

# CIC-206: Improving the Current System of Junk Management & Recycling

## Cluster Innovation Centre (CIC) University of Delhi

Rugby Sevens Building, University Stadium  
G.C Narang Marg, University of Delhi  
Delhi - 110007, India  
Email: [director@cic.du.ac.in](mailto:director@cic.du.ac.in)  
Tel.: +91-11-27666702

### Principal Investigator:

Dr. Shashi Aggarawal  
CIC, University of Delhi  
Email: [shashi60@gmail.com](mailto:shashi60@gmail.com)  
Mobile: +91-9810648003

### Co-Principal Investigators:

Dr. Govind Singh  
CIC, University of Delhi  
Email: [contact@govindsingh.com](mailto:contact@govindsingh.com)  
Mobile: +91-9811147754

Dr. Asani Bhaduri  
CIC, University of Delhi  
Email: [asani.bhaduri@gmail.com](mailto:asani.bhaduri@gmail.com)  
Mobile: +91-9871134005

# 1. CIC-206: Improving the Current System of Junk Management & Recycling

## 2. PROJECT OBJECTIVES

- ◆ To learn about existing business methods of junk disposal by visiting junk dealers and various recycling firms
- ◆ To develop an organized mechanism for collecting the junk generated from the targeted institutions
- ◆ To develop a framework for scientific segregation of the junk and ensuring maximum retention of the value of the junk
- ◆ To strike more effective partnership for outsourcing the segregated junk to recycling firms

## 3. METHODOLOGY

1. Information was collected from DU's North Campus (110007) area on the existing junk management practices through surveys and interviews.
  - 1.1. Caretakers and junk management officials of colleges and departments were interviewed.
  - 1.2. *Kabadiwallahs* in the vicinity were also interviewed for identification of problems and challenges.
2. Households of nearby area were surveyed for identifying junk management problems.
3. Surveys were also carried out at shops in Alang, Gujarat (the largest ship breaking yard in the world) where dismantled and repaired junk from ships is sold.
4. The information gathered was analyzed to develop an understanding of junk management and recycling.
5. Shortcomings and challenges being faced by the junk management sector were also identified.

## 4. FINDINGS

### DU Case Study: (North Campus, Delhi - 110007)

In Departments, unused goods are collected and disposed periodically. The process of junk disposal is expected to yield some 80 Lakh INR which is spent on student welfare. Most of the junk is sold through auctioning. Also, some paper items are shred within the campus which is then dumped off.

Glitches in the system:

- No official provision for reusing goods exists though there is considerable informal recycling.
- Stock piling of junk in University of Delhi results in monetary depreciation of the junk due to the lengthy procedure of its auctioning.
- A Public Sector Undertaking called MSTC Limited helps in auctioning off the E-waste. Only companies registered with MSTC can participate in the auctioning.
- The responsibility of waste can never be traced to the producer of waste.
- Auctioning of junk ranges from three to ten years, which means apart from losing its value, the junk occupies valuable space which could be used for other purposes.
- The Engineering Department facilitates the involvement of *Kabadiwallahs* to take part in auctioning of junk but this takes place without any credibility check.

The current system of junk disposal is not efficient in terms of the total time taken and the number of parties involved in disposing off the junk. Also, the inventory of junk is managed through a manual processes. This leads to various problems such as depreciation in the value of junk, under-utilization of space, release of harmful metals, etc.

## ALANG, GUJARAT - A CASE STUDY

The Alang port in Gujarat is the largest ship-breaking yard in the world. It recycles approximately half of all ships which can no longer be used. Each part of a junk ship can be dismantled and recycled, which is what takes place at Alang. With respect to junk management of these large shops, we found Alang to be a perfect example of a zero waste model, wherein everything including furniture, machineries, metal etc. is sold as is (reused) or sold after repairing or modifications (recycle-reuse). The junk management was found to be so efficient that not even a screw is left as waste. The whole process has a protocol and is very systematic in nature. We would like to mention here that previous reports exist which have highlighted the dismal plight of workers involved in ship-breaking. However, the present case study was limited only to the junk market in the immediate vicinity of the Alang port.

All the people living in and around Alang, the land-owners, the labourers, individual dealers, understand and appreciate the value of junk. The junk market at Alang is the direct source of livelihood for more than 1,00,000. At the same time, shipping agents, buyers, ship brokers, marine traders, transporters, gas plants, are some livelihood options indirectly benefitting from this junk market. According to local dealers, junk from Alang also provides useful steel to India. In fact it is the only source of steel generation for Western India. Thus the steel sector saves a lot of transportation cost for obtaining steel in Western India. Alang is a good learning lesson for anyone working in the junk sector. The highly efficient Alang model, where each and every iota of the ship is either reused or recycled and is adequately segregated and sold, can be customized and adopted for managing urban junk as well.



Figure 1. Junk market at Alang, Gujarat. The value of junk increases considerably due to segregation at every level.

## 5. PROPOSED SOLUTIONS AS SPECIAL OUTCOME OF THE PROJECT

- i) Clustering of *Kabadiwallahs* and waste pickers for their community development.
- ii) Designing a customized dustbin for segregating dry waste from wet waste in households and providing economic incentives for carrying out this segregation.

## 6. PROJECT RELATED IMAGES



Figure 2. The design of the proposed dustbin for promoting incentive-based segregation at the household level.

## 7. INNOVATION SHOWN BY THE PROJECT

### Re- think Pad

To reduce the use of paper and to promote its reuse, a notepad has been designed by using one-side used A4 sized paper. The notepad has been named ‘Re-Think’ pad. One-sided used A4 size papers were collected from various offices and departments of the university and were arranged in a way to keep the used part on the left and the unused one on right. The sheets were cut into half and spiral bound to make notepads, which were displayed during *Antardhvani* 2014.

### Dustbin Design

To promote segregation at source, we have designed a dustbin that urges and compels the users to segregate junk from waste at the household level. The dustbin has two compartments – one for the wet junk (made up of cane and covered with a flap) and the other for the dry waste (made up of cloth). The cloth bin will compel a person to throw only dry junk into it and this will lead to segregation at the source. The system will be monetarily incentivized for it to work.

### Using Social Media for increasing awareness and sensitivity towards the Junk sector

Surveys and community interactions carried out by us suggest that there is considerable lack of awareness about the entire waste and junk management sector. Citizens are not aware of the various rules and laws related to waste management, some of which were notified as late as 2011. Consequently, the project is developing [junkified.com](http://junkified.com) as an online portal for educating, sensitizing and making citizens (especially youth) aware about the junk sector and make them sensitive to the services provided by the *Kabadiwallahs* and by those who segregate the waste.

## 8. PUBLIC UTILITY OF THE PROJECT

Waste management is a very challenging sector and is increasingly becoming a challenge especially in our cities and urban centres. Due to the social stigma associated with this sector, it has not seen much development in the recent past. However, new laws, rules and regulations are now making waste management more efficient and impactful. However, laws, without awareness and sensitivity are meaningless. Thus, the foremost public utility of the project is to make citizens aware and sensitive towards the challenges being faced in the waste management sector, and how each one of us can contribute in solving these challenges.

In the current junk management scenario, the *Kabadiwallahs* has to segregate junk from waste or wander from household to household in search of junk/ recyclables and then sell it to middlemen at minimal profits. They suffer from lack of organization, efficiency and hold a low status within the society. The project aims to empower these workers and ensure high efficiency in the recycling processes by creating a centralized platform through maintaining a cluster of *Kabadiwallahs*.

Another challenge is to make households and organizations aware of the importance of segregation of waste. We are aware that previous efforts to implement this in Delhi have failed. Consequently, we propose to incentivize the process of segregation for the households and organisations by preventing the loss in value of the junk through its consistent and timely collection at the source. This would reduce the load on our local *dhallaons* and landfills, which are already overflowing with waste.

### 9. FUTURE OBJECTIVES & PLAN OF WORK

- Starting a service which will act as a channel between households and recycling firms
- Creating and maintaining a cluster of *Kabadiwallahs*.
- Fabricating and installing special dustbins in pre-selected households with different compartments for dry junk and wet junk
- Briefing the costumer about what parts of the daily junk can be put in these dustbins and can be recycled.
- Households can contact the Cluster for emptying of the bin. Alternately, the daily waste picker can be made part of the cluster for this work.
- The junk will be collected, weighed and information uploaded on online database.
- Households get points for junk according to weight and type of junk. Alternatively, the household can get paid for what the junk is worth through pre-determined rates.
- The user can redeem these points for discount coupons or money.

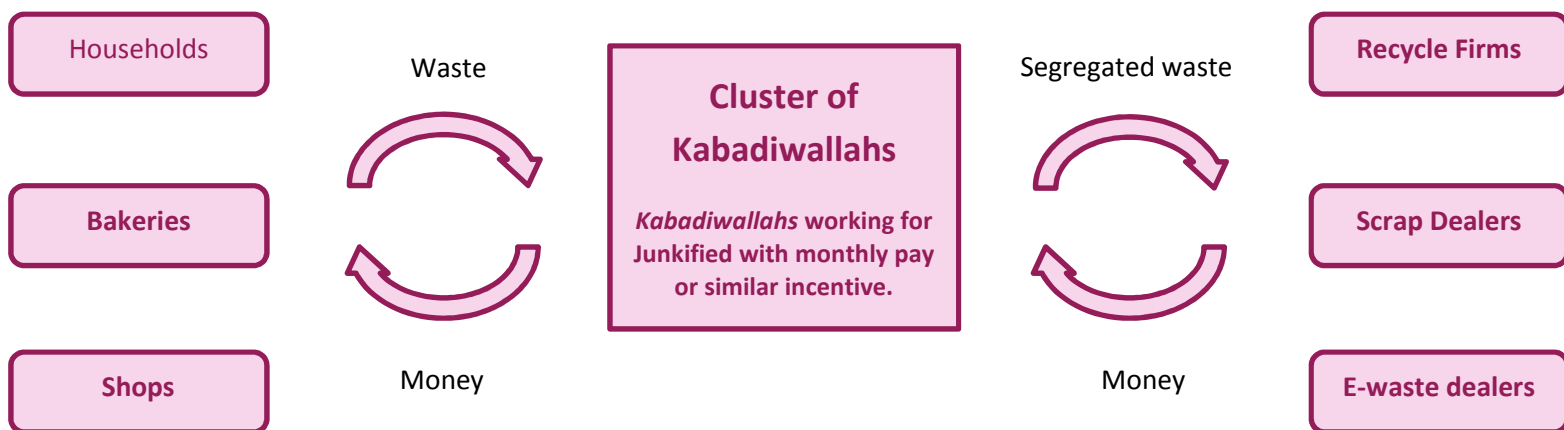


Figure 3. Proposed business model for the Cluster of Kabadiwallahs.

#### Revenue Streams

1. Selling off scrap
2. Government
3. Selling of recyclable waste to recycling firms.
4. Website advertisements