International Journal of Engineering Research-Online
A Peer Reviewed International Journal
Email:editorijoer@gmail.com http://www.ijoer.in ISSN: 2321-7758
Vol.4., S2., 2016

EPSDIC-2016

ISSN: 2321-7758

HOUSEHOLD BEHAVIOR ON SOLID WASTE MANAGEMENT: A CASE STUDY OF SOME PLACES IN ELURU TOWN

G.SRINIVASA RAO[1], K.SHOWRILU[2], V. NAGA LAKSHMI[3], G.JYOTHI[4]*

[1,3]Lecturer in Chemistry, [2]Lecturer in Physics, [4]Head of the Department of Chemistry

[1-4]St. Theresa's college for women, Eluru

*jyothighanta5@gmail.com

ABSTRACT

This paper is the outcome of the household behavior of some parts of Eluru natives with regard to solid waste management. The result of a survey of 100 residents covering some parts of the town of Eluru. The daily per capita waste generation in specified areas of Eluru is 1.19kg and is lower in the core zone than in the outer and middle zones. The survey reveals that there is vast open space to discard the waste. The various types of houses and financial backgrounds are the major determining factors for the total amunt of wastes generated in all the zones. About 80% of the households are willing to pay for better management of waste. The willingness to pay is highest in the outer zone and lower in the core zone.

Keywords: solid waste, management, survey, composting, collection, segregation.

1. INTRODUCTION

The ability to utilize the discarded materials in different ways can be defifined as Solid Waste Management. It is a process of to follow to follow 4 R principle(Reduce reuse recycle recovery). The term applies to materials including disposed food,metals,paper ,garden waste,wood ,plastic,E-waste,fallen leaves, debris, and chemicals from a factory and disposable diapers. Some forms of waste management [1,2,3] involves the elimination of undesirable waste products through land filling incineration, recycling and composting which transform waste into useful products. By implementing the above threories we can minimize solid waste as well as environmental pollution [4].

2. Methodology

2.1 The survey methodology

The Solid Waste Management Questionnaire Survey (SWMQS) that was employed for this project was adapted from the Project Coordinator. A total of 55 survey questionnaires were randomly administered among households of Pamula Dibba and Chanikyapuri colony areas of Eluru town. A group of students (10 each) conducted face-face interviews. Each student group was limited to interview a total of 10 households. One member of each household who was within the age bracket of 18-75 years was selected to be interviewed.

The questionnaire design consists of fifteen sections: Area of Jurisdiction, Details of Population, Survey details of the allotted area, Socio economic details of the respondents, General features regarding waste management, Perceptions and attitudes of respondents regarding waste, Awareness about consequences of improper waste disposal, Details regarding waste handling, family housing details, General details regarding waste materials, Storage of waste materials, Waste collection and transportation services, Waste Disposal, Problems due to improper management of waste, Suggestions for proper solid waste management.

The survey approach and process was designed to provide insightful information that would guide future Solid Waste Management Programme implementation in Pamula dibba and Chanikyapuri colony. Methodological triangulation approach was used to ensure multiple sources of evidence necessary for validity and reliability. Hence four approaches were used in gathering information; secondary data was obtained from reviews of reports and documents, quantitative data was collected through structured Household questionnaires and also from observations while qualitative data was collected through student group discussants.

2.2 Sampling methods and sample size

Probability sampling technique was used to select a sample of 100 Households to be interviewed from two sampled areas (Pamula dibba, Chanikyapuri colony). Simple random sampling was used to select an average of 50 Households

2.3 The instrumentation

Primary data was collected through household questionnaires. The household questionnaire sought to obtain demographic data as well as the household knowledge, attitudes and practices related to solid waste management. A student group discussion enabled collection of qualitative data that was used for triangulation and generating deeper understanding of the community knowledge attitudes and practices on solid waste management.

2.4 Data collection and analysis

Primary data was collected by 10 students over a 3 days period (10 students collected data from 100 households all spread over the Pamula dibba and Chanikyapuri colony areas).Secondary data was collected from various documents on Solid Waste Management.

The questionnaires were also field piloted by senior faculty members of our college to establish how long it would take to complete, if interviewees would understand the questions 55 and if they would be willing to answer the questions. Results of the piloting informed the data collection planning and exercise.

3. RESULTS AND DISCUSSION

3.1 HOUSEHOLD SURVEY

AREA OF JURISDICTION

Eluru Urban Area - 4.1 Sq.Km

DETAILS OF POPULATION

Pamula Dibba and Chanikyapuri colony of Eluru Population – 2014(year) - 2,400

SOCIOECONOMIC DETAILS OF THE RESPONDENTS

Among the 100 respondents, 1% of the respondents were between 18-25 years, 33% people were between 25-35 years, 32% respondents were between 36-50 years, 34% respondents were above 50 years of aged. Here, 37% respondents are male and 63% respondents are female. The most of the respondents were female (63%) and a major portion (34%) of respondents above 50 years. 19% respondents are illiterate, 26% respondents are having elementary education, 22% of the respondents are SSC passed, 33% are having higher education. Above Rs.20,000/- income per month respondents are 27%, between Rs.10,000-20,000/- are 27% and less than Rs.10,000/- are 46%. We can hardly say that the educational status of most of the respondents is not satisfactory. Therefore, majority of them are not aware enough about impacts of miss management and careless dumping of solid waste.

Half of the respondents do not know properly about Solid Waste treatment. 26% of the respondents thinking that solid waste means sweeping the house and throwing waste away, 20% thinking that keeping the house neat and clean. 54% thinking that solid waste means storing, transporting and disposing of waste hygienically. The survey also sought to find out the main source waste produced by the household. Results indicated that households produce different types of waste. In a total 100 multiple responses on types of

waste produced, Foodscrapes and paper waste is the most common type of waste. As it was frequently mentioned in 70% of the cases. Other types of waste are plastics/rubber textiles being frequently mentioned in 34% and 25% of cases, respectively.

It is very clear that Pamula Dibba , Chanikyapuri colony people felt that Major problem by Paper and Food scraps. Minor problem by textiles, wood etc. 6% of the people felt that Aluminium, wood, ferrous & metal, glass&ceramic, cloth are creating no problem. 67% people are not aware about the consequences of improper waste disopal.

52% of the respondents lived in terrace houses. 19% lived in bunglow. 15% lived in semi-detached houses. 13% lived in detached houses. 45% of houses the 4-5 persons lived , 3-4 people lived in 24% houses, 2-3 people lived in 17% of the houses, 1-2 people lived in 5% of the houses and more than 5 persons lived in 9% houses.30% of the residents have access to portico/yard/balcony, 19% have access shared garden, 20% have accessed to garden. 11% have been accessed to allotment and 20% have access to other.

Most of the respondents do not have gardens. Approximately 80% of people were not using pesticides for controlling pests/weeds in lawns or gardens. 14% of the respondents buy beverages in aluminium cans. These used cans are not separated for recycling.90% of residents have no paper collection centre nearby. 80% of the houses are not sending cans, plastics and paper for recycling.86% of the residents are not producing electronic waste in their houses.

3.2 STORAGE OF WASTE MATERIALS

It is clear that 45% of people use the basket with cover for waste storage, 19% of the people use basket without cover for waste storage and 10 % of the people set as a heap at a corner in the house for storage of waste, 10% of the people heap the storage waste outside near the house, only 5% of respondents used plastic bin without lid, 9% are use plastic bin with lid for storage of waste and 2% follow the other methods to storage the waste. 57% of the residents exclusively used particular dust bin for waste materials, 35% of the residents used bin frequently, 4% of them used bin for sometimes and remaining 4% of the residents never used dust bins for storage of waste material.

72% of respondents are segregating the waste before dispose land 28% are not. 67% of the residents stored the waste in their houses for 1-2 days, 19% for 2-3 days, 9% for 4-5 days and only 5% of residents stored the waste for more than 5 days. 73% of the respondents has their own composting bins and 27% of the residents do not have.45% of the people have one composting bins, 52% have two bins, 3% have three bins and none of them have composting dust bins.50% of the residents felt that waste storage is a major problem, 32% of them feel is a problem, 5% of them felt a little problem and only 13% of the residents felt no problem for waste storage.

84% of residents are waste disposed in waste dump, whereas 8% throw it in unoccupied land, none of them throw it in water bodies and only 8% of residents follow other methods for waste disposed. 50% of the houses disposed bins per week in one time, 26% of them disposed two times in a week, 16% are of disposed it in three times in a week and only 8% of the residents are disposed it in four times in a week. 35% of the people dumping the solid waste including plastics into the drainage nearby, whereas 65% of them are not.

The percentage of people burning of solid waste at domestic level is 36% whereas 64% of them are do not burn the solid waste at domestic level. In this locality 40% of waste is transport from door to door to the dump site. Only 9% transported through communal collection. 48% of waste is transported through tricycle system, only 3% of waste is carried to the dump site through the other systems. Among the families of this area 28% of fathers , 61% of mothers, 1% children and only 10% paid workers transports their waste to the dump site. The table shows that 24% of the residents dispose their waste on the road to farm. 33% of them on the road to dump site, only 1% of them are into river/stream/pond/gutter, 41% of the residents at the refuse dump and only 1% of them dipose their waste into the nearby bush and none of the families dispose it onto a

weedy house plot nearby.In this locality we noticed that only one dump site is kept in few streets, two or more dump sites are located in most of the streets.

80% of the people using municipal services in waste collection and transportation of waste.55% of the residents satisfied by the regular municipal garbage collection, 23% of the people highly satisfied by the municipal services, 18% of the people are not satisfied and only 4% of the people are not at all satisfied by the municipal services.59% of the people are strong It willing to pay more if the services are improved, 30% of the people are not willing to pay more for municipal better services.

TABLE - 1: Composition of Area Waste

Recyclable waste generated in Kg.					Compostable waste generated in Kg		Reusable waste generated in Kg.				Total waste generated in Kg.
paper	plastics	metals	glass	wood	Kitchen waste	Garden waste	Textiles	leather	rubber	metals	
122	100.5	19.5	15	14.5	247.5	305	1.75	0.75	3	0	829.5

We conducted survey on total waste generated (in kgs) in Pamula dibba and Chanikyapuri area. We observed the waste generated by 100 houses in a week. We noticed that Recyclable waste generated is as follows. By paper 122kg, plastics 100.5kg, metals 19.5kg, glass 15kg and wood 14.5kg. The total Recyclable waste generated in that area 271.5kg. The Compostable waste generated by Kitchen waste is 247.5kg and Garden waste is 305kg. Reusable waste generated by Textiles 1.75kg, leather 0.75kg and rubber 3kg. The total waste generated in this area is 829.5kg.

4. SUMMARY AND CONCLUSION

The results reveal that many residents do not have complete knowledge of what constitute the environment. This means there is need to create awareness about environmental education to the people. The typical indigene of Pamula dibba and Chanikyapuri colony areas in Eluru are generally residing clean people and this is why the respondents considered household garbage and sewage to be the major environmental issues for concern. Many of the residents complained that the dump sites were insufficient and was daily cleared by the sanitary workers but it was not satisfactory, they need twice a day waste would be cleared by the sanitary workers. A situation which has prompted them to resort to the burning of wastes. The burnt wastes gradually accumulate and usually lead to the blockage of drainages because the burning usually takes place close to such drainages and also in rainy seasons roads would be completely immersed in water for several hours depending upon the severity of the rain fall. People unable to come out from their houses. These serves as breeding sites for mosquitoes, flies leading to dangerous communal diseases like viral, malaria, dengue etc. have been identified by the respondents. Since many respondents depend on municipal and bore water, they are facing highly risk of contamination. Main problem with roaming of pigs. Some of the residents near Pamula dibba were rearing pigs. The use of waste carts should be introduced in Pamula dibba and Chanikyapuri colony. Casual workers should be employed to push such waste carts to collect household garbage from house to house. The households will have to pay a small token for such services. This survey has revealed that many respondents are willing to pay for such services or better municipal services. The Local Government Authority has been blamed by many of the respondents for not solving the garbage problem. Many of the respondents believed that there was need for more frequent removal of garbage by the sanitary workers and that recycling laws and programs should be put in place by the Local Government. Many of the respondents were willing to participate in recycling and composting programs if they were given adequate

orientation. Some residents are already involved in composting and recycling. This means that waste collection centres need to be erected by the Local Government specifically for the purpose of waste recycling and composting. The environmental health officers will also need to increase their efforts in public education on ways of reducing and reusing wastes and on what wastes should be brought to the recycling and composting centres. There is a great need for the private sector such as commercial banks to collaborate with the Local Government in the solid waste management efforts. It is the corporate social responsibility of the private sector to partner with the Local Government in the smooth delivery of government functions. It is obvious that the environmental health department of the local government is handicapped in the areas of personnel, work vehicles and funding. All these need to be adequately provided for effective environmental health services to be delivered especially in solid waste management. Publicity of waste management practices through distributing of leaflets, posters and mass media support. All the parties' (i.e. government, households, service holders, students, day labor, businessperson, etc.) spontaneous participation and involvement should be ensured to manage and dispose solid wastes properly in order to maintain clean and healthy environment.

CONCLUSION

This survey project has being able to provide an indication of the current household solid waste management in Eluru by focusing on the residents surrounding Pamula dibba and Chanikyapuri as a case study.

A large number of respondents suggest that, management of disposal facility should be increased to a satisfactory level and awareness must be developed among all classes of people so that the negative consequences of wastes can be reduced at a large extent.

The residents are generally concerned about the environment but are not doing enough to reduce, recycle and reuse the household garbage they generate. It is clear from their responses that they are ready to help to solve the garbage problem in Eluru if the appropriate support from Eluru Municipal Corporation.

The environment requires protection in order to remain healthy for all inhabitants. To protect and bring about a healthy and sustainable environment requires the collective efforts of the public, the environmental health authorities and the private sector. Let us all remember these three most important words about 'waste': REDUCE, RECYCLE, REUSE.

REFERENCES

[1]. Agrawal, G. N. et al. (September, 1982) "Report on Proposal for Solid Waste Disposal Fee for Kathmandu/Lalitpur Town Panchayats" Report Submitted to Nepal Solid Waste Management Project, His Majesty's Government/Nepal, Ministry of Works and Transport, Department of Housing, Building and Physical Planning and Federal Republic of Germany, German Agency for Technical Cooperation (GTZ) LTD.

[2]. Flinthoff, F. (1970) Assignment Report in the Solid Waste Management in Kathmandu Who-Project Searo. 0150,

[3]. GTZ (1996) 'Report on Fact Finding Mission for the Solid Waste Management in Nepal' Prepared on behalf of GTZ.

[4]. Macauley, Molly K.; Margaret A. Walls (1995) Solid Waste Reduction and resource Conservation: Assessment Policy, Resource for the Future Discussion Paper 95-32