WWW.IJRPR.COM

International Journal of Research Publication and Reviews

Journal homepage: www.ijrpr.com ISSN 2582-7421

Waste Management Practices and its Epidemiological Implication on the Residents in Yakurr Local Government Area Cross River State

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ABSTRACT

The research aims at investigating the mode of waste management and control in the urban and rural communities of Yakurr Local Government of Cross River State, Nigeria. The introduction has ramified on the observed trend in the area which was characterized by inadequate attention to waste management issues due to none provision of waste facilities by governments and individuals at different levels. The problem statement hinged on this observation and is also spurred by the need to practically unravel the real tennets of the actual practice in the area and deriving an understanding of the differences in perception and capacity among groups and individuals towards the value of proper waste management and control. The objectives focus on investigating the volume and variety of was generated, to clearly ascertain the method and location where the wastes are disposed, to delineate the differences in waste management practices between the urban and rural locales of the study area etc. The methodology considered study design, area of study, study population/sampling, instrument for data collection, method of data collection and data analysis technique.

INTRODUCTION

Yakurr Local Government is christened after a people of a common descent who go by the name that the local government conveys. The Yakurr language speaking people belong to the NegrobBantu race who migrated from another source region to where they are permanently settled today. Overtime they have evolved from predominantly traditional society to an urban and cosmopolitan settlements in selected nuclei such as Ugep, Ekori, Mkpani and Nko which are all part of the gross federation of Yakurr**.** This description is a rider to an insight or glimpse one will have regarding the nature of waste management practices previously and now.

Previously up-to the period of the civil war in 60's in Nigeria, the most popular method of human waste management was open public lavatories which may be commonly owned by families or those staying together in proximity. Other domestic waste categories were dumped in an open space, a depression or a basin of land or other such convenient locations. During this period too, the varieties of waste produced and the qualities were correspondingly less.

Today, the society has evolved significantly in sophistication in lifestyles and development so the variety and quantity/complexity of waste has increased. This directs attention to the problem statement of this study.

Statement of the problem

Yakurr is predominantly rural in composition. Apart from Ugep, Ekori, Mkpani and Nko which are experiencing some taint of urbanization about 80% of the arial domain remains ruralized. Being significantly rural the perspective of rural ecology prevails. Rural ecology or rural life modes predicate on certain preferences which the urban resident may Jettison. Preferences such as the desire to take bath in streams,/rivers or to defecate or pass faeces in open fields, build houses without provision for lavatory, defecate along stream/river courses and even dispose refuse and human dumps in stream courses are all rampant scenarios of rural life forms.

Even in the urbanized set up like Ugep and similar other centres, there is the question of how or whether UUDA (Ugep Urban Development Agency) is operational, how individual households or families are organizing their family sanitation conveniences amidst the overcrowding nature of their settlements. The overall environmental quality particularly land and water quality issues demand attention from the objectives of this study.

Finally also, the extent to which mosaic changes have occurred amidst the gross perspective of rural ecological behaviour is a question that demands answer also.

Justification of the study

The knowledge of waste management practice is essential in all environmental quality analysis due to a number of reasons which border on ecological and sociocultural sustainability. Ecologically, waste presents an unsightly, squalid appearance to the eye and by extension affects psychosocial equinanimity. Dirty environments affect mental health of individuals. Certain wastes or rubbish cause the contamination of water, land and air bodies and present significant health implications to human beings. Therefore adequate understanding of waste disposal technique and its likely health impact is of basic necessity in adequate epidemiological assessment of human health in every society.

Ecological implication of waste development in the environment is also vital in order to unravel such issues as incidents of toxic and hazardous, waste, bioaccumulation and biomagnification arising from toxic or radioactive wastes in areas and the likes.

Environmental health personnel and those in allied fields require the knowledge of waste management practices to appropriately monitor or control its disposal.

Objectives of the study

The objectives are as follows:

(i) To investigate where and how these materials are being disposal or managed by the residents.

(ii) To evaluate the relationship between residents waste management techniques in the urban and rural areas of the study domain.

(iii) To investigate the degree to which the households are managing their human waste components

Hypothesis

Ho: Waste management practices has no epidemiological implication on the residents in yakurr local government area.

LITERATURE REVIEW

PERSPECTIVES IN WASTE MANAGEMENT AND HEALTH

This review aims at exploring the basic ramification of how waste management practices and human health status are related. All the available wealth of information point to the fact that poor waste management engenders poor health of the people in any given area in any time in history. Human health impact of poorly managed waste is enormous and has been sufficiently documented in the literature.

This position was aptly corroborated by others who undertook similar studies in the field of environmental waste management (Aatamita et al 2010, Xiao et al, 2007, Yongsi et al 2008) It was further reiterated that the negative impacts range from health deterioration, accidents, flood occurrences and environmental pressures (Boardi and Kuitunen, 2005, Forastiera et al 2011, Gouveria and do Prado 2009, Nabegu, 2010).

It was further reported that the practice in many developing countries is the location of solid waste dumps in the sub-urban which become play grounds for children. The areas become conduits of contamination caused by incubation and proliferation of mosquitoes and other vermines which become agents of disease transmission that affect population health. This scenario fosters development of gastrointestinal, dermatological, respiratory genetic and several other types of infection diseases (Foday et al 2013, Saalam 2010).

In a report by the United Nations Environmental Protection Agency (UNEPA 2006), it was categorically stated that poorly managed wastes, particularly solid waste from households and community, are serious health threat which can lead to spread of infective diseases. It was further stated that unattended wastes cause the proliferation of flies and other vermins which are agents of disease causation.

In the process of decaying and putrefaction, the waste dump releases chemical compounds in the form of Methane and Nitric acids which are noxious or poisonous when inhaled by humans (Egbe and Upla 2004).

Olaniran et al (1993) have provided a barrage of information on the human and environmental implications of waste generation in the environment. They commented on the loss of aesthetic value or visual appeal which the waste produces.

Waste dumps and repositories are said to be unsightly and unappealing to the naked eye. From the health angle they stated categorically that refuse dumps are breeding grounds for pathogens such as vermins and rodents and cockroaches and others such as housefly, copepods which may result in the emergence of diseases such as amoebic and bacillary dysenteries, yellow fever, dengue fever filariasis etc.

Heavy metals and/or radioactive substances may also be contained in the dump materials which may be derived from industrial and other scarces (Ubong and Gobo 2000) consumption of aquatic foods contaminated with substances have ben reported to result in many health problem and at times leading to death (Bakir 1973). Lead, mercury, calcium and other forms of toxic waste poisoning arise some are cancer causing (carcinogenic), some cause genemutation, (mutagenic) while some others cause Birth defects (Teratogenic) (Ubong and Gobo 2000).

Another report from the World Bank Source noted that Healthcare waste and other medical waste disposed in dump sites, mixed with domestic waste may foster increasing risk of infections with Hepatitis, B, and Hiv and other related diseases (World Bank 2005). It is further reported that dump sites emit obnoxious odors and smoke that cause illness to people living around, in or close to the area (Marshal 1996).

The group said to be at risk from this unscientific disposal of solid waste include those living close the dumpsite, pre school children, waste workers and workers in facilities producing toxic and infections materials (Ndukwe et al 2019).

From the point of view rural waste management, Friday and Iderawumi (2011) have reported on the challenges of solid waste disposed in rural area in Oyo State. Their report pointed to the fact that government neglect of the concern for waste management in the area was responsible for indiscriminate, uncontrolled waste management practices. They also reported even environmental health personnel who visit the villages on routine visit fail on their part to perform their duties creditably. That though most rural residents are aware of the health and other implication of poor waste management, there is no concerted organized waste management policy at the local level to enforce the control of it.

It will therefore be concluded that waste management is just a problem in the rural area as it is in the urban. This calls for the dire necessity of this investigation.

STUDY METHODOLOGY

Study design

The design of this study is a field exploratory survey design aimed at data collection based on questionnaire and the use of instruments for environmental sampling.

Area of study

The area of study is the entire gamut of Yakurr Local Government Area comprising such clusters as Ugep (Headquarters) Idomi, Ekori, Mkpani, Nko, Agoi, Inyima and Asiga. The entire area is homogenous in language speaking except the Agoi that have some slight variants of dialectical difference. The language spoken by the people is Yakurr language which is a variant of the Negro-Bantu language.

The area is located in the Central Senatorial District of Cross River State Nigeria.

The settlement characteristic is that of a thickly cluster type where the people live in very close proximity to each other. This has a great deal of implication for waste management and control. Geographically, it is found within the hinterland of Cross River State being sufficiently removed from the coast by distance of one hundred and seventy kilometers distance approximately.

Population of the study

The study population comprises the entire households residing in the area of study. The essence of this choice is to appropriately evaluate the waste facilities of each individual households. Women are also part of the population of this study in that household refuse management resides in their purview. From here the study sample was drawn.

Sampling technique

Multistage sampling was employed.

The first stage involves purposive sampling based on selection of clusters. Stage two involves selection based on percentage ratio of number of households in a cluster. For this, 20% ratio for each cluster is considered.

Instruments for data collection

The instrument employed in field data collection was structured questionnaire.

Method/procedure for data collection

Method employed in field data collection was administration of questionnaire to elicit information from respondents.

DATA ANALYSIS:

Data was analysed using ANOVA

FINDINGS AND DISCUSSION

Results

TABLE: FIELD INVESTIGATION REPORT ON RESIDENTS RESPONSE ON WASTE MANAGEMENT PRACTICES IN YAKURR LGA

S/NO		RESIDENTS RESPONSE RATINGS

	WASTE MANAGEMENT PARAMETERS	AGREE	STRONGLY AGREE	DISAGREE	STRONGLY AGREE	TOTAL
1.	Open Burning/Incineration System	60	68	35	30	193
2.	Open Field Waste Dump	67	70	32	30	199
3.	Riverside/Aquatic Waste Dump	55	64	45	31	195
4.	Open Public Toilet Systems	30	36	70	62	198
5.	Streams or Riverside toilets	36	42	65	51	194
6.	Fecal indoor bucket system	20	16	80	84	200
7.	Plastic Wrapper system	10	05	91	93	199

Note: The table depicts resident responses elicited during field investigation by the research team. A total of two hundred households were sampled and engaged in the interview. The data in the table transposed and analysed statistically using ANOVA.

Hypothesis testing

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
Open Burning/Incineration System	4	193	48.25	345.5833
Open Field Waste Dump	4	199	49.75	470.9167
Riverside/Aquatic Waste Dump	4	195	48.75	200.25
Open Public Toilet Systems	4	198	49.5	379.6667
Streams or Riverside toilets	4	194	48.5	159
Fecal indoor bucket system	4	200	50	1370.667
Plastic Wrapper system	4	199	49.75	2384.917

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	11.71429	6	1.952381	0.002573	1	2.572711641
Within Groups	15933	21	758.7143			
Total	**15944.71**	**27**				

DECISION RULE

Here, we can see that the F-critical is greater than F-tabulated at alpha level of (0.05). We therefore reject the null hypothesis and accept the alternative hypothesis and conclude that Waste management practices in the study area has significant epidemiological implication on the residents of Yakurr Local Governments Area.

DISCUSSION

Uncontrolled waste disposal is a major cause of pollution and contamination for both people and the environment. Improper waste management can be dangerous and can contaminate surrounding water sources that are used by nearby communities or by wildlife. Insecure landfills may allow scavengers and kids access to exposed rubbish. Solid wastes have the potential to infect humans with diseases and illnesses, either directly or indirectly through the contamination of soil, groundwater, surface water, and the environment.

During a field survey, it was discovered that the indiscriminate disposal of waste in the area has the following effects on the ecosystem. Flooding is caused by improper trash disposal in drainage systems and on streets. This supports Kazaure's (2016) research on sustainable waste management in Duste which found that a lot of uncollected rubbish was dumped on roadways and drainages, clogging waterways and causing flooding. Similar to these findings, Okechuckwu et al. (2012) and Ibrahim et al. (2019) found that improper disposal of solid waste can result in flooding from stagnant water, reproducing mosquitoes and other disease vectors.

Achalu (2004) found that the indiscriminate dumping of rubbish prevents the free flow of erosion and floods when it rains, generating drainage blockages and diversification of water pathways into residential areas that destroy life and property. Fly and mosquito populations in Ugep grow quickly during the summer season as a result of these trash dumps, and they are particularly efficient carriers of diseases like malaria. This supports the findings of Sarke et

al. (2012), Chengula (2015), and Akinditure & Alebiosu (2014), which hypothesized that inappropriate waste disposal results in issues with foul odor, the breeding of disease-carrying insects including flies and mosquitoes, and drainage system blockage.

Also noted was the prevalence of open waste burning among the study area's inhabitants, which contributes to the region's air pollution problems. As a result, the quantity of harmful gases in the atmosphere increases, impacting the quality of the air outside and contributing to additional global warming. Leaching from the open dumpsite seriously pollutes ground and surface water sources during the wet season.

Studies by Ali (2012) and Ifeleowa (2019) found connections between solid waste and subsurface water contamination brought on by leachate activities. During the field investigation, it was also noted that the indiscriminate disposal of waste has altered the aesthetic perception of the environment by making it appear unkempt and dirty.

CONCLUSION

The epidemiological evidence that currently exists connecting waste management and human health is extremely contentious. The residents of the study region are not overly concerned with proper waste management; open burning in unapproved sites and open dumping are common practices there. This is frequently brought on by a lack of knowledge about different disposal methods, extreme poverty, and little environmental control or enforcement. A campaign to raise awareness of good waste management and disposal techniques is necessary. The government should also see to it that environmental regulations are firmly and effectively applied in order to enforce the ban on unlawful garbage dumping.

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Questionnaire instruments for investigation of waste management practices and its Epidermiological implication in Yakurr Local Government Area of Cross River State. By Bassey Emogo Awara.

Dear Respondent,

This instrument is a research questionnaire prepared for investigation of waste management practices in Yakurr Local Government and their possible Epidemiological implications in the Area. The instrument is purely meant for acquisition of knowledge. All information provided was held in strict confidentiality. Be objective in your response to the items provided. Thanks and be blessed.

Bassey Emogor Awara – Lead Researcher

PART 1: PERSONAL DATA

Please choose appropriate option by simply ticking [√]

1. Sex: Male [ ] Female [ ]
2. Marital Status: Married [ ] Single [ ] Widowed [ ] Widower [ ]
3. Educational Status: Literate [ ] Illiterate [ ]

If literate indicate Level: Primary/Post-primary level [ ] NCE/First Degree [ ] Post Graduate Level [ ]

4. Housing characteristics: Unplanned residential [ ] Planned residential [ ]

PART 2: WASTE MANAGEMENT PRACTICES

Using the four points rating scale affirm or disagree with the following based on : A= Agree, SA = Strongly Agree, D= Disagree, SD = Strongly Disagree.

1. Is open waste burning/inceneration a common practice in your locality? A= Agree, SA = Strongly Agree, D= Disagree, SD = Strongly Disagree.
2. Are there still a system of open field dumping system in your area? A= Agree, SA = Strongly Agree, D= Disagree, SD = Strongly Disagree.
3. Do your people still practice waste dumping in water shed or Head waters? A= Agree, SA = Strongly Agree, D= Disagree, SD = Strongly Disagree.
4. Is there still the practice of Public open toilets in your locality? A= Agree, SA = Strongly Agree, D= Disagree, SD = Strongly Disagree.
5. Do they still practice of streams of riverside toilet systems? A= Agree, SA = Strongly Agree, D= Disagree, SD = Strongly Disagree.
6. Is faecal or bucket toilet system still in Practice in your homes? A= Agree, SA = Strongly Agree, D= Disagree, SD = Strongly Disagree.
7. Do you still carry out the system defecation in buckets or containers in the Nights? A= Agree, SA = Strongly Agree, D= Disagree, SD = Strongly Disagree.