



Provision of Waste Receptors around Marina Harbor and Military Jetty to Prevent Dumping of Refuse by Traders

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ABSTRACT

The marine harbour is a delicate environment and as such litters, wastes and refuse can affect wildlife as they can be mistaken for food, as well as cause hazard to vessel propellers. Waste refers to garbage generated such as plastics, food wastes, cleaning materials, chemicals, and paper products. Thus the proper handling of the various categories of waste is necessary towards preventing marine pollution. This study investigates the provision of waste receptors around Marina harbour and military jetty to prevent dumping of refuse by traders. The study was carried out among 150 respondents. It was a descriptive survey and a closed ended questionnaire was adopted as instrument for data collection. Data collected were analyzed using frequencies and percentages. The result of this study indicated that emptying wastes into the waters and sea has negative impact on the harbours. This study therefore recommends that refuse waste to be recycled to help keep the environment neat. The also recommends that waste receptors be place on different locations within the city proximate to people's dwelling to ensure that wastes are properly dispose into the receptors.

Keywords: Waste receptors, Marina Harbour, Military jetty, dumping of refuse. Traders

Introduction

The marine industry is a sector that accumulates lots of waste products daily thereby causing marine pollution. Given that the planet is made up of 70% of water, the use of the sea for transportation and rapid industrialization constantly serves as a source of pollution and other unwanted issues. Some of these issues include water quality, climate change, noise, terrestrial and aquatic habitat alteration and biodiversity and waste management. The focus of this study is on the aspect of waste management (Bikram, 2019). The marine harbor is a delicate environment and as such litters, wastes and refuse can affect wildlife as they can be mistaken for food, as well as cause hazard to vessel propellers. Waste refers to garbage generated such as plastics, food wastes, cleaning materials, chemicals, and paper products. Thus the proper handling of the various categories of waste is necessary towards preventing marine pollution.

It is generally believed that land-based sources, such as litters dumped around harbours, beaches and rivers are responsible for the increasing level of trash found in the ocean. 80% of waste generated is attributed to land-based sources, while 20% are attributed to sea based sources and increased shipping activities (Bikram, 2019). Thus to prevent marine pollution and ensure a safe working environment, the effective handling of waste management is important, as well as the reduction of garbage production. To this end, this study investigates the extent to which the provision of waste receptors around Marina harbor and military jetty can be used to prevent dumping of refuse by traders.

Problem of study

Waste is a direct or indirect consequence of activities from economic activities such as fisheries, textiles, personal care products, retail, and tourism. The issue of waste around harbors is made worse commercial activities such as traders as well as by the inadequate waste management infrastructures. However the effective utilization of waste infrastructure and recycling activities may significantly contribute to either minimizing or eliminating refuse from harbours and oceans. Refuse and litters around Marine harbours can degrade the ecosystems, and become toxic to species. They also have negative implications for local communities situated around marine harbours and hinder their source of living. In addition, tourism and recreational opportunities are affected and health compromised from the consumption of contaminated marine products (UN Environment, 2017). The costs of all the above listed can be felt by certain groups such as residents in areas without effective waste management infrastructures and the necessary resources to deal with such challenge. Based on the foregoing issue, this study attempts to investigate how the provision of waste receptors around Marina harbor and military jetty can prevent dumping of refuse by traders.

Research objectives

The study specifically seeks to;

1. Examine the impact of dumping refuse on marine harbours.
 2. Determine the impact of providing waste receptors on preventing refuse dumping around harbours.
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Research questions

1. What is the impact of dumping refuse on marine harbours?
 2. What is the impact of providing waste receptors on preventing refuse dumping around harbours?
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Literature review

Marine litter and pollution have seriously damaged the marine environment. While land-based source makes up about 80% of marine litter, sea-based sources must also be accounted for to directly preserve the marine environment and indirectly safeguard human health. Marine litter is dispersed throughout the marine environment and ranges from large items such as abandoned fishing nets to small particles of plastic that are rooted in seafloors and consumed by marine species. Citizens' consumption of goods and services, personal habits (such as use of elastic bags and packaging) and waste practices (such as litters and poor separation of household waste) are an interrelated and additional driver of marine litter (UN Environment (2017)). Marine litter and contamination increase acidity of oceans, chemical contamination of the food chain, and death of marine animals. Consequently, provision of reasonably cost-effective waste reception facilities should be encouraged to reduce marine pollution.

Non-oil pollutants and other solid waste from ships are usually discarded into the sea or river when there is no implementation which must be discouraged. Solid waste generated from ports, jetties and ships which enter the marine environment may pose a danger to marine organisms, humans, coastal communities and industries that use marine waters (International Marine Organisation, 2017).

The effects of marine pollution from ships, ports and jetties include depletion of oxygen content of the water which threatens animal and human life; hypoxia which results from excess of oxygen depleting chemicals in the water (insufficient supply of oxygen); accumulated deposits of air pollution, automotive fluids and residues which results from storm water runoff that travels across paved surfaces; death of sea animals resulting from the ingestion of plastic debris; Eutrophication characterized by excessive plant growth on water surface resulting from the introduction of chemical nutrients into water bodies (Lighthouse, 2016).

Harbours are huge spacing places, where ships, cargo container loaders and vessels are anchored for safety purposes or from weather conditions. Harbours are used for safe anchorage of ships and can be man-made or natural (Tiwari, 2016). Marina harbor and military jetty in Lagos are littered with refuse which can find their way into the water and cause and pose a risk to life and safety of marine and human life. It is important that waste receptors are provided to check indiscriminate dumping of refuse.

Empirical studies

Gbadamosi, Ojo and Adeniran (2020) carried out a study to explore the major criteria for determining the adequacy of port reception facilities in Apapa port, Lagos, Nigeria. Data was collected using simple random sampling technique. Results revealed that the port reception facilities were performing and in good operational services. The study recommended a comprehensive inspection, monitoring, control and implementation of Marpol 73/78 within the jurisdiction of the flag state for checking violation, misconducts, and also preserving the marine environment.

Onwuegbuchunam, Ogwude, Ibe and Emenike (2017) studied sources of marine pollution and effects of particularly ship-based pollutants on marine environment. It was established that ship-generated waste control services and provision of waste reception facilities are subcontracted to a private company in Nigeria ports, with no requisite for activity audit. Besides from the Nigeria Port Authority (NPA), other government agencies are also connected with monitoring and control of pollution. An integrated administrative framework model was proposed to address these administrative issues.

Onwuegbuchunam, Ebe, Okoroji, and Essien (2017) analysed the samples of ships' wastewater physico-chemical and microbiological properties to determine the status of marine pollution in the port environment. The samples were collected from randomly selected ships at berths in seaport locations in Nigeria. It was revealed that the Nigerian seaport environment is polluted. The results from the analysis were integrated as inputs into an administrative framework model which was proposed as a substitute administrative tool for monitoring and controlling pollution in seaports.

Theoretical framework: The Theory of Planned Behaviour (TPB)

This theory, developed by Ajzen in 1991 provides a theoretical framework for systematically investigating the factors which influence behavioural choices and assumes that people have a rational basis for their behaviour, in that they consider the implications of their actions. The TPB postulates that the immediate determinant of behaviour is the individual's intention to perform or not to perform that behaviour and that intentions are, in turn, influenced by three factors which are attitude (the individual's favourable/unfavourable evaluation of performing the behaviour), the subjective norm (the individual's perception of social pressure to perform or not to perform the behaviour) and perceived control (the individual's perception of their ability to perform the behaviour) (Whitmarsh, Hagger & Thomas, 2018). According to the TPB, intentions to involve in a particular behaviour are increased when individuals hold a positive attitude to the behaviour, if they think that other important people expect them to take part in a particular

behaviour, and if they perceive that they have a sufficient level of control to be capable of engaging in the intended behaviour. This study is based on this theory as individuals will make use of provided waste receptors knowing that the authorities will expect them to engage in dumping waste legally.

Methodology

The study adopted the descriptive research survey method in investigating the effect provision of waste receptors around Marina harbor and military jetty can prevent dumping of refuse by traders. The study purposively selected the tin can port located at Apapa, due to the sightings of refuse dumps located around the harbor, which is a source of problem to the users of the port. Using random sampling method, 150 respondents were selected. This comprised of port workers, traders and residents around the area. Questionnaire was used as the major source of data. The questionnaire was structured using a four point likert scale format, which was distributed to the respondents. The data collected was descriptively analysed using frequencies and percentages.

Data Presentation, Analysis and Discussion

RQ1: What is the impact of dumping refuse on marine harbours?

Table1: The impact of dumping refuse on marine harbours

Options		SA	A	NN	D	SD	Total % in Agreement
Dumping refuse in marine harbours affect the physical environment and the waterways by contaminating groundwater and soil	F	79	61	1	9	0	93.8
	%	52.7	40.7	0.7	6.0	0	
It spreads weeds and pests affecting agriculture and wildlife, which can die after consuming poisonous materials	F	55	80	1	11	3	90.5
	%	36.7	53.7	0.7	7.3	2.0	
Diminishes the value of property	F	67	68	11	1	3	90.6
	%	44.7	45.3	7.3	0.7	2.0	
Serves as magnets for other criminal activities	F	69	58	12	7	4	85.2
	%	46.3	38.9	8.0	4.6	2.6	
Pose serious health and safety risks	F	70	51	10	9	9	87.8
	%	46.9	34.2	6.7	6.0	6.0	
Block stormwater drainage systems and becomes breeding ground for diseases and causing flooding.	F	69	58	12	7	4	85.2
	%	46.3	38.9	8.0	4.6	2.6	
Affects aquatic life	F	69	58	12	7	4	85.2
	%	46.3	38.9	8.0	4.6	2.6	

Field Survey 2021

Table 1 above presents the respondents opinion on the impact of dumping refuse on marine harbours. As indicated in the table above, 93.8% of the respondents supports that 'dumping refuse in marine harbours affect the physical environment and the waterways by contaminating groundwater and soil'; 90.5% of the respondents agreed that "It spreads weeds and pests affecting agriculture and wildlife, which can die after consuming poisonous materials"; 90.6% of the respondents are in agreement that "it diminishes the value of property"; 85.2% are in support to the statement; "Serves as magnets for other criminal activities"; 87.8% of the respondents support that the statement "Pose serious health and safety risks"; 85.2% supports the statement that "Block storm water drainage systems and becomes breeding ground for diseases and causing flooding"; and finally, 85.2% supports the statement that "affects aquatic life". The result from this study supports that UN Environment (2017) that revealed that marine litter and contamination increase acidity of oceans, chemical contamination of the food chain, and death of marine animals. The study further support the result from Onwuegbuchunam, Ogwude, Ibe and Emenike (2017); Lighthouse(2016) and Tiwari (2016) who respectively revealed that litter marine with waste increase the toxicity of the waters and make it unsafe for human and animals alike.

RQ2: What is the impact of providing waste receptors on preventing refuse dumping around harbours?

Table 2: the impact of providing waste receptors on preventing refuse dumping around harbours

Options		SA	A	UN	D	SD	Total % in Agreement
Reduces the amount of waste for disposal	F	79	53	10	3	3	88.6
	%	53.0	35.6	6.7	2.0	2.0	
Saves natural resources	F	55	67	13	11	3	81.8
	%	36.9	44.9	8.7	7.4	2.0	

Reduces the need to handle, treat, and dispose of waste	F	59	68	11	8	3	85.2
	%	39.6	45.6	7.4	5.4	2.0	
Conserves resources	F	69	64	12	0	4	89.2
	%	46.3	42.9	8.0	0	2.6	
Protects human health from various solid and liquid waste related diseases	F	70	51	10	9	9	87.8
	%	46.9	34.2	6.7	6.0	6.0	

Field Survey 2021

The table above presents the respondents opinion on the impact of providing waste receptors on preventing refuse dumping around harbours. As indicated in the table, 88.6% of the respondents agreed to the statement "Reduces the amount of waste for disposal"; 81.8% are in agreement to the statement that "Saves natural resources"; 85.2% agreed that "Reduces the need to handle, treat, and dispose of waste"; 89.2% are in agreement that "it conserves resources"; while 87.8% are in agreement that "it protects human health from various solid and liquid waste related diseases". This result therefore is in support with Gbadamosi, Ojo and Adeniran (2020) and Alabi, Ologbonjaye, Awosolu and Alalade (2019) and McAllister (2015) respectively, who also revealed that waste receptors, reduces the dumping of refuse into the sea.

Conclusion and recommendations

In most developing countries like Nigeria, especially in their metropolis cities, like Lagos, have no proper waste management system and facilities. Most often, solid waste are wrongly channel to waters and sea as well as dumping in the open along the roadsides. The waste so dumped in the opened are sometimes wash into the waters during rainy season. This turns out to be breeding ground for flies and mosquitoes leading to epidemic diseases. While the waste management system and equipment are not even enough for the capital cities, the suburban areas are usually neglected. The result of this study clearly indicates that emptying wastes into the waters and sea has negative impact on the harbours. This study therefore recommends that refuse waste to be recycled to help keep the environment neat. The also recommends that waste receptors be place on different locations within the city proximate to people's dwelling to ensure that wastes are properly dispose into the receptors.

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APPENDIX**PROVISION OF WASTE RECEPTORS AROUND MARINA HARBOR AND MILITARY JETTY TO PREVENT DUMPING OF REFUSE BY TRADERS****REQUEST FOR INFORMATION**

Dear Respondent,

I am carrying out a study on "Provision of waste receptors around Marina harbor and military jetty to prevent dumping of refuse by traders", and you have been chosen to be part of the study. This questionnaire is only for academic purposes. Kindly select the response which applies to you and all information will be kept confidential

Instructions: Please tick (√) as appropriate where

SA = Strongly Agree (SA), A = Agree, D = Disagree (D), SD = Strongly Disagree (SD)

Key: Strongly agree (4), Agree (3), Disagree (2), and strongly disagree (1).

S/N	ITEMS	SA	A	D	SD
RQ1	What is the impact of dumping refuse on marine harbours?				
1	Dumping refuse in marine harbours affect the physical environment and the waterways by contaminating groundwater and soil				
2	It spreads weeds and pests affecting agriculture and wildlife, which can die after consuming poisonous materials				
3	Diminishes the value of property				
4	Serves as magnets for other criminal activities				
5	Pose serious health and safety risks				
6	Block stormwater drainage systems and becomes breeding ground for diseases and causing flooding.				
7	Affects aquatic life				
RQ2	What is the impact of providing waste receptors on preventing refuse dumping around harbours?				
8	Reduces the amount of waste for disposal				
9	Saves natural resources				
10	Reduces the need to handle, treat, and dispose of waste				
11	Conserves resources				
12	Protects human health from various solid and liquid waste related diseases				