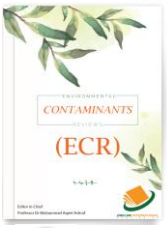
ZIBELINE INTERNATIONAL PUBLISHING

ISSN :2637-0778(Online)
CODEN: ECRNAE

Environmental Contaminants Reviews (ECR)

***DOI** : http://doi.org/10.26480/ecr.02.2018.22.26*



CrossMark

RESEARCH ARTICLE

STUDY ON KNOWLEDGE, ATTITUDE AND PRACTICES TOWARDS THE SOLID WASTE MANAGEMENT IN KARAN DISTRICT, MOGADISHU SOMALIA

Abdikadir Ahmed Omar[1], Md. Sahadat Hossain[2], Mst. Mahmuda Parvin[3]

[1]Department of Environmental Science, Stamford University Bangladesh, Dhaka 1209, Bangladesh.
[2]Lecturer, Department of Environmental Science Stamford University Bangladesh, Dhaka 1209, Bangladesh.
[3]Assistant Professor, Department of Environmental Science Stamford University Bangladesh, Dhaka 1209, Bangladesh.
**Corresponding Author Email: suldansaas@gmail.com*

ARTICLE DETAILS

Article History:

Received 01 January 2019
Accepted 04 February 2019
Available online 11 February 2019

ABSTRACT

Background: Waste management has been a worldwide issue which most countries are finding the best ways of dealing with. Managing waste improperly poses threat to the health of individuals and the environment. Somalia as a developing country, its communities has been facing with a lot of challenges regarding waste management due to actions towards waste management. Objectives: To examine the knowledge, attitudes and practices of communities on waste management and how their actions have affected their health as well as their environments. Methodology: The study area comprises Karan district Mogadishu-Somalia. Self-administered random sampling method has been used for structured questionnaire and interview (N=150). SPSS V.16 has been used for data analysis. Results: The majority of the respondents 58(38.7%) were said sharps/and needles, while 41(27.3%) were said plastic waste, 31(20.7) were human excreta residues only 20 (13.3%) said none of them. The majority of the respondents 101(67.3%) heard the risks associated with waste while 49(32.7) of the respondents don't heard risks associated with waste. The majority of the respondents 47(31.3%) were said breading of vector, while 29(19.3%) were said skin disease, 19(12.7%) were said respiratory disease while 55(36.7%) were pollution of soil, air and water sources. Besides, the attitude of the respondents, among the respondents 28(18.7%) were strongly agree that they care about waste management (reduce, reuse, and recycle), 91(60.7%) were agree, 14(9.3%) were not sure, 13(8.7%) were disagree while 4(2.7%) were strongly disagree. Moreover, most of the respondents indicates that 75(50.0%) girls are the persons that deals with the wastes, while 63(42.0%) said mothers are responsible, while only 3(2.0%) said boys and 9(6.0%) said father. Conclusion: The findings revealed that Karan district community have good level of knowledge as well as have positive attitude but their practice towards solid waste management was poor.

KEYWORDS

Knowledge, Attitude, Practice, Karan, Mogadishu, Somalia, Waste, Management, Environment

1. INTRODUCTION

Waste is defined as unwanted remains, residues discarded and material or by products which are no longer required by the initial user. These materials are by-products of human activities such as process of preparation, manufacture, packing, repacking, unpacking, construction, renovation of structures and mining operations. Almost any substance that is discarded is designated as waste, but it may be considered as a potential resource. Virtually everything also in the "waste stream" has residual value for someone or some business in the community. Waste can serve as valuable resources as ground cover to reduce erosion, fertilizer to nourish the crops and the source of energy etc [1].

The management of waste should focus on how to find the value and redirect it back to the community. But unfortunately, our collecting and dumping process mix and crush everything together; and make separation an expensive and sometimes impossible task to properly manage wastes [2]. The proper management of solid wastes generated from individual house, institutions such as hospitals, health centers; from public eating and drinking establishments (hotels, restaurants etc.); from business and working places is a very important part of environmental health service in a community. If these wastes are not disposed in a proper way, they create breeding places for insects such as flies, mosquitoes etc; they provide food and harborages for rats. These insects and rats are health risk in that they are potential disease transmitters. In addition to health problems rats also imposes an economic problem [3].

The seriousness of environmental depletion in Somalia reveals the relationship between natural environment and people are unfriendly. Thus, it seems it will require high time to take urgent actions by modifying people life style, making people an experienced of sustainable development by acquiring appropriate environmental knowledge, knowhow, skills and capacities millions more [4-7]. Improved sanitation attributes to 36% reduction in risk of diarrhea while hand washing with soap reduces the risk of diarrhea by 48% [8]. In addition, good hygiene practices improve overall health through reduced rates of pneumonia, scabies, skin and eye infections, and influenza [9]. Hand washing is also associated with lower respiratory infection [10].

The seriousness of environmental depletion in Somalia witness as that the relationship between natural environmental and people are un friendly Thus it seems high time to take urgent actions by redressing people life style, people an experience sustainable developmental by acquiring appropriate environment knowledge, knowhow, skills and capacities [4].

2. PROBLEM STATEMENT

Currently world cities generate about 1.3 billion tons of solid waste per year and this volume is expected to increase to 2.2 billion tones by 2025, more than doubling in lower income countries [1]. This may affect adverse health population due to be caused by vector borne disease and risk of fire near where household waste is deposited., Without adequate enforcement of the existing environmental legislations and increased public involvement, important components of the integrated waste management

systems including waste source separation, recycling, improved storage and collection systems has never see the light of the day.

Developing countries spend about 20 to 40 percent of metropolitan revenues on waste management, but they are unable to keep with the scope of the problem [11]. This is due to a number of reasons including the increasing population growth rate, increasing urbanization and economic growth.

In Somalia there is no distinction of the nature of waste; whether solid, liquid or any other form; waste has be considered as waste and dumped in the dumping sites. All garbage and rubbish collected from major cities and towns are dumped in large holes dug several kilometers away from the town and lacking a separation process of hazardous and non-hazardous waste, instead all are dumped in one place which is not environment friendly. There are tankers, which collect and dump waste water outside the city. Mogadishu has many industries that produce hazardous wastes that are harmful to humans, however foreign companies have been observed to be dumping hazardous waste along the ocean. Friendly countries and international organization have been assisting Somalia to monitor and prevent the dumping of wastes until the government gets the capability of tackling these problems. A visual inspection of the cities Hargeysa, Burao, Bossaso, Garowe, Berbera, Mogadishu, and Kismayo show that solid waste management is a growing crisis that engulfs all urban centers within the country, because of a turbulent history, especially over the last quarter century. The absence of the Somali government denied the Somali people an opportunity to engage in international forums focused on controlling waste. This study is aimed to determine the level of knowledge, attitudes and practice towards solid waste management in Karan district Mogadishu.

3. METHODOLOGY

The design of study was crossed sectional study.

Self-administered Questionnaire (N=150) and interviewing in Karan district community house hold by using structured questionnaire and check list. The questionnaire was prepared in English and translated to Somalia language to ensure clarity.

4. RESULT

Table 1 indicates that the majority of respondent 49.3% were 20-25, 22.7% were 26-30, 15.3% were 31-35, while 12.7% were above 35. The majority of respondents indicate that 86(57.3%) of respondents were female, while 64(42.7%) of respondent's male. The highest number of the respondents 61(40.7%) were university, followed by 11(7.3%) were primary level, while 20(13.3%) were secondary level, and 58(38.7%) were none Educational level.

Table 1: Socio-demographic characteristics

Variable	Category	Frequency	Percentage
Age	20-25	74	49.3
	26-30	34	22.7
	31-35	23	15.3
	Above 35	19	12.7
	Total	**150**	**100.0**
Gender	Male	64	42.7
	Female	86	57.3
	Total	150	100.0
Level of education	Primary	11	7.3
	Secondary	20	13.3
	University	61	40.7
	None	58	38.7
	Total	**150**	**100.0**
Marital status	Single	45	30.0
	Married	72	48.0
	Divorce	21	14.0
	Widowed	12	8.0
	Total	**150**	**100.0**

Table 2 indicates the majority of respondents of 137(91.3%) said yes, while 13(8.7%) said no, mostly they know waste. The majority of the respondents 101(67.3%) heard the risks associated with waste while 49(32.7) of the respondents don't heard risks associated with waste. The majority of the respondents 47(31.3%) were said breading of vector, while 29(19.3%) were said skin disease, 19(12.7%) were said respiratory disease while 55(36.7%) were pollution of soil, air and water sources. Among the respondents 126 (84%) indicated that waste pollute the environment while 24(16%) indicated that waste don't pollute the environment. The majority of the respondents 116(77.3%) said no that waste can't be a resource, while 34(22.7%) said yes waste can be a resource. 61(40.7%) of the respondents said yes that waste can be sorted and recycled while 89(59.3%) of the respondents said no that waste can't be sorted and recycled.

Table 2: Knowledge of solid waste management

Variable	Category	Frequency	Percentage
Do you know waste?	Yes	137	91.3
	No	13	8.7
	Total	**150**	**100.0**
Have you ever heard of the risks associated with waste?	Yes	101	67.3
	No	49	32.7
	Total	**150**	**100.0**
What are the dangers of having waste around your house or community?	Breading of vector	47	31.3
	Skin disease	29	19.3
	Respiratory disease	19	12.7
	Pollution of soil, air and water sources	55	36.7
	Total	**150**	**100.0**
Does waste pollute the environment?	Yes	126	84.0
	No	24	16.0

	Total	**150**	**100.0**
Can waste be a resource or not?	Yes	34	22.7
	No	116	77.3
	Total	**150**	**100.0**
Can waste be sorted and recycled?	Yes	61	40.7
	No	89	59.3
	Total	**150**	**100.0**

Table 3 shows the attitude of the respondents, 78(52.0%) of the respondents strongly agree that waste is one of the environmental problems that need immediately attention, 54(36.0%) agree, 8(5.3%) not sure, while 8(5.3%) disagree and only 2(1.3%) strongly disagree. Among the respondents 41(27.3%) were strongly agree that they feel comfortable about the way plastic waste is managed, 72(48.0%) were agree, 17(11.3%) were not sure while 14(9.3%) were disagree and only 6(4.0%) were strongly disagree. 44(29.3%) of the respondents were strongly agree that putting wastes into garage containers is the responsibility of everybody, 38(25.3%) were agree, 44(29.3%) were not sure, while 13(8.7%) were disagree and 11(7.3%) were strongly disagree. 22(14.7%) of the respondents strongly agree reusing plastic bags for shopping is good for reducing waste, 52(34.7%) were agree, 55(36.7%) were not sure, 15(10.0%) were disagree while 6(4.0%) were strongly disagree. Among the respondents 28(18.7%) were strongly agree that they care about waste management (reduce, reuse, and recycle), 91(60.7%) agreed, 14(9.3%) were not sure, 13(8.7%) disagreed while 4(2.7%) strongly disagreed.

Table 3: Attitudes towards waste management

Variable	Category	Frequency	Percentage
Waste is one of the environmental problems that need immediately attention?	Strongly agree	78	52.0
	Agree	54	36.0
	Not sure	8	5.3
	Disagree	8	5.3
	Strongly disagree	2	1.3
	Total	**150**	**100.0**
I feel comfortable about the way plastic waste is managed	Strongly agree	41	27.3
	Agree	72	48.0
	Not sure	17	11.3
	Disagree	14	9.3
	Strongly disagree	6	4.0
	Total	**150**	**100.0**
Putting wastes into garage containers is the responsibility of everybody	Strongly agree	44	29.3
	Agree	38	25.3
	Not sure	44	29.3
	Disagree	13	8.7
	Strongly disagree	11	7.3
	Total	**150**	**100.0**
Reusing plastic bags for shopping is good for reducing waste	Strongly agree	22	14.7
	Agree	52	34.7
	Not sure	55	36.7
	Disagree	15	10.0
	Strongly disagree	6	4.0
	Total	**150**	**100.0**
I care about waste management (reduce, reuse, and recycle)	Strongly agree	28	18.7
	Agree	91	60.7
	Not sure	14	9.3
	Disagree	13	8.7
	Strongly disagree	4	2.7
	Total	**150**	**100.0**

Table 4 shows the practice of the respondents, 113(75.3%) of the respondents were used waste storage while 37(24.7%) of the respondents were not used waste storage. 11(7.3%) were used basket, 54(36.0%) were used plastic, 49(32.7%) were used bags while 5(3.3%) were used sack. Most of the respondents indicates that 75(50.0%) girls are the persons that deals with the wastes, while 63(42.0%) said mothers are responsible, while only 3(2.0%) said boys and 9(6.0%) said father. Different methods are used to dispose garbage, large proportion of the respondents that 51(34.0%)bury it somewhere near the house47(31.3%) burn the garbage somewhere near the house, while 42(28.0%) dump the garbage outside their houses, and 10(6.7%) haul it to the community dump (illegal collection point).108(72.0%) of the respondents were not obeyed the laws covering waste management while 42(28.0%) were obeyed the laws covering waste management.

Table 4: Practice towards waste management

Variable	Category	Frequency	Percentage
Do you use waste storage?	Yes	113	75.3
	No	37	24.7
	Total	**150**	**100.0**
If yes what kind of storage do you use?	Basket	11	7.3
	Plastic	54	36.0
	Bags	49	32.7
	Sack	5	3.3
	Total	**119**	**79.3**
Who in the family deals with household waste handling?	Girls	75	50.0

	Mothers	63	42.0
	Boys	3	2.0
	Father	9	6.0
	Total	**150**	**100.0**
What are the methods used to dispose the garbage?	Burn the garbage somewhere near the house	47	31.3
	Dump the garbage outside their houses	42	28.0
	Bury it somewhere near the house	51	34.0
	Haul it to the community dump (illegal collection point)	10	6.7
	Total	**150**	**100.0**
I obey the laws covering waste management	Yes	42	28.0
	No	108	72.0
	Total	**150**	**100.0**

5. DISCUSSION

In our study about 20.0% of the respondents were unskilled workers and 7.3% had studied up to primary class and 38.7% were illiterate. In a similar study done by Kumar M et al in Bangalore it was found that 8.3% had studied up to secondary school, 10.0% had studied up to primary school and 40.0% were illiterate. In our study about 57.3% respondents were female while 42.0% were male. In similar study done by Banikarim and Chia et al in Kenya it was found that 59.1% were female while 31.9% were male [12].

In this study, estimating the level respondents' knowledge towards Solid waste management was divided into four levels: Excellent knowledge, Good knowledge, satisfactory knowledge and poor knowledge. The result of this study showed that 13.0% is excellent, 58.0% is good, 17.0% is satisfactory and 12.0% is poor. In regard to the type of knowledge the study found majority of the respondents 58.0% had good knowledge towards solid waste management. Inconsistent with similar study conducted in Malaysia city that showed 64% best knowledge level of respondents [13].

In this study, assessing type of respondents' attitude towards Solid waste management was divided into three: "positive attitude" "Not sure" and "negative attitude". The respondents showed positive attitude towards Solid waste management. A significant number of respondents (62.0%) had positive attitude towards Solid waste management. On the other hand a quarter (25.0%) of the respondents showed negative attitude Solid waste management while less than a one quarter (13.0%) showed that they are neutral. This finding is similar to a study done in Al-Beida city in Libya to determine the knowledge attitude and practices of respondents towards Solid waste management by Bofarraj M, showed a positive attitude towards Solid waste management. He described it to be a positive attitude towards Solid waste management since 80.5% of the respondents showed a favorable attitude towards in contrast to the remaining 19.5% who never showed a positive attitude towards Solid waste management.
From observation, people in these communities burn waste in an open area considered to be their final disposing sites. Burning waste pollute the air which increases the risk of health hazards as well as destroying the environment. It was observed that, burning and littering is a common act among the communities. Their activity keeps destroying the environment. When attention is not given to the management of solid waste, it leads to serious pollution and spreading of diseases. Al-Khatib, pointed out, that negative behavior towards waste management comes about due to lack of social pressure to prevent littering, absence of realistic penalties or consistent enforcement, and lack of knowledge on environmental effects of littering.

In this study, assessment of respondents' Practice towards solid waste management was divided into two: "good practice" and "poor practice". The result of this study showed that more than half (65.0%) of the respondents had poor solid waste management practice. On the other hand, 35.0%% of respondents had good solid waste management practice. Results are similar to this study conducted, in Ethiopia was found that (66.0%) of the respondents has poor solid waste management practices.
From the result (practices towards waste management), it was realized that 57.4% of the respondents preferred buying packaged stuffs to unpackaged stuffs. As most packed stuffs are made of plastic which is not degradable, it causes harm to the environment (air, water and land pollution). More waste is usually generated as most people buy packed stuffs which makes the communities prone to environmental and health hazards since those packs are not reduced, reused or recycled. It was also realized in the result that, 72% of the respondents did not know about laws concerning waste management which makes them not to be law abiding. This shows how law enforcer have failed to pay adequate attention to inspection and monitoring. Failure to ensure procedures are put in place to engage the communities in environmental issues leads to weakening the effectiveness of environmental laws. Their poor knowledge about laws concerning the environment has contributed to their practices towards waste management.

Looking at knowledge regarding the concept of waste, it was realized that 91% of respondent knew what waste was. This shows that people living in Karan district had more knowledge. But the question here is why they are not practicing proper waste management since they have knowledge about waste and are aware of its impact.

6. CONCLUSION

The findings revealed that Karan district community have good level of knowledge as well as have positive attitude but their practice towards solid waste management was poor. So it was realized from the study that, waste management in the communities in Karan district had challenges which needs immediate actions. Waste is dumped indiscriminately which ends up blocking all the water ways and drainage system. This has led to spread of diseases and floods causing loss of lives. It was realized, that they were aware of their actions pertaining to waste management since they are seeing the effect but the blame is pushed on the government as not doing its job. All their actions towards waste management is a result of not regarding waste as a resource but rather something that needs to be sent to the landfill. This shows that, the knowledge, attitudes and practices towards waste management in the communities, it could not cover all the issues relating to their act towards waste management even though the respondents gave out their knowledge as shown in the result. Their knowledge, attitudes and practices towards waste management need to be improved.

7. RECOMMENDATION

Based on the findings of the study, the following recommendations were made:

- Community members should be involved in decision-making regarding their waste management.
- Communities should be taught how to manage waste and given the opportunity to manage their own waste.
- There should be education on laws regarding waste management and ensuring enforcement of law by the government.
- Mass media (radios, televisions, newspapers, posters, magazines) should be used to facilitate change in attitudes, practices and perception of the communities towards waste management.
- Teaching waste management in schools should be encouraged and developed in the school curriculum.

7.1 Recommendations for further studies

Further studies should be done on the following:

- Developing an Effective Waste Management and Disposal Strategy with Local Communities.
- The Environmental and Health Effects of Waste Management.
- Waste Management Training and Capacity Building for Local Communities

REFERENCES

[1] UNICEF. 2009. Water, Sanitation and Hygiene. UNICEF WASH Section Programmes UNICEF New York, pp 30. Available at https://www.unicef.org/wash/files/UNICEF_WASH_2008_Annual_Report_Final_27_05_2009.pdf, Accessed on 11 November 2019.

[2] Rabie, T., Curtis, V. 2006. Hand washing and risk of respiratory infections: a quantitative systematic review. Tropical Medicine & International Health, 11 (3), 258-267.

[3] Sisay, S., Tariku, D., Hawi, A., Nardos, T., Tesfaye, A. 2007. Assessment of Knowledge Attitude and Practice towards Solid and Liquid Waste Management among Addis and Kometa Kebele Community Mizan-Aman Town, Bench – Maji Zone, Snnpr, South Waste Ethiopia. Biomedical Journal of Scientific & Technical Research, 1 (5). BJSTR. MS.ID.000434. DOI: 10.26717/BJSTR.2017.01.000434.

[4] Atlabachew, G., Learners. 2007. Academic Staffs' Environmental Knowledge, Attitude, Intension and Behavior of Adama. Unpublished MA Thesis submitted to School of Graduate Studies, Mogadishu University, Somalia, pp. 15.

[5] UNDP. 2006. Beyond scarcity: power, poverty and the global water crisis. Human Development Report, New York, USA, pp. 25-36.

[6] Abebaw, D. 2008. Determinants of Solid Waste Disposal Practices in Urban Areas of Ethiopia: A Household-Tewodros T Household waste disposal in Mekelle city, Ethiopia. Waste Management, 28 (10), 2003-2012.

[7] Tefera, W. 2008. Technical Issues of Sanitation and Hygiene in Mirab Abaya and Alaba; a case study report from the Southern Nations Region (SNNPR) of Ethiopia. RIPPLE Working, pp. 2.

[8] Legesse, W., Mariam, H.D., Kloos, H. 2006. Water supply and sanitation. In; Berhane Y, Haile Mariam D, Kloos H (Eds.), Epidemiology and Ecology of health and disease in Ethiopia, pp. 129-146.

[9] Assefa, N., Oljira, L., Baraki, N., Demena, M., Zelalem, D., Ashenafi, W., Dedefo, M. 2015. Profile of Kersa HDSS: the Kersa Health and Demographic Surveillance System. International Journal of Epidemiology, pp. 1–8, doi: 10.1093/ije/dyv284.

[10] World Health Organization. 2003. Combating water borne disease at the house hold level: International network to promote house hold water treatment and safe storage. Geneva, Switzerland.

[11] Yohanis, B., Genemo, B. 2015. Assessment of Solid Waste Management Practices and the Role of Public Participation in Jigjiga Town, Somali Regional State, Ethiopia. International Journal of Environmental Protection and Policy, 3 (5), pp. 153-168. doi: 10.11648/j.ijepp.20150305.16.

[12] Bella, D.V., Vaccari, M. 2014. Constraints for solid waste management in Somaliland, Waste and Resource Management, 167 (2), 62-71.

[13] Manya, C.M.S., Leta, S., Khan, M.M. 2017. Assessment of Municipal Solid Waste Management Practices in Juba City, South Sudan, Challenges and Practical Considerations: A review. IOSR Journal of Environmental Science, Toxicology and Food Technology (IOSR-JESTFT), 11 (10), pp. 13-25.