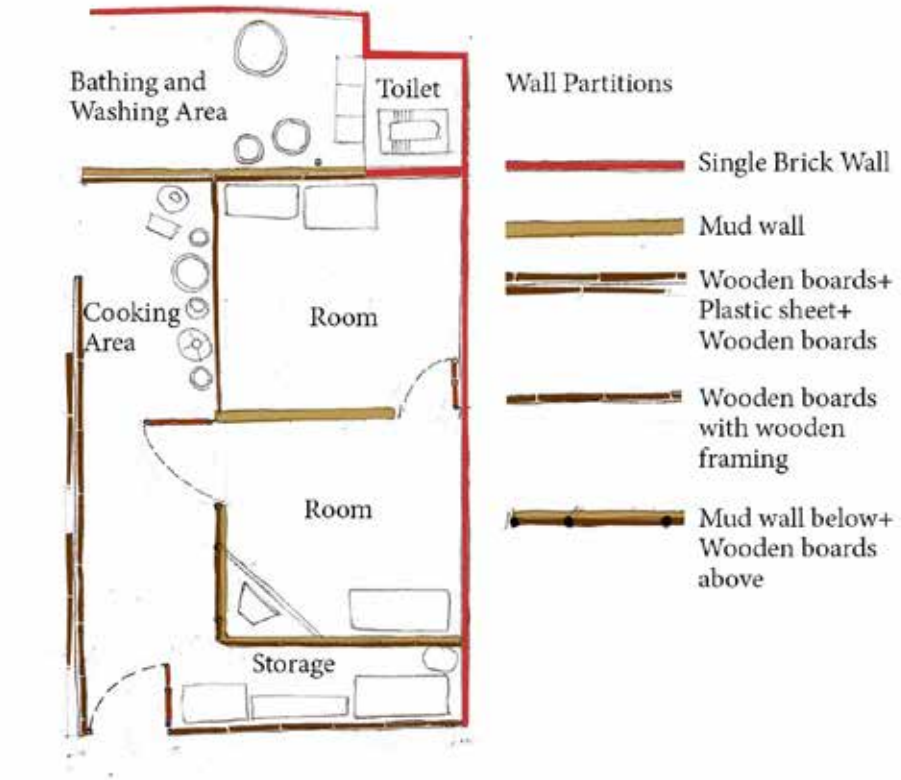
They showed the need of toilet, have constructed only pan in a temporary structure in front of the house. Toilet and cooking area gets flooded during rains.

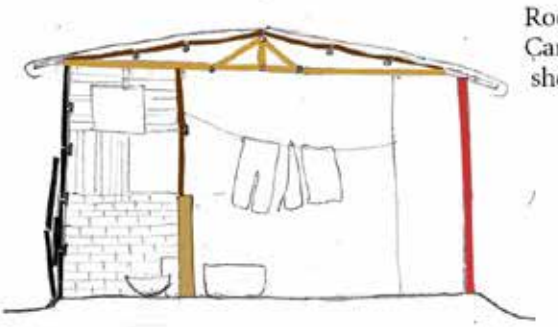
Exterior walls of the house is covered with tarpaulin sheet to avoise seepage of water during rains.

Exterior wall of the house

Mud flooring with chulha for cooking

House No. - 129





No. of People live in the house - five, One daughter married, two daughters at home.

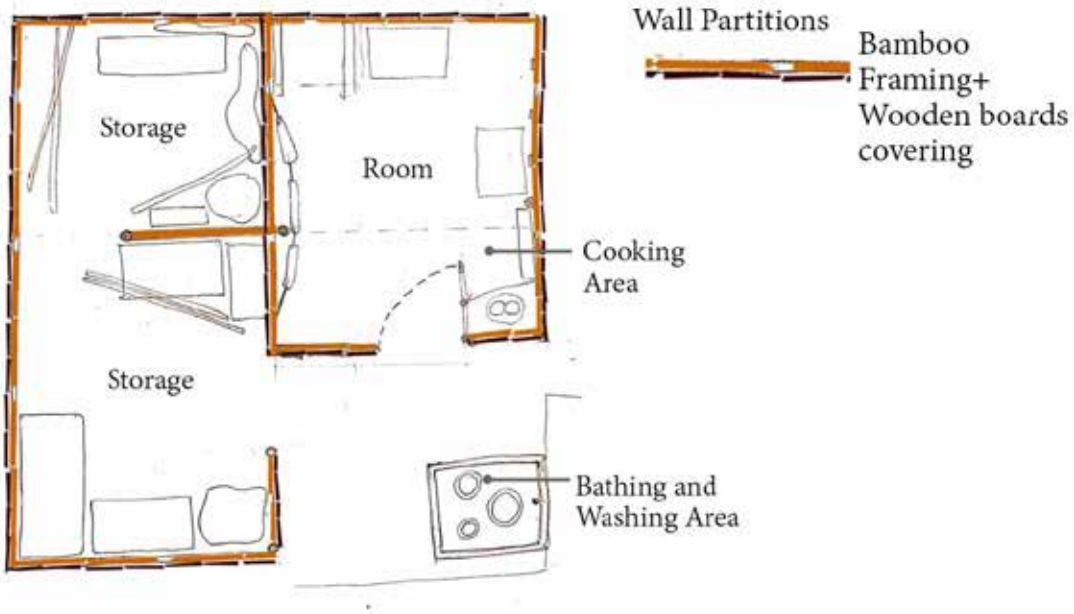
Materials used - Single brick wall, Mud wall,Wooden boards+plastic sheet+wooden boards, Roof- Bamboo framing+wooden boards+tarpaulin sheet+scrap on top
Cost of materials/house- It costed them around Rs. 30,000-40,000/- to construct this house.
Incremental construction- Initially mother in law gave materials to construct the room in front, later they constructed one more room and toilet in the house
Who contructed - Mistri constructed the house, all the mud plaster they did themselves.
Maintenance- House was constructed 30-35 years ago, no renovation done since then.
Means of Livelihood- Husband goes for ferry and wife does rag picking.

Exterior view of the house

Roof made of bamboo structure and cardboard and tar-paulin sheet covering

Toilet constructed at the back of the house with septic tank , temporary roof and without door

House No. - 211



No. of People live in the house - 4, Head of the family is female lives along with son, daughter in law and grand daughter.

Materials used - Bamboo framing+wooden boards, Roof- Bamboo framing+wooden boards+tarpaulin sheet+scrap on top
Cost of materials/house- Approximate cost of contructing one room is Rs.10,000-15,000/-
Incremental construction- Constructed one room 20 years ago and after 5 years constructed another room.
Who contructed - Mistri
Maintenance- Have not renovated house since 20 years.
Means of Livelihood- Rag picking

Have toilet with kaccha super structure and have constructed pit without rings. Have built the rest due to lack of money.

Exterior view of the house

Partitions made of wooden boards and bamboo

Tap is placed outside the house used for washing and cleaning purpose.

Detailed house study

House No. - 19

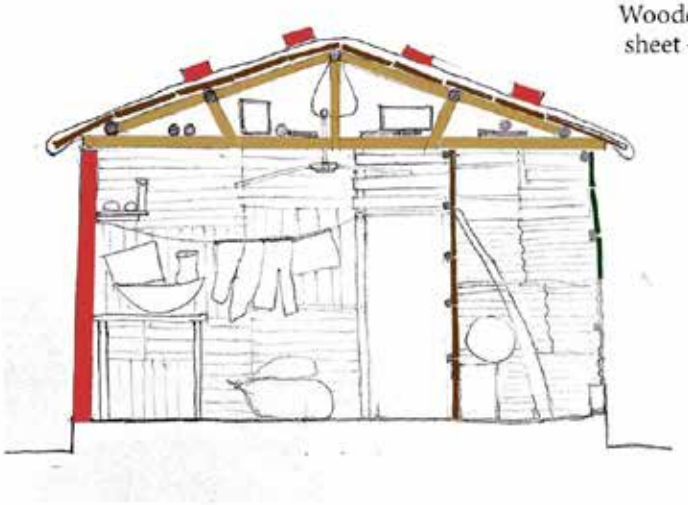
Wall Partitions

Bamboo Framing+ Tin covering

Single Brick Wall

Wooden boards with wooden framing

Roof - Bamboo Framing + Wooden boards + Tarpaulin sheet + scrap on top



Observations

It was observed that people have built their houses with tin sheets, wooden boards, torned cardboards and tarpaulin sheet where bamboo is used as a primary material for the structural stability of the house, used majorily to build roof and wall structure of the house. Houses which looked like made of waste material in first observation actually made of materials which are bought by the householders from market. It costs approx Rs.30,000-35,000/- to build a complete house with 2 rooms and cooking area. Extension of one room costs approx. Rs 10,000/- including the cost of the contractor. Contractors are hired to build the bamboo structures, where householders do the labour work and mud flooring and plastering in the house.

Extensive use of bamboo was observed, it was majorly used in framing for the roof and walls and at times to make shelves for the storage. Tarpaulin sheet is used to cover the roof during rains and at times also used on the exterior side of the walls. Roof in all the five houses studied was made of bamboo framing with the covering of wooden boards or cardboard sheets and tarpaulin sheet over it. Flooring is majorly done with mud plaster and at times with cement plaster over mud. Bamboo used in walls was covered with various materials like tin, wooden boards. In some houses mud walls and bricks were also observed. Ventilation is provided only through the gaps between two materials and only in one house wire mesh panel was used instead of tin panel for the provision of ventilation. Doors were made of similar material as wall partitions – with wooden or bamboo framing and nultiple materials were used covering. In all the houses cooking is done on the floor by using 'chulha' made of mud plaster. Only two house out of five have toilet and others go in open to defecate. Toilet in these two houses are constructed of kacha superstructure, without doors. The reason of constructing a toilet in that one house was the need for their teenage daughters who face difficulty in going in open to defecate.

Mistri is hired to construct bamboo structures in the settlement,, he chrages approx. Rs. 6,000-7,000- for constructing bamboo structure of roof, outer walls and internal partition walls and takes around 4-5 days to complete the construction of one house.
In one house with two rooms and cooking area on an average, 14kg of tarpaulin sheet is used it costs around Rs120/kg. Tin sheet costs around Rs.12-13/kg and bamboo around Rs120/20 ft. Some house have also used pre casted concrete pillars which costs Rs.300/- per piece. Bamboo is easily available in markets nearby settlement, tarpaulin is either bought from nearby market or bought from their hometowns in Kolkata.

Local mistri from basti for constructing bamboo structure, they are often also involved in other work like collecting waste in ferry or carpentry as well.

A very interesting combination of materials like pre caste concrete pillars, bamboo pillars were observed, which can be dismantled and replaced when renovation of house is required. The community shows a good cope of introducing such pre cast, low cost, replacable materials which are also sustainable and can be used efficiently to reduce heat inside house and improve indoor air conditions of the house.

Water

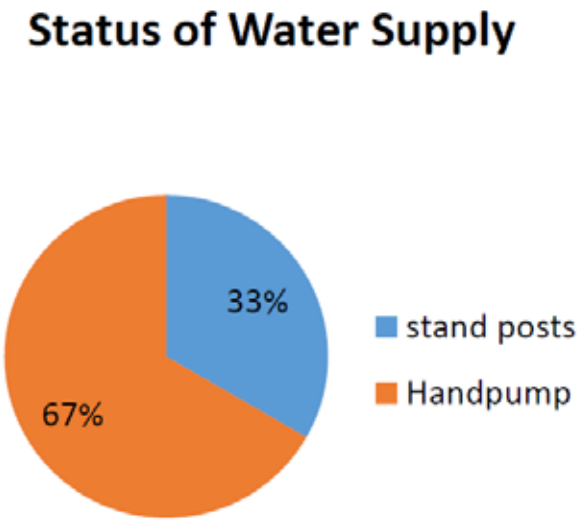
Water

Location of the stand post constructed around RMC broken water line from where people bring water for drinking

Map showing the location of handpumps nd stand posts.

Data and Analysis

There are 5 handpumps available in the community which is used as a source of water for their daily needs. All the households use ground water for washing and cleaning purpose, around 54% of them also use it for cooking and drinking purpose as well. As interacted with some of the households, they use ground water for drinking without boiling or any purification treatment and people regularly complain regarding the quality of the water of handpump. 33 percent of the household go across railway line to the other basti to get drinking water from the stand post. Stand post is constructed around the leakage point from RMC water line, which has become the only source of drinking water for people. Water testing reports..



Observations

There are 5 handpumps like this in the settlement used as a source of water.

Water brought from handpumps and stand post are stored by people in their houses.

Drinking water is bought from a standpost located in other basti across the railway line.

Stand post is constructed around leakage in the RMC water line

Water bought from the standpost is used for cooking and drinking purpose

Sanitation - Toilets

Sanitation - Toilets

Map showing the location of houses with household toilets and open defacation sites.

Open Defacation sites.

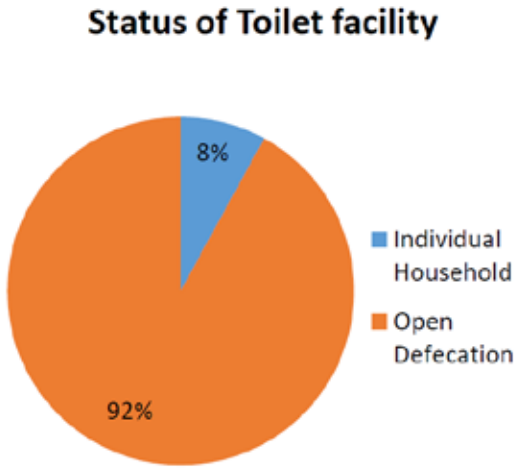
Households with toilets

Lack of toilets is one of the major concerns in the settlement. Currently, approx. 92 percent people defecate in open, there are three locations which are currently used for open defecation in the settlement. When interaced with the community, lack of money is the major concern for not building the toilets, most of them are waiting for the subsidies from government to build it. Feeling the need of it is also one of the factor for not constructing toilets in their houses. Expanding family, teenage and young girls in the family are some of the reasons due to which people felt the need to construct toilets in their houses.

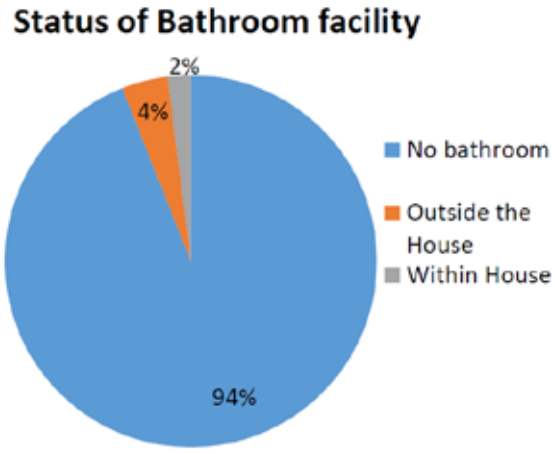
Most of the houses who have built toilets are constructed with just toilet seat and temporary super structure made of bamboo and tin or cloth. As CURE team started nudging the families, some households started building toilets with brick superstructure and single pit septic tank made from concrete rings.

People were encouraged to fill forms for toilet subsidies under SBM. After which 5 households built toilets, but some of them built it without doors or septic tank or permanent wall. Currently CURE team is nudging people to complete their toilets to further put in a request in RMC to release government subsidized money to people for toilets under IHHL (Individual Household Latrine) scheme. The idea is to keep building on this number by nudging people to build toilets as per the requirements under SBM.

Data and Analysis



Survey reveals that 92 percent of household doesn't have toilet and defecate in open. Only 8 percent households have toilet. People defecate on existence of railway line and open fields nearby. Women make a boundary from fabric to designate a space to defecate in open.



A huge percentage of 94 households doesn't have bathroom facility only few households have bathroom within their house and outside the house. Because of lack of drainage system they don't build bathrooms as waste water gets accumulated within their houses. Also the settlement is too congested to build kuccha drains.

Observations

In some of the houses only pan is placed on the kacha floor and covered with any temporary materials available.

Toilets made of temporary structure used just for covering usually made of bamboo and cloth or plastic sheet or tin covering.

Some of houses have built toilets without septic tanks and used plastic sheet to make the superstructure. Currently CURE team us nudging them to build it as per SBM requirement to make them eligible to get the subsidies for building toilet.

Some houses have built toilets with septic tank but without proper roof and door.

Toilet constructed in one of the house with concrete ring septic tank.

Sanitation - Drainage

Sanitation - Drainage

Map generated to plan drainage for the settlement

The site lies in the low lying area of the city, adjacent to the railway line. Due to low lying area ,lack of drains, narrow streets and obstructions on the natural slope of the area, the streets and houses flood during rains. People have constructed high plinths in their houses made of stone or mud to prevent their houses from flooding and oftenly covered the plinths with plastic or tarpaulin sheets.

Flooding during rains has led to the formation of swamp at the edges of the basti and a breeding ground for mosquitoes which is the cause of major health concerns for the people.

View of swamp from on of the house in the settlement

Observations

People have constructed high plinths made of mud or stones to avoid flooding in thieir houses during rains.

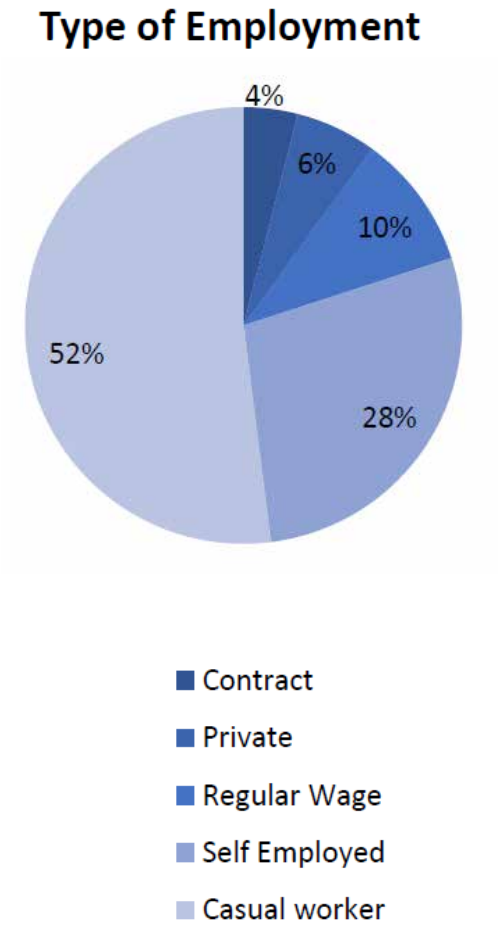
Current condition of some of the streets clogged with water

Livelihood

Livelihood

Map showing the location of waste segregating sites

Rag picking and collecting waste from nearby settlements through ferry and in plastic bags is one of the major source of livelihood. Also, the finding of the survey reveal that the casual employment in Rehmat Nagar is a principal employment category for both males and females with 52 percent, followed by self employment and regular wage employment with 28 percent and 10 percent respectively. Only 6 percent of the workforce work on private employment. Close to 95 percent of the workforce have no employment related benefits.



36 percent of women respondents participate in income generating activity. Most of the women do rag picking and labourer work for which they have to go out of their house leaving their children behind or they take them with themselves and that's how young population also get engaged in rag picking. Low literacy rate, high dropouts from school all add up to the current practice of waste collection and segregation activities for livelihood in the settlement.

Observations

Men usually take auto tippers or rikshaws to collect waste, women and children ar emore involved in collecting waaste from streets, trains, platforms, garbage dump sites. Collected waste is given to the waste collector dealers in the settlement. There are around 2-3 dealers in the settlement, who further segregate waste into plastic, paper, glass, electronic waste and sell to their respective dealers who run waste units in Rourkela.

Segregated waste is weighed and sent out to bigger waste units in Rourkela.

Mistri, carpentry are some of the other livelihood options which are opted by some people apart from collecting

Street vendors, selling utensils, clothes are also some of the other livelihood options for people in the settlement.

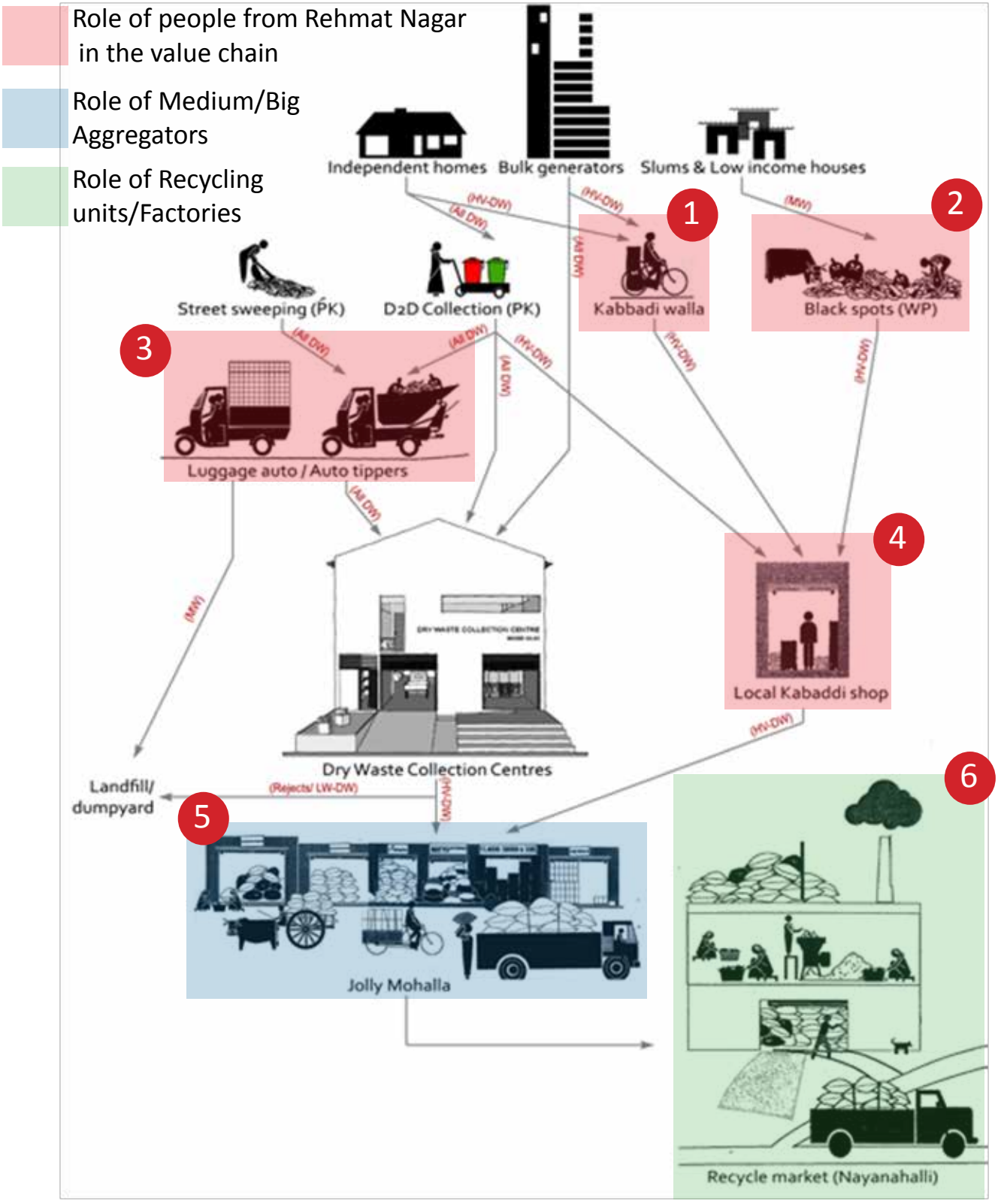
As we started getting deeper into the community, we found various stories of people and their livelihood activities. Afzal is a migrant from a village in Kolk-ata. He migrated first to Delhi. And in search of work came to Rourkela. He currently makes phenyl –used for cleaning toilets, floors and Neel used for cleaning clothes. He sells each bottle for Rs.30/- and makes profit of… He buys one bottle of acid worth Rs.50/- and mixes it with solution to make 50-60 bottles of phenyl and sells it for Rs. 30 each bottle.

Women segregating and cleaning metal parts to sell it to the dealer.
Women and Children in the settlement are majorily involved in the Rag picking and segregating activities.

Hair are sold for Rs.3000/kg, hence hair waste is one of major waste which is collected and segregated.

Link with dry waste value chain of the city

City of Rourkela has an average waste generation of 0.3-0.4 kg/capita/day. Approx. 120 TPD of waste was generated in the city in the year of 2015 out of which 100 TPD of waste was collected. It has a dry waste chain which constitutes both the formal and informal sector, both of which are highly intertwined with each other. This chain is primarily composed of Collectors (Pourakarmikas, Waste-pickers and Auto-tippers), Aggregators (Dry Waste Collection Centres, Kabadiwallahs, Scrap-dealers, etc.) and Processors.
People of Rehmat Nagar play an important role in the value chain as Ragpickers, Auto tippers and Kabbadiwallahs, which is also a means of livelihood for them.



Role of Rehmat Nagar in the dry waste value chain

Left Top: Rag picking is one of the major source of livelihood in the settlement. People often board trains from nearby railway line and pick garbage from trains and platforms and travel to nearby areas to collect garbage.

Left Bottom: Ferry is another way of collecting waste from nearby areas. This is more organized way of collecting waste from residential areas.
Right Bottom:There are around 2-3 dealers in the community who collect waste from other people in the community, seggregate it and sell it to the respective big or medium dealers in the city.

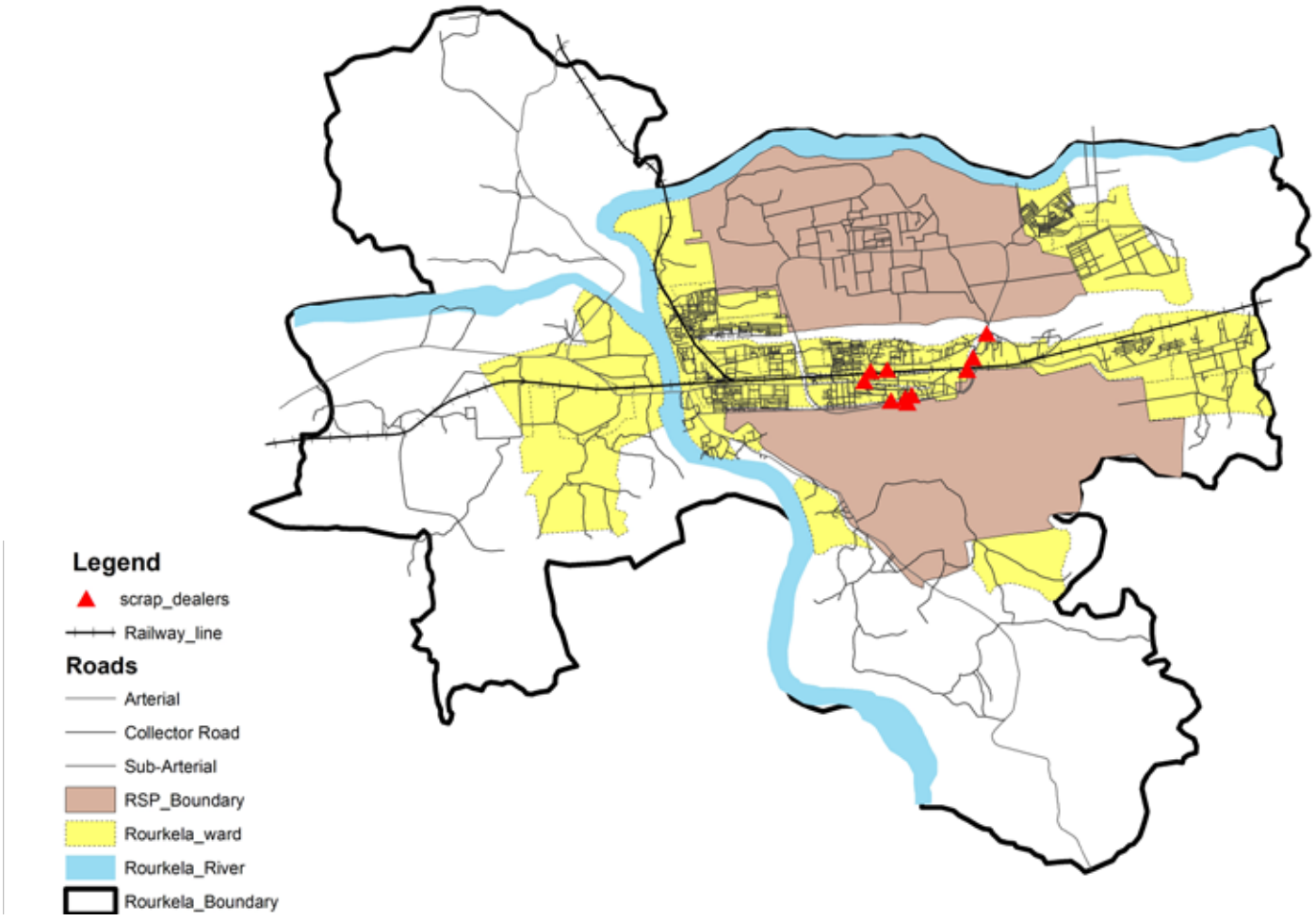
Local Kabadi Shop

They buy 'high-value' dry waste from both formal (PKs, Auto tipper drivers, sweepers) and informal (itinerant buyers, rag-pickers) workers Sometimes they tend to collect waste from offices, homes and institutions too. This set of businessmen, possess immense knowledge of materials and processes. There are around 2-3 local kabbadi shops in Rehmat Nagar. They seggregate plastic, glass, electronic, metal, rubber, hair waste and sell it to the respective dealers.

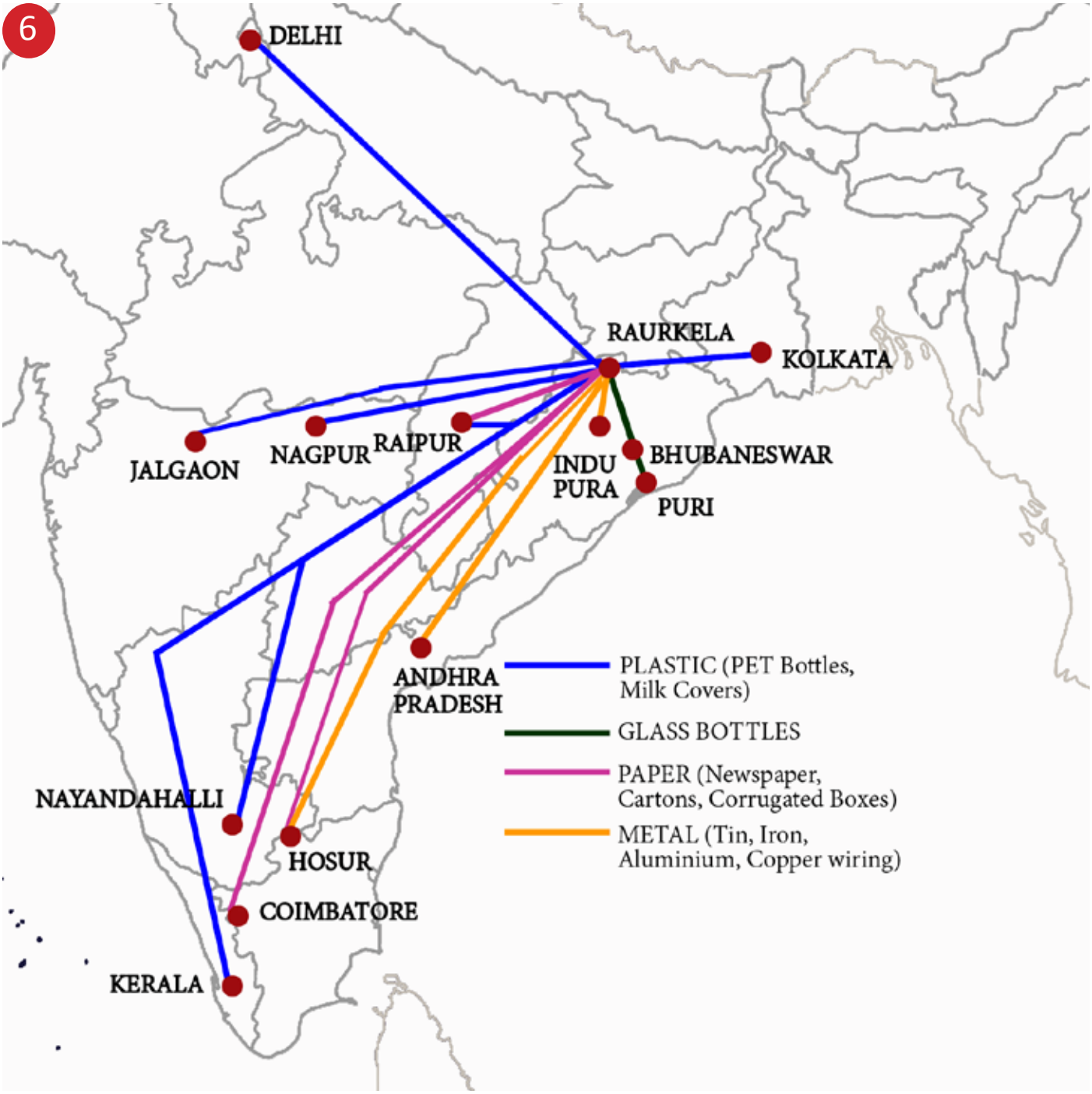
Top: Image of one of the scrap dealers in Rourkela. Bottom: Map showing the location of all 12 scrap dealers in Rourkela.

Jolly Mohalla

This includes Scrap-dealers, who are the waste buyers from local kabbadi shops and other local kabadiwallahs. The types and amount of waste they aggregate varies and is highly dependant on the space availability. These informal shops are present in almost every locality. They serve as a local community aggregators and has the space as well as the ability to employ a couple of rag-pickers who exclusively collect waste for him. In terms of infrastructure, most scrap-dealers also own small vehicles ususally trucks for the transportation of waste from one part of the city to other or parts of other cities. They seggregate the waste further, cut or press them and send them for recycling to their respective factories in Rourkela or other cities. There are around 12-13 scrap dealers in Rourkela, medium or big depending upon the amount of waste they collect.



Location of all the 12 scrap dealers were marked on GIS Map along with the coordinates.



Recycling units

Recycling units can be located in Rourkela or outside Rourkela of various waste materaisl like plastic, glass, metal etc. Scrap dealers send aggregated dry waste to respectice recycling units or factories. Recycling units is the first point of contact that sets the value of the waste depending on the demand of in the market on that day. Unlike other categories of waste collectors, scrap-dealers usually do not face the predicament of space availability. They can spread the waste collected, sort as well as store, and above all, ensure that the quanta of waste collected procures a better price than small random quantities of waste allow. Research in the field indicates that those that have manual balers ensure that their products get the best sale price from the middleman or aggregator they sell to.

LOCAL KABADIWALLAH SHOP

Get waste from 100-150km area around their location → ALL KINDS OF WASTE WHICH HAS RESALE VALUE → Medium and Large scale aggregators

MEDIUM AGGREGATOR

Gets waste only from Rourkela →

PLASTIC
(Different quality to different people, buy for Rs 15-16/ kg from ferry and ragpickers and for Rs.20-22/kg from fellow dealers) → Kolkata, Delhi, Nagpur, Raipur, Jalgaon

PAPER
(Carton)

GLASS BOTTLES
(Buy for Rs. 2kg)

Total 70-80 tonn of dry waste/ month is sent to other cities in total 5-6 trucks by an average medium aggregator.

There are 7-8 medium scale aggregators in Rourkela sends total 300 tonn of dry waste/month.

LARGE AGGREGATOR

Gets waste only from-

Sundergarh
Naniharpur
Bisrapur
Banai →

PLASTIC
(Rs. 1-10/kg) → Delhi, Kolkata

PAPER
(Newspaper Rs. 13/kg, Books Rs. 10/kg, Copies Rs. 14/kg) → Raipur

GLASS BOTTLES → Bhuba--neswar, Khurda, Puri

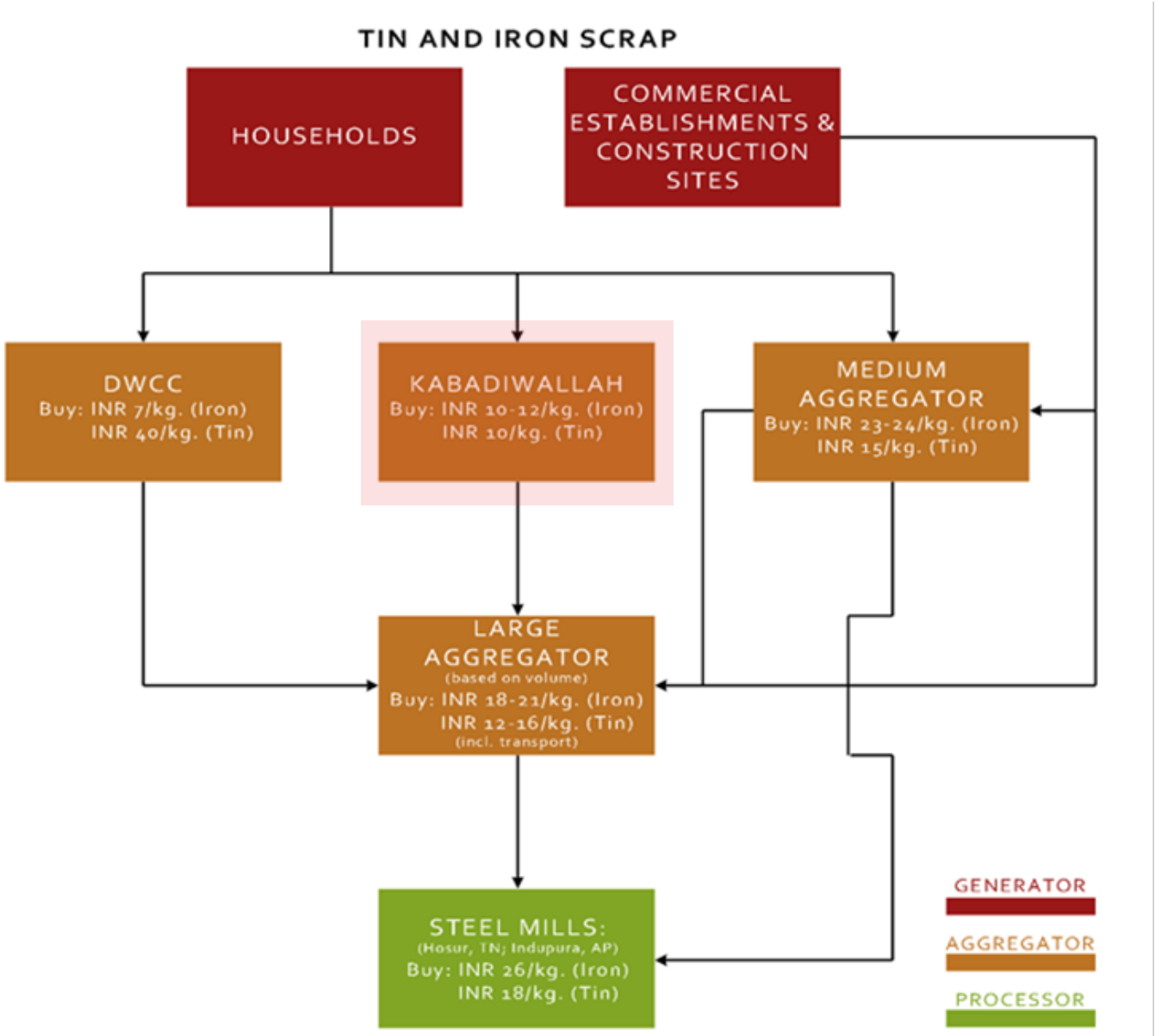
Total 500 tonn of dry waste/month is sent to other cities.

Role in type of dry waste value chain of the city

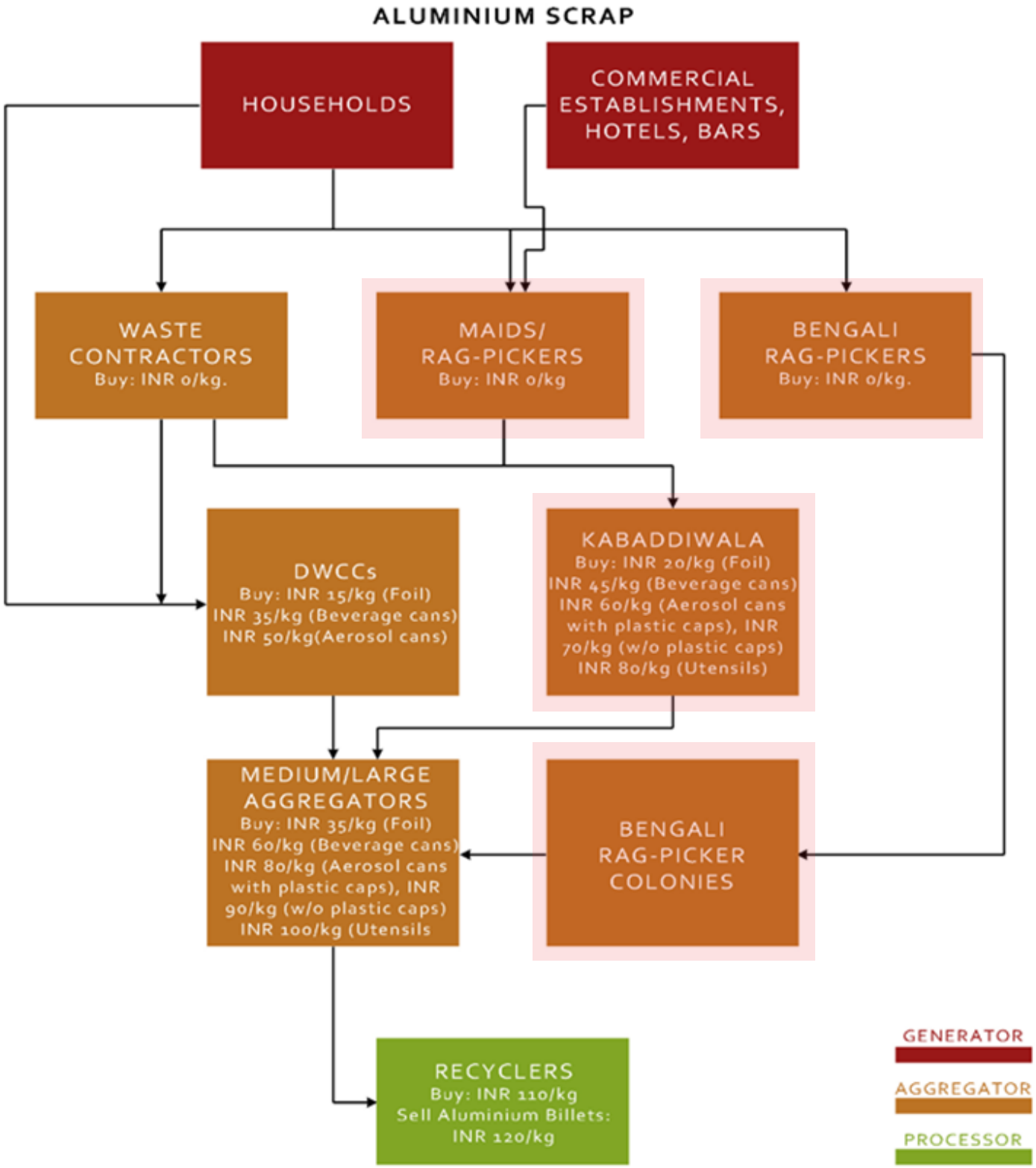
METALS

The metal waste generated in Rourkela can be broadly categorized into scrap iron, tin, aluminium, copper, brass and bronze. Almost 95% of metal scrap is made up of iron and tin from construction sites, metal forming industries and households. Copper wires, brass, bronze and aluminium (cans, foils, automobile components, household articles, etc.) make up rest of this category. Each category of waste is handled exclusively by different agencies that then process (primary – cutting/bailing) it before sending it to processing industries across the country. Scrap iron and tin are sent for melting into billets to industries in Hindupur in Andhra Pradesh and Hosur in Tamil Nadu. Brass and bronze scrap is sent to Salem, Pondicherry, Ahmedabad and Jamshedpur for recycling, while almost 85% of copper waste is sent to Delhi for recycling. 50% of the Aluminium waste generated is sent to Delhi and Hyderabad.

Flowcharts depicting the waste chain of Iron and Tin, Aluminium and Copper wiring scrap is shown below respectively.



Role of people from Rehmat Nagar in the value chain



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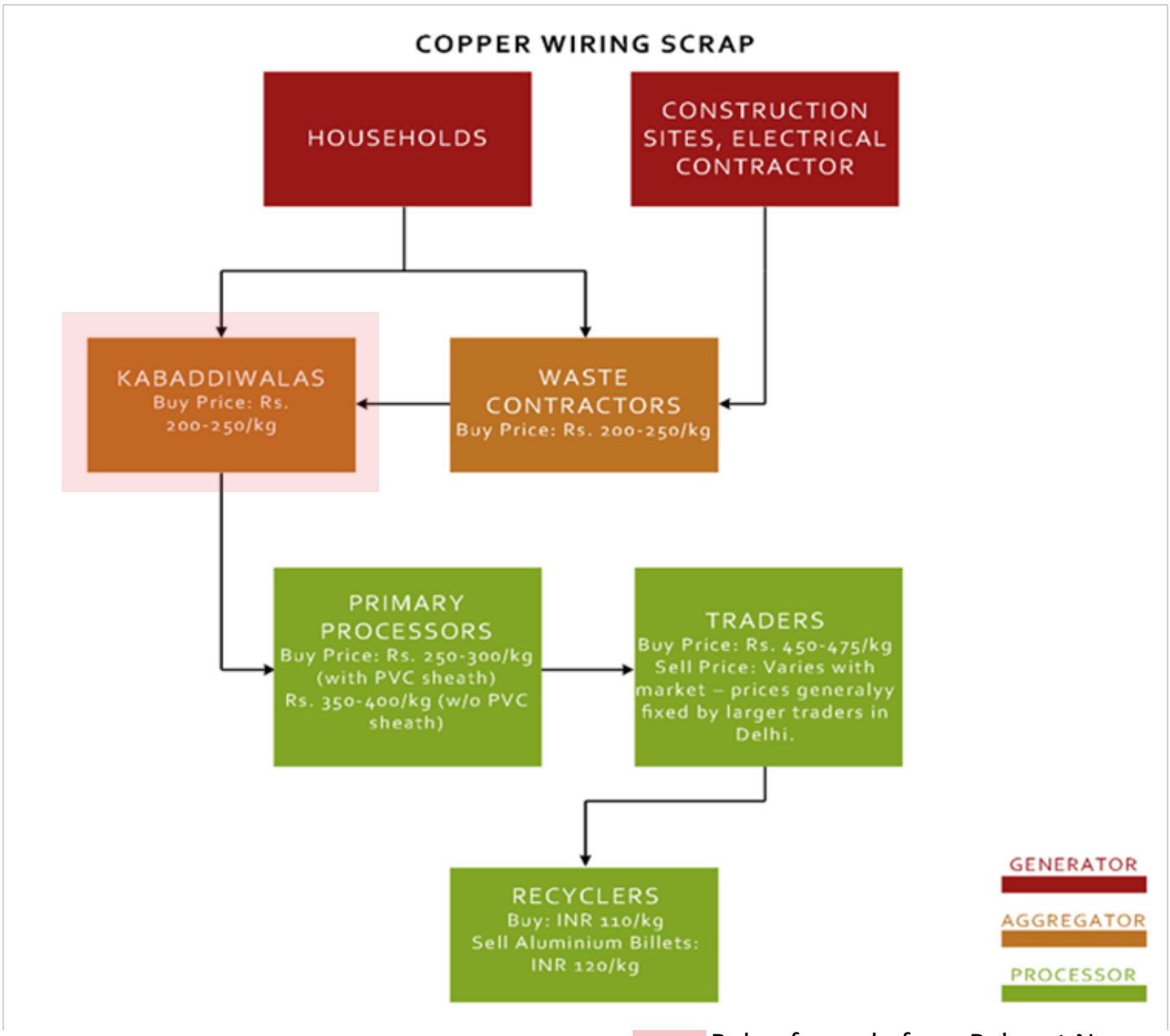

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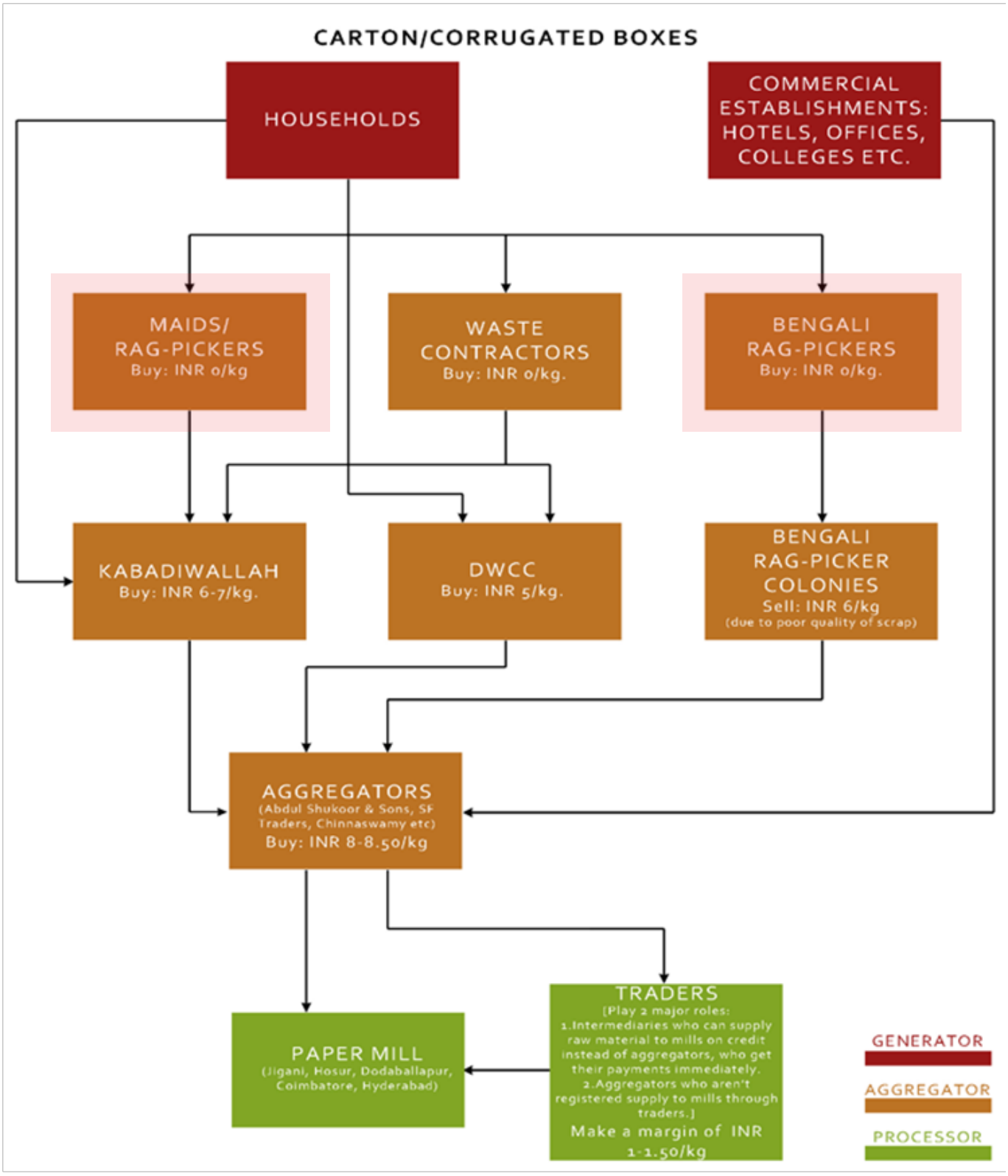

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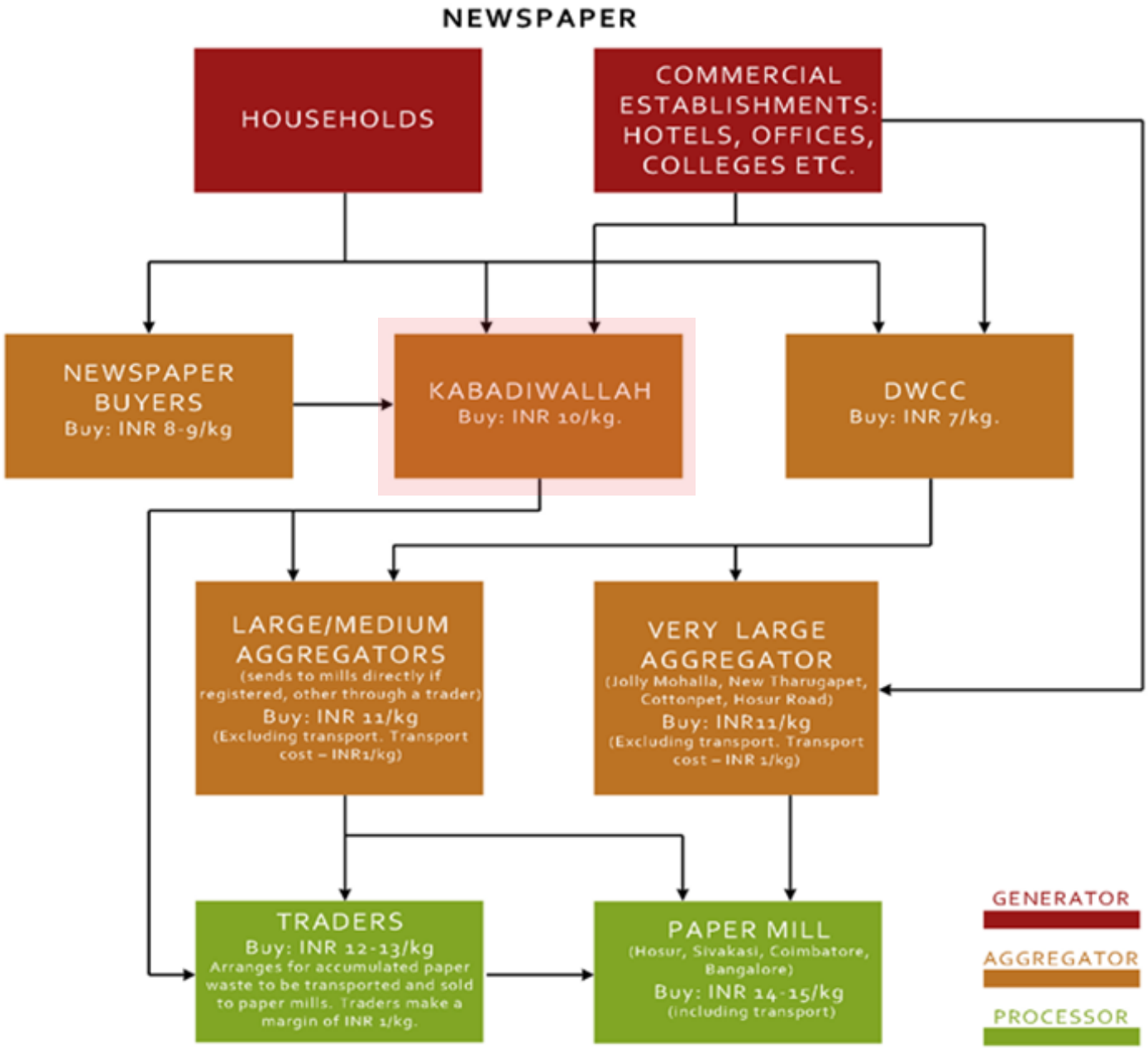

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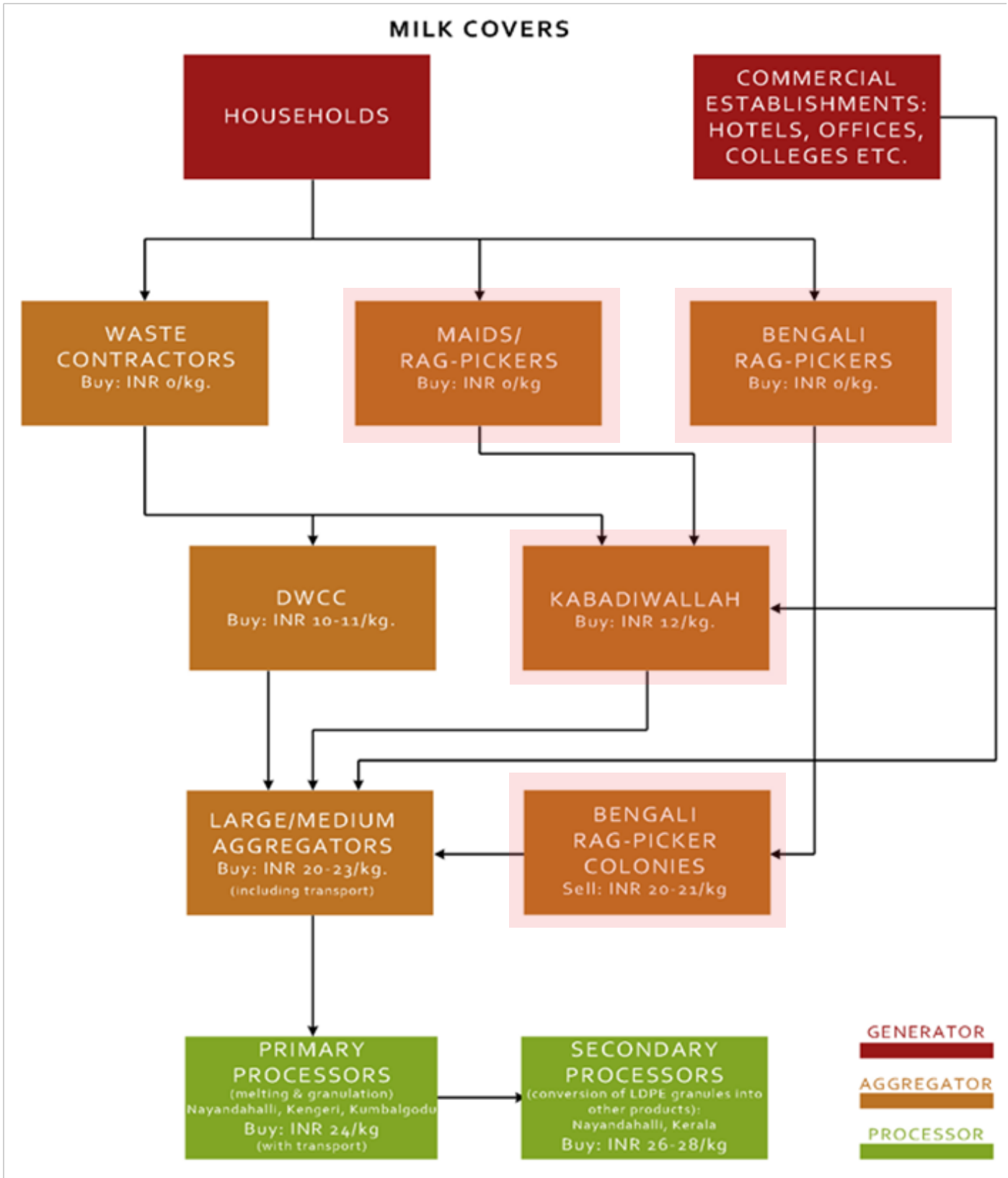
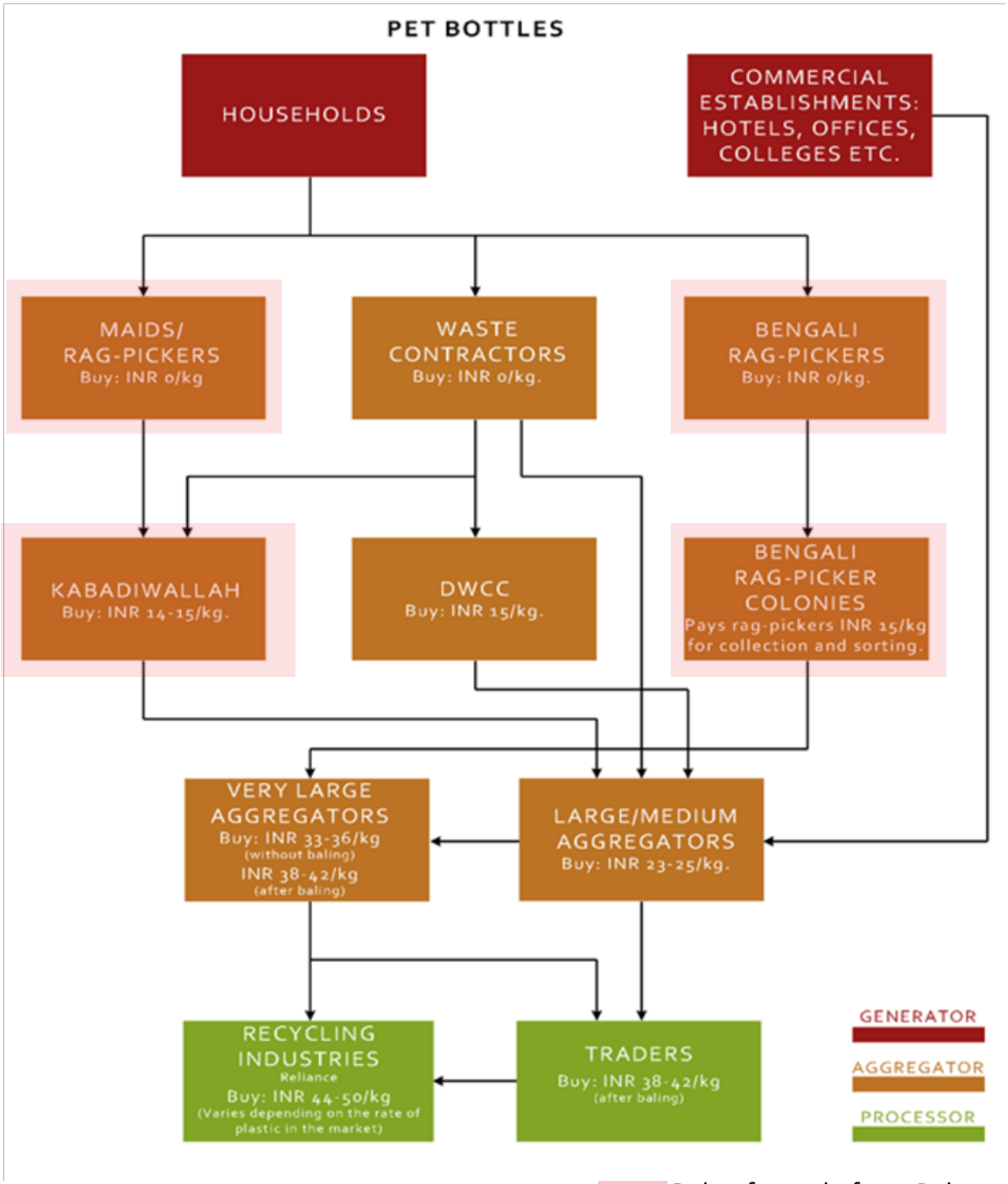


Role of people from Rehmat Nagar in the value chain

PET bottles

PET (Polyethylene Terephthalate) is a category of plastic most commonly found in the form of water bottles (Bisleri, Aquafina, Soft Drink Bottles, etc.), medicine and chemical bottles, and containers (food containers, oil containers etc.). PET waste is in high demand amongst the dealers/agencies supplying the same to the recycling industries in Gujarat and Mumbai. As a result, its value ranges from INR 15-18/kg at the local Kabadiwallah to INR 45-50/kg at the aggregation centre despatching to the recyclers. Water and soft drink bottles are not mixed with other PET containers and have a separate recycling stream. The labels and caps of water and soft drink bottles are not removed before bailing, while the metal caps and rings on medicine and chemical bottles are removed. There are approximately around 10 large dealers in Bengaluru who regularly supply around 3500-4000 tonnes of PET scrap per month to recycling units.



Role of people from Rehmat Nagar in the value chain