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Trash to Treasure - An Empirical Study of Informal Waste Pickers in Solid Waste Management in Puliangudi Municipality, Tamil Nadu, India

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Abstract

This study has been undertaken to investigate the problem of solid waste pollution in Puliangudi Municipality, particularly concentrate upon sociological, psychological and technological aspects of the problem. No study has been conducted to explore the economic aspect of solid waste management in Puliangudi town. As a major part of the solution to the problem of solid waste, recycling got its importance, inturn to find out the volume of employment opportunities created through the waste recycling activities. The questionnaire was used to conduct survey targeting the informal waste pickers. The questionnaire was used to collect information on a variety of modules from the respondents: demographic and economic background of the informal waste pickers and their families, their educational and health status. After getting information from the informal waste pickers the answer is coded for analysis. In this context it is worth to "study the knowledge, attitude and practice of informal waste pickers in Puliangudi town towards solid waste management".

Keywords: *Solid waste management, informal waste pickers, recycling, knowledge, attitude, and practices.*

1. Introduction

After the Second World War, three developments have taken place in world economy namely decolonization, industrialisation and urbanisation. Among them urbanisation plays a major role. The first known urban growth evolved about five thousand years ago on the banks of Indus, Nile, Tigris and Euphrates rivers, when traditionally nomadic peoples began to cultivate crops **(Brown and Jacobson, 1987).** The pace of urban growth is now undergoing a rapid explosion on a scale unknown to preceding centuries.

The increasing trend of population and the rapid industrialization accompanied by urbanisation resulted in a disproportionate base and unbalanced ecosystem of urban centres. Further unsustainable consumption pattern in urban areas created more pressure on the existing natural amenities. This resulted in an increasing amount of pollution problems. Among the challenging problems governing the urban environmental scenario, the most important one is solid waste pollution. With increasing population and income the life style of urban residents changed and now the urbanities become a throwaway society. The larger and more affluent the population, greater the volume of solid waste generation **(Paul et. al., 1976).**

2. Significance of the study

The problem of solid waste is not limited to large cities of the world; it is also seeped into small towns. The main constituents of wastes are similar throughout the world, but the proportions vary widely from country to country and even within a city. The only difference between developed and developing countries with respect to solid waste is that in large cities they have some sort of knowledge regarding waste management, but this is totally lacking in small towns or in satellite urban areas. Solid waste management becomes the major concern of urban planning, the proper collection

and disposal of waste is the topic of discussion among city planners and environmental engineers. Many cities of India practice the primitive method of solid waste disposal. It is highly unhygienic and involving manual handling of wastes. In this conventional approach solid waste management is considered only as a handling problem and characterised by the maxim 'out of sight and out of mind'. But gradually this attitude began to change and much progress has been made over the last decades with changing nature of non biodegradability of waste and vastly increased public opposition as seen by 'Not in my Back yard' Syndrome.

Resource recovery through recycling is now considered as a sound option for conserving resources and decreasing the pollution caused by solid waste in conventional method. The important consideration for recycling is that it adopted a conservation technology for processing and treatment of waste with a view to harnessing its potential and achieving a significant reduction in volume of waste to be disposed.

For the functional performance of recycling system, three components are necessary.

- First one is the consistent and reliable source of recyclable material.
- Second is the adequate method for processing the recovered materials into a suitable form for further use.
- Finally a market for the reprocessed material.

The collection is considered as the infrastructure process in the sequence of recycling. Any failure to achieve a viable and economical collection system, it disturbs the recycling process and leads to dumping of non degradable materials into landfills.

Like other urban areas, the Puliangudi city also faces the problem of solid waste pollution. The growing volume of solid waste in Puliangudi municipality causes difficulties in collection, transportation and disposal. The local authority concerned is handicapped to enforce provisions against this problem. Lack of adequate funds, expertise, administrative machinery, political will and enlarging volume of waste is the major reason behind the failure. The studies conducted on the problem of solid waste pollution in Puliangudi Municipality concentrate upon sociological, psychological and technological aspects of the problem. No study has been conducted to explore the economic aspect of solid waste management in Puliangudi town. As a major part of the solution to the problem of solid waste, recycling got its importance. In this context it is worth to "study the knowledge, attitude and practice of informal waste pickers in Puliangudi town towards solid waste management".

3. Scope of the study

Successful implementation of a solid waste management program requires careful economic evaluation of all alternative waste solutions. It has been realized that resources of the world are finite and in order to maintain a stable economic growth and a better living standard it is imperative to use the resources very carefully. Here the recycling of waste has become very important as what may be treated as a waste under one situation may prove to be a valuable product under another situation. Moreover, the solid waste management activities provide employment for a large number of people, with the potential of benefitting many more. The problem of municipal solid waste is becoming one of the main areas of environmental policy debate. This study is intent to analyse the problem of solid waste management in Puliangudi municipality from an economic perspective. The economic approach is one of the important aspects of solid waste management as the problem entails a complex combination of economic, judicial, technological and environmental issues.

The present study analyses the economic and social implications of solid waste management system in Puliangudi municipality. The formal solid waste management system in the study area involves primary and secondary collection followed by transport to a compost yard. The formal sector is complemented by a complex and unorganised system of waste picking and collection. This informal system reclaims and recycles many inorganic and non biodegradable waste materials. In this context, the existing recycling system relating to urban solid waste in Puliangudi municipality is examined with a view to incorporate the role of informal waste pickers.

4. Review of related Literature

The literature on environmental issues are immense, but dispersed and often concentrated on very specific problems and sometimes highly technical in nature. The literatures available on environmental economics are much less developed and it is only in recent times that economists are involved in the analysis of environmental problems. Furthermore, the extra-ordinary vastness of the topic contributes the integration of technological and economic aspects of environmental issues and it leads to the complexity

of analysis. Here an attempt is made to review the available literature on the topic concerning urbanisation and related environmental issues.

The relation between man and environment cannot be viewed as new. The ancient Vedas pointed out the importance of nature and the necessity of living in harmony with it. The concept of 'Panch Bhooda' (earth, water, fire, space and air) as essential constituents of life may have evolved as a result of man's realization of the inter relationship between the biotic and abiotic factors in nature (**Gopalan, 1982**). A similar sentiment was expressed by Gurunanak. When he said "Air is like God, Water is Father and Earth is Mother", it is through the harmonious interaction of all these vital ingredients that the whole universe is being sustained (**Wasir, 1997**).

Rapid economic growth and population boom are considered as the reasons behind environmental degradation by William Barron, he said, "It is the only high income place in the world that is acquiring a third world environment" (**William Barron, 2000**). **Lahiry (1997)** found that industrial revolution that had ushered in the last quarter of the 18" century and progressed at an ever increasing pace through centuries proved to be a vital factor in the hike of consumerism and consequent degradation of environment.

Pearce et. al., (1994) related environmental pollution with increase in income so that the amount of environmental goods consumed tend to rise more rapidly as income increase, or environmental goods tend to be consumed more proportionately by the rich than by the poor. This view was supplemented by Harrison Paul, a US playwright director. He told "the poor tread lightest on the earth, the higher our income the more resources we control and the more havoc we wreak" (**Paul, 1992**).

A study conducted by **MIDS (1992)** concluded that the urban environment has been deteriorating due to a number of reasons. The major among them are the gap between the demand and supply of infrastructure services, the accumulated backlog in urban housing with increased population of urban poor and the resulted proliferation of slums and squatter settlements. The weak financial and organizational base of urban administrative bodies also led to inequitable supply of urban services

Sandhya Venkateshwaran (1994) advocated low tech method of recycling for Indian situation. The high tech processes which are used in the developed countries would not give satisfactory results in India. The low tech process is based upon labour intensive activity and under this method the organic contents were segregated and converted into useful manure with the help of bacteria and worms and inorganic parts was sold to scrap merchants for recycling process.

According to **Vishvanathan (2000)** India recycled about 60 percent of its plastic waste and the ratio of recycled plastic was the highest in the world. Europe recycled 7 percent, Japan 12 percent and China only 10 percent of its plastic waste. The comparative figure of plastic recycling indicated our cultural attitude towards plastics.

Ammu Joseph (1994) identified two parallel systems of solid waste management. The formal system operated by local government and the informal system represented by waste recycling through informal waste pickers, petty traders, entrepreneurs and workers involved in manufacturing new products from recycled products. **Sudhir (1997)** had the same concept and he found that informal system consisted many actors such as waste pickers, itinerant buyers, small scrap dealers and wholesalers mainly focused on recovery of recyclable material from solid waste".

Nitai Kundu (1994) examined the existing recycling system of Calcutta by incorporating the role of informal waste pickers and vegetable cultivators, in the segregation of urban solid waste management. He classified informal waste pickers into two categories as informal waste pickers at collection point and pickers at disposal site.

A study conducted by **Thirarattanasunthon, et. al., (2012)** concluded that the percentage of physical symptoms was reduced and the use of PPE increased after intervention in the intervention group compared with the control group. Some scavengers working in open dump sites may face the risk of exposure to solid waste. Therefore, PPE and personal hygiene are important in reducing health risks among the scavengers. Results indicate that the health risk behaviors of smoking, alcohol consumption, getting food from the dump site and cooking it at the dump site, and inadequate cooking may endanger the health of the scavengers. In conclusion, it is important that scavengers exposed to solid waste at dump sites follow safety recommendations concerning routine work at these sites to help reduce health risks. It is also important that site coordinators distribute health and safety material and monitor work safety practices. More research on this topic must be conducted, especially regarding health care.

Chandramohan et. al., (2009) concluded that the significant increase in the generation of municipal

solid waste (MSW) during the last few decades is due to the rapid population and economic development. Though the appropriate attempts are made through the 3-'R' principles, waste management still needs to be envisaged seriously by everybody for a cleaner and greener environment. Rag-pickers, who contribute to solid waste management to some extent, are the people who rummage through garbage bins to pick out 'rags' for their livelihood. These rag-pickers usually collect the materials that have good re-sale value as these materials are mostly recycled or reused. In the present study, the collection and the management of solid waste and the level of microbial pollution generated through air, soil and solid waste were studied. A questionnaire survey based on age, sex, educational status, socio-economic status, habits and health effects was conducted from 65 randomly selected rag-pickers from various places of Tiruchirappalli city. The results revealed that they can be properly educated and trained to protect themselves from unhygienic practices and addiction. Either the Government or non-governmental organizations (NGOs) should devise a suitable proposal to monitor and make use of these unorganized informal-pickers who are indispensable to the society.

5. Objectives of the study

From the technological point of view several waste management options are available. Each option presents economic and environmental problems and advantages. The present study is undertaken with a view to evaluate knowledge, attitude and practice of informal waste pickers in Puliangudi municipality. The study also aims to find out the volume of employment opportunities created through the waste recycling activity. The study also analyses the existing system of solid waste management such as, different types of costs incurred during the processing of waste materials and the socio-economic conditions of the persons engaged in informal system of waste management within the study area. The specific objectives of the study are:

- To know the present status of informal waste pickers.
- To study the socio-economic condition of informal waste pickers.
- To find out the volume and composition of waste handled by informal waste pickers regularly.
- To study the nature and extent of employment creation through the waste management practices.
- To know the level of informal waste pickers participation in SWM.

6. Profile of the Study Area

The present study has been carried out among informal waste pickers in Puliangudi town. This place is situated in Tirunelveli District of Tamil Nadu, India. Its geographical coordinates are 9° 10' 0" North, 77° 25' 0" East and its original name is Puliyangudi. Puliangudi town is situated in between Tenkasi and Rajapalayam Tenkasi – Thirumangalam National Highways (NH – 208). It lays about 40 KMs North of Rajapalayam and 30 KMs South of Tenkasi. This town also lies at the foot hills of the Western Ghats and has gentle slope from west to east. The area of the town is 55.166 Sq.Kms and the population in the year 2001 was 60,142 and in 2011 it was 66,015. Puliangudi Municipal area comprises of four revenue villages Viz. Mela Puliangudi, Puliangudi, Chinthamani and Thirumalai Naicken Pudukudi. The town in general is having a dry climate except during the monsoon periods.

7. Materials and Methods

7.1 Sampling procedure and sample size

In the Survey, the unit of measurement is the informal waste pickers and the sampling frame is informal waste picker. The sampling universe for the purpose of this survey was within Municipal limit of Puliangudi. The basic sampling frame was divided into 3 Zones: High income group living area (Zone I), Middle income group living area (Zone II) and Low income group living area (Zone III).

In the Puliangudi urban area with in municipal limit, the key sample sites included: dumping areas, garbage disposal and refuse areas, junkyard shops, bus terminals, slums, temples and river banks, streets, living centers and / or houses of informal waste pickers.

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Table: 1 Classifications of the sampling areas

S.No.	Ward No.	Population	Zone
1	WD-01	2187	Zone I
2	WD-02	1655	Zone II
3	WD-03	1977	Zone III
4	WD-04	1556	Zone III
5	WD-05	2682	Zone II
6	WD-06	1823	Zone II
7	WD-07	2500	Zone II
8	WD-08	1475	Zone III
9	WD-09	1879	Zone II
10	WD-10	1772	Zone II
11	WD-11	2720	Zone II
12	WD-12	1537	Zone II
13	WD-13	1361	Zone II
14	WD-14	1447	Zone II
15	WD-15	1742	Zone III
16	WD-16	1643	Zone III
17	WD-17	2013	Zone II
18	WD-18	1498	Zone I
19	WD-19	1385	Zone II
20	WD-20	987	Zone II
21	WD-21	3913	Zone II
22	WD-22	1710	Zone II
23	WD-23	1570	Zone II
24	WD-24	1886	Zone I
25	WD-25	1724	Zone I
26	WD-26	4412	Zone I
27	WD-27	3241	Zone II
28	WD-28	2749	Zone II
29	WD-29	1590	Zone II
30	WD-30	1308	Zone II
31	WD-31	2174	Zone II
32	WD-32	2608	Zone II
33	WD-33	1291	Zone III
Total		**66015**	

It is estimated that approximately 40 to 45 informal waste pickers worked in Puliangudi municipal area. The total sample size for these three zones was determined to be about 25 informal waste pickers, about 50 percent of the total estimate (45). This was distributed to be not less than 5 in Zone I, 11 in Zone II, and 9 in Zone III.

Table: 2 Sample Size

Zone	Average no. of informal waste pickers in the Zone	No. of wards in each Zones	Sample size per Zone
Zone I	10	5 Wards	5
Zone II	21	22 Wards	11
Zone III	14	6 Wards	9

7.2 Data Collection Tool and Procedure

In this study survey was conducted by using both quantitative and qualitative research tools, the focus were on establishing baseline numeric indicators. The questionnaire was used to conduct survey targeting the informal waste pickers only. The questionnaires were used to collect information on a variety of modules from the respondents: demographic and economic background of the informal waste pickers and their families, their educational and health status. After getting information from the informal waste pickers the answer is coded for analysis.

7.3 Variables

There are two categories of variables are used for the present study, i.e., socio-economic background and psychological characters.

Socio-Economic Background

i. Age
ii. Sex
iii. Living area
iv. Education
v. Previous job
vi. Entry age
vii. Number of years as informal waste pickers
viii. Marital status
ix. Waste picking materials priority
x. Daily average collection
xi. Daily average earning
xii. Work start timings
xiii. Work end timings
xiv. Number of days work as a informal waste picker in a week
xv. Indebted
xvi. Borrowing
xvii. Monthly income
xviii. Expenditure
xix. Health hazards

Psychological Characteristics

i. Perception of self-achievements
ii. Perception of competence with other informal waste pickers
iii. Perception of work stress

7.4 Statistical Tool

The data regarding the socio economic conditions of waste collectors are mainly qualitative in nature as such the technique used is analytical. However, statistical techniques like percentages, ratios, charts, and tables have been used wherever necessary to make the data more precise. To analyze the economic aspect of formal and informal waste management some cost and benefit calculation methods are also applied. All the statistical analysis is performed with the Statistical Packages for Social Sciences (SPSS 17.0).

7.5 Analysis, Interpretation and Findings

After the data collection all the values were coded, tabulated and analysed using proper statistical tool.

The table 3 shows the social and economic conditions of informal waste pickers that almost half of the informal waste pickers fall in the age between 31 to 40 years and also 13 percent of them fall in the age group of 11 to 20 years. With regard to sex disaggregate of informal waste pickers almost one third (34.8 %) were female. The educational level of informal waste pickers shows that notably only 21.7 percent of informal waste pickers finished primary school and 34.8 percent has no formal education. Nearly half (43.5%) of them can read and write but no formal education.

In response to their housing facilities only one person is not having a permanent place to live. Notably one third (34.8%) of them living in own house in slums, whereas two third (60.9%) were living in rental house in slum area. A significant number (26.0%) of informal waste pickers were first started work in the age group of below 14 years and nearly half (43.5%) of them were between the age group of 16-20 years and among this half around 75 percent (7 out of 10) are males.

Considerably 30.4 percent are working as informal waste pickers for more than 16 years (6 male out of 7) and 21.7 percent are working as a informal waste pickers for more than 10 years (4 female out of 5). Only two of them were working as informal waste pickers for more than 20 years (both are male). In terms of who put them to work, out of 13 male informal waste pickers 6 are claimed that they put themselves to work, out of 9 female 5 were put to work as informal waste pickers by their friends. A sizable number (17.4%) were put to work as informal waste pickers by their parents.

A substantial number (69.6%) of informal waste pickers stated that prior to becoming a rag picker they did not do any work at all, whereas 13.0 percent of them worked in construction and agricultural field prior to becoming a rag picker. Amongst those who did work somewhere else prior to becoming a rag picker, roughly 26.1 percent are due to low remuneration in the previous job and 4.3 percent are due to insufficient food.

Table 3: Percentage distribution of respondents on their socio-economic status

Socio – background	Response Options	No. of respondents	Percentage
Age (in years)	11 to 14	1	4.3
	15 to 20	2	8.7
	21 to 30	6	26.1
	31 to 40	11	47.8
	41 to 50	3	13.0
Sex	Male	15	65.2
	Female	8	34.8
Education	No formal education	8	34.8
	No formal education but read and write	10	43.5
	Primary school	5	21.7
Living Condition	Rented house in slum	14	60.9
	Own house in slum	8	34.8
	No permanent place	1	4.3
Age Start Work (in years)	6 to 10	1	4.3
	11 to 14	5	21.7
	16 to 20	10	43.5
	21 to 30	7	30.4
How long do this work (in years)	Below 5	5	21.7
	6 to 10	4	17.4
	11 to 15	5	21.7
	16 to 20	7	30.4
	21 to 25	1	4.3
	Above 25	1	4.3
Who put this work	Self	7	30.4
	Parents	4	17.4
	Husband	3	13.0
	Friends	9	39.1
Previous Job	Did not work before	16	69.6
	Construction worker	3	13.0
	Agricultural worker	3	13.0
	Non agricultural worker	1	4.3
Reason for changes to rag picking	Not applicable	15	65.2
	Low remuneration in previous job	6	26.1
	Insufficient food	1	4.3
	Not allowed to go to school	1	4.3

7.5.1 Priority of Rag material picking by informal waste pickers

During survey the informal waste pickers listed their informal waste pickers picking items based on their priority. As per their statement the priority is mainly based on the cost and the availability of the

items. One female rag picker collects only human hair.

Table.4: Priority item – 1

S.No.	Items	No. of informal waste pickers	Percentage
1	Iron	4	17.4
2	Plastics	4	17.4
3	Glass (broken or pieces)	7	30.4
4	Tins	4	17.4
5	Bottles	3	13
6	Human hair	1	4.3
7	Others	1	4.3
	Total	**23**	**100**

Table.5: Priority item -2

S.No.	Items	No. of informal waste pickers	Percentage
1	Iron	6	26.1
2	Plastics	2	8.7
3	Glass (broken or pieces)	3	13
4	Tins	2	8.7
5	Bottles	9	39.1
6	Others	1	4.3
	Total	**23**	**100**

Table.6: Priority item - 3

S.No.	Items	No. of informal waste pickers	Percentage
1	Iron	6	26.1
2	Plastics	6	26.1
3	Glass (broken or pieces)	4	17.4
4	Tins	1	4.3
5	Bottles	3	13
6	Human hair	1	4.3
7	Others	2	8.7
	Total	**23**	**100**

7.5.2 Waste collection by informal waste pickers

The Informal waste pickers earn their livelihood through the sale of collected waste materials to scrap dealers. It is very difficult to estimate the total quantity of recyclable waste collected and sold by waste collectors. However, on an average each collector collects roughly 42.69 Kgs of waste per day.

However, on an average each informal waste collector collects roughly 42.69 kg of waste per day, while the maximum quantity collected was 80 kg. Table.7 shows 34.8 percentage of them are collected between 41 to 50 Kg per day. 4.3 percentages of them are collected less than 10 kg.

Table.8 shows 69.6 percentages of informal waste pickers earn between rupees 51 to 100 per day and 4.3 percentages of them are

earning rupees 200 to 250 per day. In terms of basis of payment, all of them were paid on per kg and/or per unit basis.

In terms of intensity of work figure 1&2 shows that they start their work at 5.00 am and finish their work at 5.00 pm. Table.9 shows that 43.5 percent of the informal waste pickers reported to work 5 days per week and 8.7 percent of the informal waste pickers reported to work 7 days per week.

In terms of earnings for the informal waste pickers, the average amount earned in rupees the last day that s/he worked was Rs. 99.13. The minimum earned was Rs.70 and the maximum earned on the last day he worked was Rs. 210.

Table.7: Daily average collections of waste materials

Collected Rags (Kg.)	No. of informal waste pickers	Percentage
Below 10 Kg	1	4.3
11 to 20 Kg	1	4.3
21 to 30 Kg	4	17.4
31 to 40 kg	4	17.4
41 to 50 kg	8	34.8
51 to 60 Kg	3	13
61 to 70 Kg	1	4.3
71 to 80 Kg	1	4.3
Total	**23**	**100**

Table.8: Price of waste materials per day

Earning / day (Rs.)	No. of informal waste pickers	Percentage
51 to 100	16	69.6
01 to 150	6	26.1
151 to 250	1	4.3
Total	**23**	**100**

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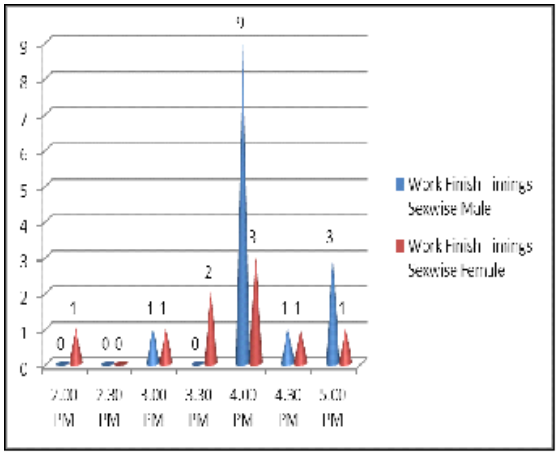

Figure – 1: Work Finish timings - Sex wise

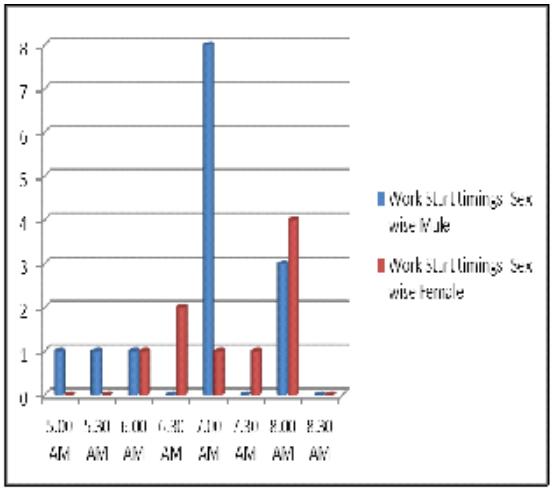

Figure – 2: Work Start timings - Sex wise

Table.9: No. of days worked per week

Days	No. of informal waste pickers	Percentage
Below 4 days	7	30.4
5 Days	10	43.5
6 Days	4	17.4
7 Days	2	8.7
Total	**23**	**100**

The detailed analysis shows that the male informal waste pickers earn highest income than female informal waste pickers due to selling of their collected waste of the same category to higher cost comparatively.

7.5.3 Earnings from Waste Collection

The informal waste pickers earn their livelihood through the sale of collected waste materials to scrap dealers. Around half (47.8 %) of informal waste pickers earn 2001 to 3000 per month and 34.8 % of informal waste pickers earn 3001 to 4000 per month. Out of their earnings 56.5 percent of respondents were spend money to family around 76 to 100 percent.

Table.10: Monthly earning through informal waste collection

Monthly Earnings (Rs.)	No. of Respondents	Percentage
1001 to 2000	4	17.4
2001 to 3000	11	47.8
3001 to 4000	8	34.8
Total (Rs.)	**23**	**100**

7.5.4 Expenditure pattern among the respondents

Analysis of expenditure of informal waste pickers shows that male and child informal waste pickers spend more than female informal waste pickers.

Table.11: Expenditure pattern among the respondents

Expenditure (Rs.) / month	No. of Respondents	Percentage
For Food		
Below 1000	8	34.8
1001 to 1500	13	56.5
1501 and above	2	8.7
For Smoking		
Nil	6	26.1
Below 100	1	4.3
101 – 250	12	52.2
251 – 500	4	17.4
For Alcohol		
Nil	2	8.7
Below 100	0	0
101 – 250	9	39.1
251 – 500	12	52.2
For repaying past debt		
Nil	7	30.4
Below 100	0	0
101 – 250	6	26.1
251 – 500	10	43.5

From the table 11 among female and male informal waste pickers 56.5 % of them spend 1001 to 1500 rupees for food and only 34.8% of them are spending below 1000 rupees for food. More than half of informal waste pickers both male and female spent Rs. 101 to 250 per month for smoking and the same percentage is spending 250 to 500 rupees for drinking alcohol. Nearly half of them (43.5 %) were spending their earning for repaying 251 to 500 rupees for their past debit.

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7.5.5 Debt and Borrow activities

The economic activity in terms of debt and borrowing money to fulfill their emergency need is become a common phenomena among the informal waste pickers shows that more than half of the (52.2 %) informal waste pickers in debit from scrap dealer and 34.8 percentage of informal waste pickers are borrowed as per in debited and borrowed activities of informal waste pickers. Male informal waste pickers were in debt with scrap dealers or borrowed money when compared to female informal waste pickers.

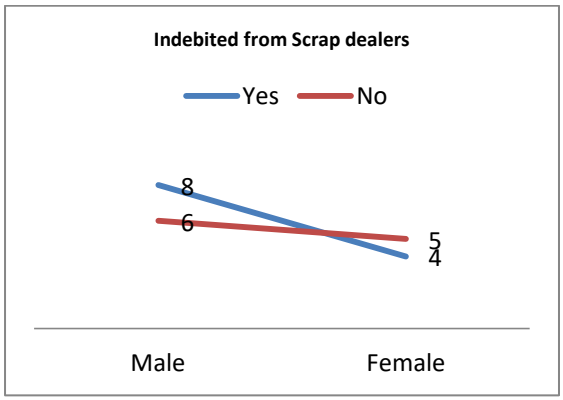

Figure.3: Indebted activities of informal waste pickers -Sex wise

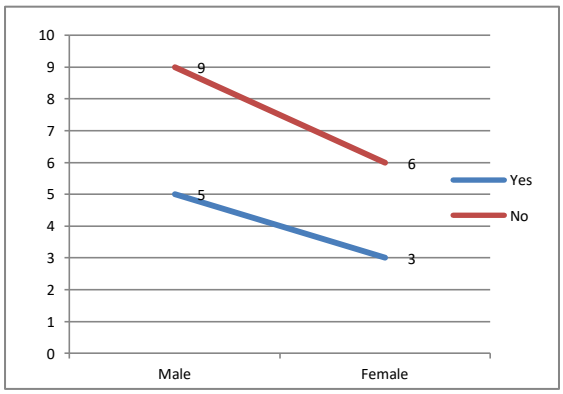

Figure.4: Borrowing activities of informal waste pickers – Sex wise

7.5.6 Health Hazards:

Health issues are very common phenomena among the peoples working in solid waste. Particularly, the informal waste collectors are more prone to affect various health issues due to lack of usage of safety equipment and less precautions that too women and children specifically.

Table.12: Nature of illness

Nature of Illness	No. of Respondents	Percentage
No illness	2	8.7
Fever	7	30.4
Respiratory problems	6	26.1
Skin diseases	2	8.7
Head ache	1	4.3
Back pain due to heavy load	3	13
Cuts or wounds	1	4.3
Cough	1	4.3
Total	**23**	**100**

Table.13: Consultation with medical professional

Consultation	No. of informal waste pickers	Percentage
Yes	12	57.1
who was consulted:		
Doctor	8	66.6
Person in the Medical shop	3	25
Traditional Healer	1	8.4
Total	**12**	**100**
No	9	42.85
why no-one was consulted:		
Lack of money	7	77.8
Not necessary to consult	2	22.2
Total	**9**	**100**

On conditional majority (91.3 percent) of the participants who reported being sick, notably 30.4 percent having fever, 26.1 percent having respiratory problem, and 13.0 percent reported back pain due to heavy load, as shown in table 35. Further, in response to the distribution of informal waste pickers more than half use to get assistance from medical professional if they were sick. Around 42.85 percent of sick informal waste pickers not consulting any medical professional because 22.2 % of them thought it was not necessary, whereas 77.8 percent reported lack of money as a reason.

7.5.7 Perception / Attitude

The participants expressed various reasons for selecting this job as their profession.

Table.14: Reason for selecting this Job

Reasons	No. of informal waste pickers	Percentage
No investment	3	13
Can earn money for food	8	34.8
Can support family	4	17.4
Parents are informal waste pickers	2	8.7
Not known	6	26.1
Total	**23**	**100**

The table 14 shows the distribution of reasons why informal waste pickers selecting this work. It was found that 34.8 percent of the informal waste pickers selected this work because they could earn money for their food, and 82.6 percent of informal waste pickers that not to recommend this job to others.

Table 15: Recommendation of this job to others

Opinion	No. of informal waste pickers	Percentage
Yes	4	17.4
No	19	82.6
Total	**23**	**100.0**

Table.16: Assistance needed by informal waste pickers

Type of Assistance	No. of Respondents	Percentage
Municipal Recognition	6	26.1
Financial Support	6	26.1
NGO assistance	4	17.4
Not known	7	30.4
Total	**23**	**100.0**

From the table 16 it is clear that almost 75 percent of informal waste pickers needed some kind of assistance to improve their life status in the society.

8. Conclusion and Suggestion

The survey results confirm that informal waste pickers are one of the most vulnerable target groups, as 35 percent of them work / scavenge on the streets. In order to be effective, interventions must be multi-pronged and directed at the micro, macro and meso levels. They are not known about solid waste management ie. segregation, but are much involving in this activity. The informal waste pickers have a special role to play in the segregation of waste. Informal waste pickers are well coordinated in their method of working. Among themselves, they have a good understanding for operating by area. We can indirectly help the rag picker by giving training to carefully segregating the waste that is generated, thereby facilitating his search for materials that are useful to him.

The informal sector comprises of informal waste pickers, itinerant buyers, scrap dealers and recycling factories, which pick up and recycle waste in a stream away from the municipality and indirectly helping.

- ✓ Plays a crucial role
- ✓ Lightens the burden on government and municipality by recycling
- ✓ Generates self-employment for their livelihood through collection, segregation and recycling in a more organized and safe manner.
- ✓ Creating better living condition and basic rights to work, leading to higher productivity.
- ✓ Creating access to capacity building programmes related to waste management.
- ✓ Formal inclusion in plans for urban areas.

The informal waste management provides enormous opportunities for the economy of Puliangudi. So it is urgently needed to acknowledge the value of the informal system and its workers, learn from them and integrate them into the total scheme of solid waste management. If the recyclable waste materials are collected by the municipality by engaging the informal waste pickers to provide a formal livelihood opportunity, the recyclables can be properly managed either by using hi-tech or low tech methods of recycling.

9. Recommendations

- ✓ Municipal authorities can authorize or register informal waste pickers as primary waste collectors to collect recyclable waste materials from streets and residents.
- ✓ Collected recycling materials by the informal waste pickers can be collected by the municipality and transported to the authorized recycling unit through creating MoU with them.
- ✓ Periodical health check for informal waste pickers by the municipalities.

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