IMPACT: International Journal of Research in Business Management (IMPACT: IJRBM)
ISSN(P): 2347-4572; ISSN(E): 2321-886X
Vol. 5, Issue 7, Jul 2017, 133-142
© Impact Journals

WASTE MANAGEMENT PRACTICES ADOPTED BYTHE GREEN HOME OWNERS: A COMPARATIVE STUDY

RESHMI R[1] & B JOHNSON[2]

[1]Research Scholar, Department of Commerce and Management Studies, University of Calicut, Malappuram, Kerala, India

[2]Professor, Department of Commerce and Management Studies, University of Calicut, Malappuram, Kerala, India

ABSTRACT

One of the most critical issues faced by the society nowadays is the disposal of waste.This problem can be solved only by intelligently converting waste into resources, rather than destroying or disposing it.Numerous practices can be adopted by the households to convert the waste into resources.Some of the practices that can be applied are installation of Bio gas plants, Composting, Incineration, Reduce, Recycle & Reuse etc. In this paper the researchers have made an attempt to study about the different waste management practices adopted by the households, the amount spent on its installation and the subsidy received by the green home owners of Thiruvananthapuram and Malappuram districts of Kerala State.In order to achieve the objectives 25 questionnaires were administered to each green home owner of Thiruvananthapuram and Malappuram districts

KEYWORDS: Bio Gas, Composting, Green Home Owners, Waste Management Practices

INTRODUCTION

Waste is explained as most unwanted materials according to the Environmental Protection Act 1990. The Department of the Environment recognized four broad categories of potential waste. First is worn but functioning substances or objects that are still useable (albeit after repair) for the purpose they were made. Secondly, substances or objects that can be put to immediate use otherwise than by a specialized waste recovery establishment or undertaking for example ash from a power station used as a raw material in building blocks. Third category is degenerated substances or objects that can be put to use only by establishments or undertakings specialized in waste recovery. These are always wastes even if transferred for recovery for value for example polluted solvents or scrap. Such substances only cease to be waste when they have been recovered. Fourth are the substances which the holder does not want and which he has to pay to have taken away.

*"*Waste management or Waste disposal is all the activities and actions required to manage waste from its inception to its final disposal. This includes amongst other things, collection, transport, treatment and disposal of waste together with monitoring and regulation. It also encompasses the legal and regulatory framework that relates to waste management encompassing guidance on recycling etc.*"*

According to European Union Directive 'Waste management' shall mean "the collection, transport, recovery and disposal of waste, including the supervision of such operations and aftercare of disposal sites". However the newer concepts of 'Waste management' talk about 'Reduce, Reuse and Recycle of waste' over and above waste disposal.

It is the duty of every Government to assure global cleanness.The health of the people and conservation of resources is the primary responsibility of any Government. In olden days, the waste was disposed by burying.As the population was relatively small, it was an effective technique. But now, in the modern era, burying rubbish is not a sustainable solution as the amount of waste is more and more over most of the waste is not biodegradable.And many types of waste do damage to earth and habitats.

The general waste management practices adopted are narrated below

Incineration: It is a process of direct burning of waste in presence of excess air oxygen, at temperatures of about 800 °C and above, liberating heat energy, inert gases and ash.

Vermicomposting: This is a process, in which food material and kitchen waste including vegetables and fruit peelings, papers, etc., can be converted into compost through the natural action of worms. An aerobic condition is created by the exposure of organic waste in air.

Biogas plant: Biogas is produced by bacteria through the bio-degradation of organic material under anaerobic conditions. Natural generation of biogas is an important part of bio-geochemical carbon cycle. It can be used both in rural and urban areas.

A typical biogas system consists of the following components: (1) Manure collection (2) Anaerobic digester (3) Effluent storage (4) Gas handling (5) Gas use.

Segregation of waste: It is dividing the waste into bio degradable and non-bio degradable. Non bio degradable wastes are collected by agencies like Kudumbashree.

In this point of view, adopting good waste management practices and practices is very important as it protects both human life and environment.So in order to ease the pressure on Government, it is always better to convert the biodegradable waste to resources in the houses itself.

Green home owners are those who have constructed eco-friendly homes by adopted green technologies.

AIM OF THE PAPER

The paper aims to study about the waste management practicesadopted by the green home owners of Thiruvananthapuram and Malappuram districts of Kerala

The Objectives of the paper

- To examine the various waste management practices adopted by the green home owners of Thiruvananthapuram and Malappuram districts of Kerala
- To understand which of the two districts is investing more money on waste management practices.
- To know whether the people are availing subsidies for the installation of waste management practices.

HYPOTHESES

- H0: There is no significant difference between the waste management practices adoptedand the awareness of green home owners of both the district
- H0: There is no significant difference between waste management practices adopted and place of residence of both districts.
- H0: There is no significant difference between waste management practices adopted and occupation of green home owners of the two districts.
- H0: There is no significant difference between waste management practices adopted and income level of the respondents.

REVIEW OF LITERATURE

Mahima&Lavanya (2016) in their study found that the size of the household is directly related to the quantity of waste generated in the household.Majority of the respondents opined that recycling is the best way of reducing solid waste followed by reuse and reduce respectively.The study pointed out that absence of recycling unit, inefficiency of labour, no segregation of waste at source, effect of inefficient recycling, unclean waste dumping, absence of primary collection and lack of financial resources are the problems of solid waste management. Dhanalakshmi (2014) paper suggested that it is possible for Household Waste Management to be effective in reducing waste disposal problem in some high density housing, where the waste disposal problems are dominant. High quality studies are needed to prove this and to estimate the size of effect. Safe waste management practices can be promoted that require little investment from households. Harikrishnan (2014) his study is based on the solid waste management and it compares the solid waste management system of two states Kerala and Tamil Nadu. This study analyzed the centralized and decentralized treatment plants in these two states. This details the difficulties and suggestions for improvement regarding the solid waste management. The study was conducted among the authorities of different cities of Kerala and Tamil Nadu. This article would provide the readers knowledge about the present solid waste management system in these states and their comparison. Subramoniam & Suresh (2015) in their study analyzed the waste disposal at the community located in the Alappad Panchayat in Kollam district of Kerala. The scope of this study within the community is assessed based upon following a three-fold approach. Firstly the awareness of community on the waste production within this community is examined. Secondly, the disposal method or model is evaluated and compared within this community. Thirdly, the Waste Disposal of the members of the community is gauged. The study was conducted upon a thin section of the society belonging to a specific ethnographic framework with the focus upon twenty participants. The results of this study can be extrapolated to project the overall effect Waste Management or Waste disposal in coastal villages throughout the entire nation of India

Narrowing down the review it was found that no such study focusing on the waste management practices adopted by green home owners of Thiruvananthapuram and Malappuram districts were conducted and hence an effort is made to fill the research gap.

SIGNIFICANCE OF THE STUDY

The literature review reveals that there have been researches areas of waste management. Studies on Analysis of

waste disposal at the Community located in Alappad Panchayat of Kollam district, Kerala, Scope of eco-friendly household waste management in High Density Housing in Ernakulam district, Solid waste management comparison between two states Kerala and Tamil Nadu, Study on Problems of Solid waste management with reference to Palakkad Municipality etc. From the above review it is clear that there is a gap with regard to Waste management practices adopted by green home owners of Thiruvananthapuram and Calicut districts of Kerala. This research makes an attempt to understand the Waste management practices adopted by green home owners of Thiruvananthapuram and Calicut districts of Kerala, amount spend by them to adopt these practices and the amount of subsidy they have availed.

RESEARCH PROBLEM

Various waste management practices are adopted by the Government. To have an understanding about the implementation of such practices by green home owners, an attempt is made to understand the various practices adopted by the two districts of Kerala, (Thiruvananthapuram and Malappuram). In order to get a better understanding the following research questions were put forward:

Are the people really aware of the waste reducing practices?

If they are aware, are they adopting such practices?

What is the amount of money spent for installing of waste reducing practices?

METHODOLOGY ADOPTED

This study is following simple random sampling.The sample consisted of green home owners' belongings to different places of residence,income group, occupation, etc. The unit of study is the green home owners of Thiruvananthapuram and Malappuram districts of Kerala State. The sample size taken is 25 respondents from each district.On the basis of responses of the questionnaire, analysis has been carried to know the waste management practices adopted by the green home owners of these two districts of Kerala, the amount they have spent on installing these practices and the subsidy availed by them. The data was collected through secondary and primary sources.The researchers depended on Journals, Websites, Magazines and Newspapers as secondary sources and for collecting the primary data, a structured questionnaire was administered to the respondents of both the districts.The nature of questions were close ended, multiple choice and dichotomous questions.

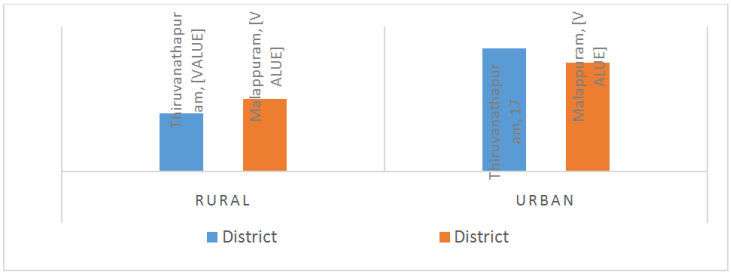
The researchers tested the normality of the data using Kolmogorov Smirnov test and the p value is.200 which is greater than.05 which satisfies the assumption of normality. Therefore the researcher adopted parametric test.Descriptive Analysis, t-test, ANOVA were used.

ANALYSIS OF THE RESULTS

Percentage Analysis

From the chart given below, it is found that 8 out of 25 belong to rural areas and 15 belong to urban areas of Thiruvananthapuram. And 10 out of 25 belong to rural areas and 15 out of 25 belong to rural areas of Malappuram districts of Kerala.

Figure 1



From the chart II, it is found that in Thiruvananthapuram district, 12 respondents are govt employees, 3 are private employees, 3 are self-employed and 7 belongs to other types of employments.In Malappuram district, 18 respondents are government employees, 1 is a private employee, 4 respondents are self-employed and 2 respondents are employed in other category.

Figure 2

From the Chart III, it is found that majority of the respondents who invests in waste management practices fall in the income level category of 20,000-59,000 and 60,000 and 2, 39,000 per month in both the districts

Figure 3

Descriptive Statistics

While comparing the Aggregate Mean Scores of both the Districts (Table No:1), it is found that the Mean Score of Thiruvananthapuram is more than Malappuram which means the application of waste management practices is more adopted by Thiruvananthapuram district.It is also very much visible that adoption of bio gas plant is more among the green

home owners of Thiruvananthapuram district.

Table 1

Particulars	District	
	Thiruvananthapuram	Malappuram
	Mean	Mean
Bio gas plant	2.96	1.48
Vermi compost	2.84	2.32
Plastic waste segregation and collection by agencies	3.52	3.68
Manure pits	3.96	3.56
Reusable bags	4.36	3.72
Buy nontoxic products	4.24	3.84
Reduced use of pesticides	4.16	3.76
Total	26.04	22.36
Aggregate Mean Score	3.72	3.19

Source: Primary data.

From Table No:2 it is found that the aggregate mean score of green home owners of urban areas of Thiruvananthapuram and Malappuram is more when compared to the rural areas of both districts which means that Urban are more adopting such waste management practices.

Table 2

Particulars	Place of residence	
	Rural	Urban
	Mean	Mean
Bio gas plant	2.22	2.22
Vermi compost	2.61	2.56
Plastic waste segregation and collection by agencies	3.44	3.69
Manure pits	3.72	3.78
Reusable bags	3.94	4.09
Buy nontoxic products	3.94	4.09
Reduced use of pesticides	3.83	4.03
Aggregate Mean Score	3.3	3.49

Source: Primary data.

From Table No: 3, it can be understood that privately employed people are investing more on waste management practices as their mean score (3.78) is higher when compared to govt, self-employed and other wise employed people

Table 3

Particulars	Occupation			
	Govt	Private	Self employed	Others
	Mean	Mean	Mean	Mean
Bio gas plant	2.10	4.00	2.14	1.89
Vermi compost	2.60	2.50	2.00	3.00
Plastic waste segregation and collection by agencies	3.67	3.75	4.14	2.89
Manure pits	3.70	2.75	3.86	4.33
Reusable bags	3.97	4.50	3.86	4.22
Buy nontoxic products	4.00	4.50	3.86	4.11
Reduced use of pesticides	3.90	4.50	3.86	4.00
Aggregate Mean Score	3.42	3.78	3.38	3.49

Source: Primary data.

From the Table No: 4, it is very clear that respondents with a monthly income between 2, 40000-11, 99,999 and 60,000-2, 39,999 (with aggregate mean score 3.79 and 3.6) is spending money on installing waste management practiceswhen compared to very high income group and low income group.

Table 4

Particulars	12,000-19,999	20,000-59,999	60,000-2,39,999	2,40,000-11,99,999	above 12,00,000
	Mean	Mean	Mean	Mean	Mean
Bio gas plant	1.00	1.89	2.67	2.43	1.00
Vermi compost technique	2.33	2.06	3.00	3.00	1.00
Plastic waste segregation and collection by agencies	2.33	3.83	3.48	4.00	3.00
Manure Pits	3.67	3.39	4.05	4.14	2.00
Reusable bags	4.33	3.89	4.14	4.29	2.00
Buy nontoxic products	4.33	4.06	4.00	4.29	2.00
Reduced use of pesticides	3.33	4.06	3.90	4.43	2.00
Aggregate Mean Score	3.04	3.31	3.6	3.79	1.85

Source: Primary data.

In the next part of the analysis, an attempt is made to know the significant difference between waste management and district & waste management and place of residence (rural and Urban) by using Independent sample t test.

Hypotheses

- H0: There is no significant difference between the waste management practices adoptedand the awareness of green home owners of both the districts

Table 5

Sl.No	Particulars	District	N	Mean	Std. Deviation	T Value	P Value	Remarks
1	Waste Management Practices	Thiruvananthapuram	25	3.7714	71309	2.973	.005	Significant
		Malappuram	25	3.1943	65838			

From the above analysis it is found that total waste management practices adopted the p value is.005 which is less than.05, which implies there is significant difference between the two districts in adoption of these practices.

- H0: There is no significant difference between waste management practices adopted and placeof residence of both districts.

Table 6

Sl.No	Group Statistics							
		Place of Residence	N	Mean	Std. Deviation	T Value	P Value	Remarks
1	Total Waste Management Practices	Rural	18	3.3810	74955	.728	.470	Not significant
		Urban	32	3.5402	73896			

It is found from the analysis that all the hypothesis that the null hypothesis is accepted which means, there is no significant difference between all the waste management practices followed in the rural and urban areas of

Thiruvananthapuram and Malappuram districts of Kerala State.

In the next part ANOVA was conducted to understand the significant difference between waste management and occupation& waste management and income.

- H0: There is no significant difference between waste management practices adopted and occupation of green home owners of the two districts.

Table 7

Descriptive							
Particulars		**N**	**Mean**	**Std. Deviation**	**F Value**	**P Value**	**Remarks**
Total waste management practices	Govt	30	3.4619	74909	.259	.855	Not significant
	Private	4	3.7857	1.00678			
	Self employed	7	3.3878	51977			
	Others	9	3.4921	82100			
	Total	50	3.4829	73915			

From the above, Hypothesis 1, p values =.855 which isgreater than.05 which means Null Hypothesis is accepted i.e. there is no significant difference between waste management practices adopted and occupation of the respondents.

- H0: There is no significant difference between waste management practices adopted and income level of the respondents

Table 8

Particulars		**N**	**Mean**	**Std. Deviation**	**F Value**	**P Value**	**Remarks**
Total waste managementpractices	12,000-19,999	3	3.0476	.67512	3.184	.022	gnificant
	20,000-59,999	18	3.3095	.78895			
	60,000-2,39,999	21	3.5986	.62043			
	2,40,000-11,99,999	7	4.0000	52812			
	above 12,00,000	1	1.8571				
	Total	50	3.4829	.73915			

From the above hypothesis, p value =022<.05 which means Null Hypothesis is rejected i.e. there is significant difference between waste management practices adopted and Income of the green home owners.

FINDINGS

- It is found that green home owners of Thiruvananthapuram district are adopting more waste management practices when compared to the green home owners of Malappuram district.
- Regarding the usage of waste management practices, it was inferred that 10 out of 25 in Thiruvananthapuram district is spending money for the installation of bio gas plant, while in Malappuram district only 2 out of 25 has installed bio gas plant.
- It was found that in Thiruvananthapuram district, 70% of the respondents who use bio gas plant belong to urban areas and 30% belong to rural area, out of 25 respondents about 60% of the respondents using Vermi compost belong to urban areas and 40 % belong the urban area.In the case of other waste management practices like

manure pits, reduction in plastic usages etc., almost 90 % of the respondents who adopts belong to both rural and urban areas.

- In the case of Malappuram district 20% of the respondents who use bio gas plant belong to urban areas and none of the respondents is using bio gas plant in rural areas.But almost 70% of the people living in rural areas and urban areas are adopting other waste management practice like pipe compost, vermi composting, manure pits etc.
- The green home owners of Malappuram district are more inclined in the usage of other practices like pipe compost, vermi compost, plastic segregation etc., which is less expensive in installation.
- It was also realized that only 30% of those who installed Bio gas plant in Thiruvananthapuram district who has installed bio gas has availed subsidy while in Malappuram district, 5% of those who installed bio gas has availed subsidy.
- It is found that respondents with a monthly income between 2,40000-11,99,999 and 60,000-2,39,999 (with aggregate mean score 3.79 and 3.6) are spending money on installing waste management practices when compared to very high income group and low income group.
- It is found high income level respondents of both the districts (Thiruvananthapuram & Malappuram) is taking less initiative in adopted waste management practices
- It can be understood that privately employed people are investing more on waste management practices as their mean score (3.78) is higher when compared to govt, self-employed and other wise employed people.
- The money spent for installing Bio gas plant ranges form 12000-25000, while the amount spent on composting ranges from 500-2000 irrespective of the districts.
- It is found through SEM that all the practices adopted is resulting in proper waste management in households of both the districts.

CONCLUSIONS

Kerala being a literate and at the same time more populated state, it becomes the responsibility of the State as well as the home owners to adopt good waste management practices.Even though people are aware about the various practices to reduce, reuse, recycle waste by conserving resources, they are not taking initiative to install such techniques.It becomes the responsibility of the Government (both State and Central) to make installation of such practices mandatory while constructing houses which will definitely help to reduce disposal of waste to the public places. The Government should also take initiative in providing subsidy and this information should be passed to the society through various channels.As long as consumption of people increases, waste disposal is also going to be a challenging problem. Lifestyle changes, Urbanisation, unavailability of land have led to accumulation of waste.Bad waste management can always lead to air and land pollution. Exposure to waste also affects human health and children are more vulnerable to deadly diseases.This can cause respiratory related and other adverse health problems. So finding a solid solution for the reduction of waste, which should definitely start from each home, can be a panacea to this challenging problem.

SUGGESTIONS

- Awareness programmes regarding merits, uses, cost, subsidies provided for the installation of Bio gas plant should be provided to the people irrespective of age and income level.
- The Corporation and Municipalities should ensure that, at the time of construction of new houses, Bio gas plants is installed according to the requirement of thehouse owners.
- Government should impose strict regulations for the installation of Bio gas plants or other waste management practices.
- Regular visits by the authorities to residential places will definitely force the home owners to adopt such practices.
- If home owners are not in a position to install expensive waste management practices, then the concerned authorities should provide awareness programs on affordable waste management practices that can be adopted by all income level people.
- The Government can also install a bio gas free of cost for residential colonies consisting of 50 families so that there can use the gas for their own cooking purposes.
- The value of the money by installing bio gas plant in houses should be made known by providing demonstration classes, workshops, citing examples of successful waste management practices adopted etc. should be provided.
- The Government can also adopt various other new methods of waste management practices like Autoclaving, Fluffing, Melting technology etc.,
- Processing of bio degradable waste with the black soldiers fly can also be adopted by the households.

REFERENCES

1. Dhanalakshmi, T. (2014). Scope For Household Waste Management In High Density Housing: An Empirical Study of Kochi Corporation Area In Ernakulam District of Kerala. *International Journal of Business and Administration Research Review*.
2. G, H. (2014). Solid Waste Managment: A Comparative Study between Kerala and Tamil Nadu. *International Journal of Research in Social Sciences and Humanities*. Retrieved from http://www.ijrssh.com
3. Mahima, S., & Lavanya, V. L. (2016). A Study on Problems of Solid Waste Management with Special Reference to Palakkad Municipality. *International Research Journal of Social Sciences*, 1-6.
4. Saleem, W., Zulfiqar, A., Tahir, M., Asif, F., & Yaqub, G. (2016). Latest technologies of municipal solid waste management in developed and developing countries: A review. *International Journal of Advanced Science and Research, 1*(10), 22-29. Retrieved from www.allsciencejournal.com
5. Subramoniam, V., & Suresh, V. (2015, April). A Study on the Waste Disposal Practices and Its Impact in Alappad Panchayat, Kerala. *International Journal of Social Sciences and Management*, 97-101.
6. Vij, S. (2010-11). *Bio gas production from Kitchen Waste.* National Institute of Technology, Rourkela.