Construction Waste Management in Borama, Somalia

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Abstract - *Construction industry is considered as major restorative to Somalia economy. However, it also generate garbage as a result of the construction activity. Construction waste management is also a problem if not handled properly, as it has a severe influence on the environment, society, and ultimately the economy. This paper will be discussed the issues surrounding construction waste experience in Somalia. Somalia garbage experience covers the illegal disposal of building trash as a result of attitudes of the parties. Involved in the building business, as well as a prevalent waste management approach in Somalia that involves the use of disposal methods into garbage dumps. Somalia must adopt a waste management ranking by approving particular Regulation of construction waste. Questionnaires were utilized to collect data from a systematic random sample of 50 residents in the study region. According to the survey results obtained that, brick remnants and stones are the most waste materials of construction in the study area (20%), all the plastic materials are (15%), Concrete is (12%), woods, Soils and other materials such as Asphalts are each (10%). Glass and metals are each (8%) while tile is (7%) of construction wastes in the study area.*

Key Words*: *Construction waste, construction industry, Solid waste, Borama.

1. INTRODUCTION

Waste management is an important part of sustainable construction. In this context, waste management is avoiding waste where possible, decreasing waste where possible, and repurposing resources that would otherwise be discarded. Solid waste management strategies have highlighted waste reduction, recycling, and reuse as critical to resource sustainability. The majority of construction waste currently generated in the Somalia is legally destined for landfills governed by Local Authorities. In some regions, the entire or a portion of the construction waste stream is illegally dumped on land or in natural drainage systems, including water, in violation of legislation designed to protect people's health, economy, and the environment.

Every year, businesses and citizens in Somalia legally dispose of thousands of tons of construction trash in solid waste landfills.

There were no procedure being used to divert large amounts of building trash from the garbage stream. None of the materials are separated for recycling or, in some situations, reuse. The indiscriminate disposal of construction wastes can have immediate and indirect consequences for the environment and public health. Rapidly growing rising community living standards, rapid population growth, and rapid economic expansion have all contributed to an increase in the generation rate of building waste, making its management a greater concern around the world.

2. METHODOLOGY

2.1. Study area

The study area of this study is Borama district which is one of the four districts in Awdal region Somalia. Borama is a rocky and hilly region in Somalia's northeastern Awdal province. It is surrounded by beautiful meadows and pastures. The town's extraordinary fertility and greenery in a mainly desert landscape has attracted a large number of tourists in the Horn of Africa. The city has a population of around 215,616 people, making it one of Somalia's most populous and large cities. It consist more than 6 major sub-districts.

2.2. Research design

The research used a case study method that included both qualitative and quantitative data. Quantitative approaches were utilized to collect data in the form of frequencies and percentages, while qualitative approaches were used to collect complete data that helped to a better understanding of the scope of construction waste management practices in the Borama district of the Awdal area, quantitative methods were used to collect comprehensive data. Using survey methods, structured questionnaires, and other field observations, a cross-sectional descriptive research was designed and pre-tested.

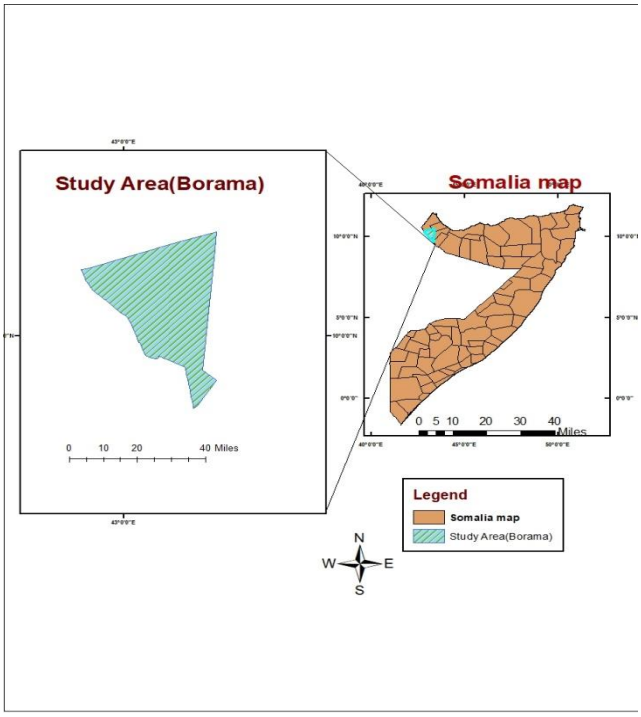

Figure-1 Study area

2.3. Data collection

In November 2021, primary data was obtained through a field survey in the research region. The data was collected from 50 respondents who were chosen by simple random sampling using a standardized questionnaire. Both male and female respondents made up 60% and 40% of the total number of respondents, respectively. This included information on construction waste management techniques, waste sources, disposal methods, and the Waste management's impact on the environment and public health in general. Household and institutional surveys were used to collect primary data, which comprised questionnaires, interviews, and observation. Secondary data was gathered from relevant literatures and documents, such as books, written materials (both published and unpublished), thesis, dissertations, journals, articles, and reports. The information on construction waste management approaches will be acquired from national government archives' environmental status reports.

2.4. Analysing data

The raw data was imported into Excel and then analyzed using the Statistical Package for Social Science (SPSS). Following that, relevant summary tables, graphs, charts, and summarized information were included to the descriptions. The information gathered was largely quantitative in nature. Simple descriptive statistics were used to examine the replies to questions about construction waste categories, primary Trash generation sources, environmental impact, and diseases and issues caused by construction waste are all discussed. Descriptive statistics, such as mean, frequencies, and percentages, were used to summarize quantitative data such as demographic and socioeconomic factors, construction waste generated, disposal alternatives, environmental and public health implications.

3. RESULTS AND DISCUSSIONS

The bulk of respondents (60 percent) were male, while the remaining 40% were female, as shown in Table 1.In terms of age, the biggest percentage was between the ages of 20 and 30, with 44 percent, followed by (26 percent) between the ages of 30 and 40, (20 percent) between the ages of 40 and 50, (4 percent) beyond 50, and (6 percent) below 20. In terms of educational attainment, the majority of respondents (60%) were graduates, (20%) had completed secondary education, ten percent of the respondents had finished primary education, and ten percent had no formal education in the research area. When compared to those under the age of 20, the data highlighted how worried middle-aged people are about construction waste management. In comparison to the younger respondents, the middle age respondents were more concerned about their environment since most of respondents in this age were graduates.

Variances	Frequency	Percentage (%)
1. Gender		
Male	30	60
Female	20	40
Total	50	100
2. Age		
≤ 20years	3	6
20-30 years	22	44
30-40 years	13	26
40-50 years	10	20
≥ 50 years	2	4
Total	50	100
3. Education		
Graduate	30	60
Secondary	10	20
Primary	5	10
None	5	10
Total	50	100
4. Occupation		
Employed	20	40
Unemployed	30	60
Total	50	

Table -1: Respondents' socio-demographic characteristics.

In terms of educational attainment, Kumar et al., (2014) found similar numbers, with 38.3 percent of respondents having completed secondary school. Only 28.0 percent of the population had completed primary school, and 4.0 percent were illiterate According to Alhassan and Mohammed

(2013), the respondent's environmental safety concern, level of satisfaction and The most major and influential characteristics that effect solid waste management in any particular location are education level, household size, period of stay in present dwelling, walking time to public dumpster, and household size.

3.1. Community perception

It was alarming that the majority of respondents in the study area had no clear understanding of construction waste management. Construction waste management concerns were worsened as a result of this misconception. The respondents' attitudes on construction waste management are critical to the long-term management of any buildings. This knowledge is significant because it means that individuals on the ground will take strict precautions in order to maintain a clean and a healthy environment. According to previous research a clear understanding of what sustainable waste management entails is critical to how waste is collected, transported, and disposed. According to the study's findings, UNEP's (2013; Hoornweg et al., 2013) definition contains all of the definitions of what solid waste management is.

3.2. Sources and types of construction waste in Borama

The development of efficient and cost-effective construction waste management solutions necessitates a thorough understanding of the volumes and characteristics of solid waste generated by construction companies. According to the survey results obtained that, brick remnants and stones are the most waste materials of construction in the study area (20%), all the plastic materials are (15%), Concrete is (12%), woods, Soils and other materials such as Asphalts are each (10%). Glass and metals are each (8%) while tile is (7%) of construction wastes in the study area.

Figure-2 Types of construction waste

3.3. Collection of construction waste.

It's fortunate that, according to the interviewed respondents, 80 percent of the building waste was collected by private construction firms, with the remaining 20 percent collected by the sanitation agencies in the town. The collected waste is transported by trucks and donkey carts to the designated dumpsites which are located outside of the study area. The absence of the government authority is worrying because this work is done by privately owned companies.

4. RECOMMENDATIONS

Construction waste prevention, source reduction, is the practice of not using more materials than needed and thus producing less waste. It may be done in a number of different ways. For instance telling people how harmful it is, and educating them on how to deal with it. Contractors should be aware of the appropriate number of materials, the design's proportions, and the selection of durable supplies. Marketing for non-waste able materials that can be reused can help to cut down on construction waste. The use of a waste management hierarchy strategy can help in the reduction of negative environmental, societal, and economic difficulties. In addition, the town of Borama must establish appropriate standards for the management of building wastes among Borama contractors. The construction parties involved should try to reduce, reuse, and recycle before it dispose.

5. CONCLUSION

Finally, the purpose of this research was to look into construction waste management in the Borama district, Awdal region of Somalia. In the research area, designated dumping site burning appears to be the most popular method of removing building trash. Most construction companies' lack of waste reuse contributes greatly to huge waste output. Managing construction waste is essential in Borama for coping future sustainable development.

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