

Full Length Research Paper

Waste disposal and management issues in Kintampo North district of Ghana

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Abstract

Uncontrolled waste disposal and its poor management has been a monster that has aborted the efforts of both governments' and many professionals alike in many African countries. An analytic cross-sectional study design using qualitative and quantitative methods were used to examine household and community knowledge, attitude, practices and challenges of its waste disposal and management in Kintampo North District of Ghana. Of a total of 250 household heads interviewed, 176 (70.4%) were males, 74 (29.6%) were females, 134 (53.6%) were not educated, 55.5% were either farmers or labourers, while greater than 29% were above the age of 60 years. While majority of the respondents 207 (82.8%) disposes their waste products at refuse dump and open gutters, only 0.4% of waste disposal was done by the sanitary workers, and majority 237 (94.8%) do not separate their waste materials before disposal, 35% of whom believe that all waste is recyclable waste and should not be separated. There was a strong association between owning a dustbin and where waste is disposed off [$\chi^2 = 49.939$, p value < 0.001], with more households with dustbins throwing their waste at the refuse dumps, and those without dustbins either throw theirs at their backyards or burn them. Greater percentage 133 (53.2%) of refuse disposal were done by the children, 10.5% of whom were below the age of 10 years, while remaining 116 (46.4%) were done by the adults, most of whom were women. Lack of proper education or training, lack of legislation/ implementation, inadequate personals and infrastructure, poor institutional, socio-economic and community attitudes were the other factors that contribute to the waste disposal challenges in the study area. Indiscriminate dumping of waste, and use of children and women for such waste disposals, will no doubt pose major health hazards to the community especially to that of the mothers and their children. In order to adequately handle the waste disposal issues in the district, obstacles such as poverty, inadequate provision of waste disposal facilities and the low level of environmental health awareness have to be tackled urgently. Waste disposal should not be seen as a problem of one institution alone but as a problem that requires the collaboration of all stake holders.

Keywords: Uncontrolled waste disposal, waste management, waste separation.

INTRODUCTION

The rapid rate of uncontrolled and unplanned urbanization in the developing nations of Africa has brought untoward environmental degradation. Indeed, one of the most pressing concerns of urbanization in the developing world is the problem of solid, liquid, and toxic-

waste management. According to Ole Lyse in 2003, nine (9) out of every 10 African cities are facing serious waste problems. A waste is described as discarded material with no value to the one who disposed of it, and its management is the process of disposing of such waste in a manner to compact it to lengthen the life of the waste disposal site, to prevent scavengers from looting the site of the waste, to prevent diseases from spreading from the area, and to hide the waste so that it will not be an eyesore (Botkin and Keller, 2003).

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Waste handling is one of the greatest challenges facing humankind in modern times in spite of the numerous technological achievements. Technology alone has not been able to effectively control waste generated in communities worldwide. Rather, it appears that new technologies have brought new types of waste into the environment to add to the complex accumulation “puzzle” (Kwawe, 1995). A drive between the Achimota interchange and Lapaz, a visit to the vicinity of the landfill at Nungua, and a drive in sections of any of the regional capitals will prove that Ghana has a major waste management and disposal problem that can be a deterrent to economic development (Peter, 2009). Waste management issues are due to inadequate understanding of the dynamic characteristics of waste generation, its sanitary implications, inadequate waste collection vehicles, inadequate financial support on sanitation from Government, lack of public awareness on the need to pay for sanitation services, indifference of the public towards good sanitary practices, problem of land acquisition for public waste disposal, not in my backyard syndrome otherwise known as Nimby syndrome, inadequacy of law enforcement, population growth, lack of inter institutional co-operation and collaboration, and the shift of attention to curative rather than preventive aspect of sanitation (Noye-Nortey, 2007; Mensah and Larbi, 2005; Boadi and Kuitunen, 2003). A visit to some towns and cities in Ghana will reveal aspects of the waste management problem such as heaps of uncontrolled rubbish bags, polythene bags at disposal sites constituting a health hazard to residents who live near the dumping sites (Tsiboe and Marbell, 2004), human excrement, garbage and wastewater in the surface drains, open spaces and streams. The resultant poor sanitation has serious health impacts, and throughout the years, environmental sanitation has been one of the major health concerns of the developing countries (Boadi and Kuitunen, 2005).

This situation is not different in many other countries south of the Sahara. In South Africa, Zambia and Zimbabwe for example, rubbish bags are major eyesore (Chazan, 2002; Lyse, 2003; Wetherell, 2003). South Africans refer to black polythene bags as the “national flower” because it litters all landscapes and can be seen hanging on fences, in gutters and blocking drains (Chazan, 2002). In Nigeria, Fashola the Governor of Lagos state in 2011 advised Lagos residents on proper waste disposal. According to him, indiscriminate dumping of refuses in open places and gutters are becoming rampant, and this he said will undermining government's efforts at maintaining a cleaner environment and posing great risks to people's health. In Ghana, it has been infamously dubbed “the Father Christmas bag” because it is the most common polythene bag used by shops and roadside vendors when you purchase their goods which, inevitably end up in gutters, drains and on high voltage electric poles. Sanitation in Kintampo town is particularly

poor, as a result of the district's inability to cope with large volumes of garbage created as a result of the large influx of passengers in transit, traders on business trips, and 24 hour hawking. Wastewaters from houses are not properly managed due to lack of drains, creating unsightly environment and conditions conducive for the breeding of mosquitoes. Parts of the Kintampo Township are very prone to erosion. Deep gullies created can also serve as breeding grounds for mosquitoes and other pests.

Environmental pollution increasingly has been recognized as a major threat to socio-economic development, and even to human survival (WHO, 1973). To focus attention on the need for hygienic environment and minimize the adverse effect of poor environment, particularly in developing countries, the United Nation declared the years 1981-1990 as International Drinking Water and Sanitation Decade (WHO, 1979). Many countries have adopted various strategies geared toward improving their environment. Kintampo North District of Ghana is no exception. The objective of this study is therefore to assess the community's knowledge, attitudes, perception, practices and challenges on its waste disposal and management. It also tries to identify factors contributing to this ugly situation in the district. The information obtained will in no doubt highlight areas to be addressed, and pave way for its control.

SUBJECTS AND METHODS

The study was a descriptive study utilizing both quantitative and qualitative methods for data collection. A detailed structured questionnaire was used to collect information on household socio-demographic characteristics. The knowledge and practices of the households in relation to waste disposal was also assessed. The Focus group discussions (FGDs) were used to assess communities' knowledge, practices and perceptions in relation to the uncontrolled waste disposal in the district. The In-depth Interviews were used to collect information on individual views of the poor waste disposal issues in the district (JMMS, 2012;3(3): 146-154 for methodology).

The Kintampo North District is one of the 19 districts of the Brong Ahafo region of Ghana. It is located at the centre of Ghana, with a population of 96,538 persons (Kintampo North District profile, 2006). The main indigenous ethnic groups are the Akans, Bonos and the Mos. Other migrants who are permanently settled in the district include Dagombas, Sissalas. Kokombas, Grushies, Dangbes, Ewes and Fantis. The major economic activity in the district is small scale farming and trading (Kintampo North District profile, 2006).

Using Epi info, the sample size was calculated using projected population size for household heads in 2006 in the Kintampo North District of (3155), 20.9% was the

least study variable under the study from a similar research by (Ebong, 1994) in Nigeria. The worst acceptable result of 15.9% was used to calculate the sample size. The sample size calculated was 235 at 95% confidence interval but a sample size of 250 was used to make room for incomplete questionnaires and improve precision of the study.

The study involved getting information on the Knowledge, Attitudes and Practices of people in rural and urban areas of Kintampo North with 7 sub-districts. The simple random sampling was employed in the population sampling of the household heads. The sample size of 250 was distributed among the communities in the 7 sub-district according to its population proportion in relation to entire population of the district. The listing of the household heads that were alive and living in Kintampo was generated from the Kintampo Demographic Surveillance System (KDSS) listing; the participants were drawn using the simple random sampling method. The method ensured that each participant was chosen completely at random without introducing any form of bias. For the purpose of the study theoretical training was conducted for the data collectors.

In-depth Interviews were conducted from the following people: District Chief Executive, District Environmental Officer, Presiding member of District Assembly, an Assembly Man in each sub-district, District Director of Health Services, Medical Superintendent, Kintampo District Health Service, Ghana Private Road Transport Union Chairman, Market Queen, Food Retailers' Association Queen, Community Opinion Leaders as well Youths in the selected communities between the ages of 18 to 25 years. The discussants were selected purposefully due to their ability to voice out their thoughts about their communities. The discussions were held differently for the men and women as well as the ethnic groups to look at waste disposal practices, knowledge and perceptions among different ethnic groups. The FGDs looked at the attitudes, practices, knowledge and perceptions of community members in relation to waste disposal in rural and urban communities.

Ethical clearance was obtained from the Ghana Health Service National Ethical Committee, and Kintampo Health Research Centre Ethical Committee. A written informed consent was obtained from the participants who were willing to take part in the study. Data was analyzed was conducted using SPSS version 12.0. Graphs and frequencies were used to illustrate the findings from the data. Cross tabulation were used to identify associations between variables the variables measured.

RESULTS

The socio-demographic and household characteristics of the household heads involved in the survey were presented in Table 1. Their ages were between 35 and

55 years, and sex distribution indicates more male household heads (70.4%) than female household heads (29.6). Majority of the household heads (53.6%) had no education, 78.0% were married, (55.2%) were farmers, and (18.4%) traders. While 49.6% respondents were Christians, 62.8% came from Kintampo sub district of the study area, and the major ethnic groups were the Akans (22.0%).

Table 2 shows the household practices in relation to waste disposal. From the result, majority (77.6%) of households claims they have waste bin in their homes, (82.0%) had only one waste bin, while only 1% had three dustbins. From the table also, most households (98.8%) dispose their waste daily, only 1.2% does theirs on a weekly basis. While 82.8% disposes their waste trash in refuse dump, 8.8% dumps it in their back yard, 7.6% disposes it in the bush, and 0.8% burns them. The major means of waste disposal as mentioned by all discussants in the FGDs was disposing at the refuse dumps and open gutters which are similar to what was obtained from the qualitative results. Waste separation is not a very common practice as seen from the quantitative results where 94.8% of the households don't separate their waste, just 5.2% do that. While 38.5% of respondents who separate their waste felt it is a good practice to do so, 35% of those who do not that felt all waste to be waste, and therefore should not be separated.

Table 3 shows association between owning a dustbin and where households dispose their waste. More households with dustbins threw their waste at the refuse dump; those without dustbins either throw their waste at their backyard or burned their waste. There is an association between owning a dustbin and where waste is disposed off ($\chi^2 = 49.939$, p value < 0.001). Discussants in the FGDs and in-depth interviews made other valuable contribution to the factors contributing to poor waste disposal in the Kintampo North district. All group discussants, considered poor waste disposal as an important public health problem in their communities. There was a strong perception that waste disposal issues in their communities had been neglected by the District Assembly; their attitude(s) were major contributors to the waste disposal situation in the district. Other contributory factors include attitudes of the community members, inadequate/ poor conditions of toilets in the community, lack of gutters for drainage, ethnic and gender beliefs, festivals activities, lack of potable water, no definite dumpsite, lack of education, very few sanitary workers, no waste containers, too many people in a house, poor enforcement of bye-laws, no money, and bushy environment.

In order to build themes in the discussions, information collected in FGDs and In-depth interview were categorised into:

Table 1. Socio-Demographic Characteristics Of Household Heads (N = 250).

Characteristics	Number	Percentage
Sex		
Male	176	70.4
Female	74	29.6
Educational Level		
None	134	53.6
Primary School	21	8.4
Middle/Contn. Sch, Jss	63	25.2
Tech/Comm./SSS School	19	7.6
Post Secondary	10	4.0
University	3	1.2
Occupation		
Professional	17	6.8
Clerical/Secretarial	12	4.8
Seamstress, Hair Dresser Etc	9	3.6
Trader/ Food Seller	46	18.4
Labourer/ Farmer	138	55.2
None	17	4.4
Other (Drivers,Pensioners, Blacksmith)	11	6.8
Ethnic group		
Akan	55	22.0
Bimoda, Chokosi	3	1.2
Dargati, Frafra, Kusasi	14	5.6
Fulani	2	.8
Ga, Adangbe, Ewe	7	2.8
Gonja, Dagomba, Mamprusi	50	20.0
Konkomba, Basare	26	10.4
Mo	49	19.6
Sisala, Wala	13	5.2
Zambraba	1	.4
Banda/Pantra	4	1.6
Other (Wangara, Hausa, Grushie, Kasem, Busanga)	26	10.4

Table 2. Household Practices In Relation To Waste Disposal.

Practices	Frequency	Percentage
Do you have a waste bin? (n = 250)		
Yes	194	77.6
No	56	22.4
Number of dustbins (n = 194)		
1	159	82.0
2	33	17.0
3	2	1.0
How often is waste disposed off?		
Daily	247	98.8
Twice a week or more	3	1.2
Who disposes off waste in the house?		
Sanitary worker	1	0.4
Adult	116	46.4
Child	133	53.2

Table 2 Continue

Where do you dispose your waste?		
Backyard	22	8.8
Refuge dump/open gutters	207	82.2
Bush	19	7.6
Others (burning)	2	.8
Do you separate waste?		
Yes	13	5.2
No	237	94.8

Table 3. Association Between Owning A Dustbin And Where Waste Is Disposed Off.

Waste bin	Where waste is disposed				Total
	In the backyard	Refuse dump	Bush	Others	
Yes	8 (4.1%)	178 (91.8%)	7 (3.6%)	1 (0.5%)	194 (100.0%)
No	14 (25.0%)	29 (51.8%)	12 (21.4%)	1 (1.8%)	56 (100.0%)
Total	22 (8.8%)	207 (82.8%)	19 (7.6%)	2 (.8%)	250 (100.0%)

$$\chi^2 = 49.939, p \text{ value} < 0.001$$

Awareness and proper handling of waste

All discussants were aware that waste disposal was a problem in their area. "Sanitation is seriously considered here, but the only problem we have is the disposal of refuse. Most waste bins are overflowing with refuse. The waste disposal facilities available to both the rural and urban areas were grossly inadequate, and unless these facilities are provided, waste disposal issue would continue to be a problem in their environment. They feel that with better drains, good roads, more toilets, levelling of refuse heap, this ugly situation can improve.

Knowledge on effects of poor waste disposal in the district

Most of the discussants were not able to talk about the ill-effects of poor waste disposal in the environment.

Poor enforcement of bye-laws

The discussants all shared the view that the major challenge they faced in handling the waste disposal problem was lack of help from the District Assembly. The Assembly men and committee leaders they say has hindered the enforcement of laws against open defecation, indiscriminate disposal of waste, rearing of animals etc.

Interference from family

The other factor which featured a lot as hindering bye-laws was interference from family members.

Views of opinion leaders on poor waste management in the district

Most felt waste disposal was a problem in their district.

DISCUSSION

The study looked at the knowledge, attitude, practices and perception of the community members in relation to the provision and use of facilities for waste disposal. The general usage and availability of sanitation facilities was very low. This had an effect on the practices and attitudes of the community members when it comes to waste disposal issues. Disposal of waste in open places is very common. The community members knew that was a wrong practice, but their responses showed that they have no choice since no facility has been provided to address this issue. From the study, there is still a lot to be done in the area of education, which will go a long way in creating better community awareness and their role in preventive and promoting health care.

It is a very common practice as only 5.2% of the household separate their waste before disposal. The major reasons being that community members feel "all waste is waste" and need not be separated, and the fact

that they cannot afford more than one dustbin for the separation. This was buttressed by finding no association between having a dust bin and waste separation ($\chi^2 = 1.707$, p value = 0.19). Similar results were obtained in Wassawest in Ghana where 92% of the respondents do not separate their waste (Azeez, 2006). Waste separation at source can enhance the homogeneity of the waste recovered and minimize its level of contamination. Both the technical and economic hurdles for recycling can then be lowered increasing the recycling viability (Wasteserv Malta, 2004). Findings by Kelly 1983 showed that in order to reduce cost of treatment of domestic waste, there is the need to sort all wastes into different types at the point of generation. A greater majority of the household's (82.8%) dispose off their waste at the refuse dumps, while 16.4% dispose theirs in their back yard or in nearby bush. Burning is not very common as less than one percent of the households heads interviewed approved burning of waste. This is in contrast to the finding by (Boadi and Kuitumen, 2003) who observed burning to be very common amongst poor households without waste disposal facilities.

In Ghana, decentralisation of the principal agencies for sanitation development has imposed many responsibilities on District Assemblies whose role is planning of public services delivery at local level. However many District Assemblies are still too weak to meet the requirements for planning, implementing, monitoring and evaluation of projects associated with environmental sanitation, waste management, environmental protection and hygiene promotion. The case is no different with the Kintampo North District Assembly where the waste disposal issues have overwhelmed the District Assembly. The facilities required to address the issue is beyond the capacity of the District Assembly. Some of the things that need to be done to improve the situation are the construction of drainage systems, roads, and levelling of the mountainous refuse dumps. The District Assembly attests that this is beyond their capacity; in their view the entire funds the district receives in total cannot address the waste challenges. The other institutional factors observed to also contribute to the waste disposal issue in the district is the "Blame Game" each institution blaming the other for not playing their part. There is the need for the realization that the waste disposal issue is not for one institution alone but should involve all stakeholders. Gender issues were also observed to play a role in the waste handling in areas where women are the "Assemblymen". Despite women's involvement at the local level, men are more likely to have access to institutions that set priorities and make decisions regarding municipal infrastructure. Community consultations processes often fail to take gender inequalities into consideration and thus neglect women's preferences. Unless explicit measures are taken to ensure women's participation, their priorities, respons-

bilities and needs will not be heard.

Insufficient sanitary workers are a major problem facing the district. This is evidence in the present study where only 0.4% of wastes were disposed by sanitary workers. Even with the introduction of the Zoomlion sanitation team, there is still a gross shortage of sanitary workers. Waste disposal tools are not made readily available to the sanitary workers; neither do they have protective gears. United Nations Framework Convention (2001) recommends the use of protective gears in all phases of waste management in order to limit the risk to health and environment. There is also low financial motivation for the workers especially those attached to the District Assemblies, they complain that their salaries are very meagre compared to the risks that they are exposed to on a daily basis and to add to that their salaries are not regular. The District Assembly on the other hand say they are doing their best for the staff; generally, the commitment of Government to the sanitation sub-sector has been weak and this has affected the budget provision made on annual basis. There is also the issue of having other projects at hand the 'greenery of Ghana' the planting of trees which is a major focus for the district. Most of sanitary workers are concentrated in the township; the rural areas do not partake in this luxury. The nature of work required to address the waste issues in the district cannot be handled by the available work force. With the current rate of training, it will take over 50 years to produce the 3500 extra staff that is required by the District Assemblies and the sanitation sector. Staff development has suffered from neglect, lack of competence and resources. The three key training institutions for the Environmental Health Sector (the Schools of Hygiene in Accra, Ho and Tamale) are poorly equipped in terms of resources, qualified tutors, teaching facilities, transportation and residential infrastructure. Training curricula is inadequate with courses not accredited by any institution. Over 90% of staff have not benefited from any in-service training since qualification (in some cases some 20 to 30 years ago).

The Kintampo North district from observation has a very challenging natural environment; it is prone to erosion, leading to the very poor road network in the district. Transportation of waste to final disposal sites is a big problem; the waste collection tricycles also cannot ply the roads effectively, thus waste collection is not done regularly. There is almost a non-existent drainage system in the district for this reason waste water is disposed off in the open, giving rise to lots of areas with stagnant waters that serve as good breeding sites for disease causing vectors. The pressure on the existing infrastructure overloads the system and threatens the health of the people (WHO, 2002).

Societies existed in a system where law enforcement was very weak, so anything goes. This was the situation in the Kintampo North district as far as waste disposal

was concerned. Violation of laid down laws is a very common practice in district. Though there is an environmental department in the district that is responsible for law enforcement, the department has not played its role as expected; there is inadequate coordination, monitoring and enforcing of the environmental bye-laws. According to the environmental unit the basic sanitation by- laws include: every house must be built with a toilet, no open defecation, no indiscriminate disposal of waste, no bushy areas around homes, animals to be reared in a confined area. The basic penalties are fines or imprisonment. Its implementation in the district has been very poor due to factors below: a District Prosecuting officer was just appointed only recently, there is a lot of interference from political leaders and family members, there is inadequate sanitation officers responsible for charging people to court, and lack of funds to support the environmental department. This problem is however not peculiar to the Kintampo North district alone; similar situations exist even at the national level. The Sanitation and Environmental Health Unit within the Policy Division of the Ministry of Local Government and Rural Development (MLGRD) is charged with providing leadership in the formulation and implementation of environmental sanitation policies. To date, the Unit is not adequately staffed and its profile and capacity has not matched the responsibilities. Its overall impact has so far been noted by Mensa and Larbi (2005,) to be very weak.

Problems of the environment and of domestic hygiene are always related to poverty of population and the sanitation of settlements. When human beings were few, their contaminants were readily absorbed by the environment, but as they proliferate the environment is increasingly unable to absorb their pollution by natural processes (Viel, 1983). The major economic activity of the people in Kintampo North is subsistent farming (Kintampo District Profile, 2006), this was buttress from the result of the present study where 55.2% of household heads interviewed were either farmers or labourers. Access to financial resources is a major problem; for this reason, a large proportion of the population cannot afford basic sanitation facilities thereby putting pressure on the already insufficient sanitation and waste disposal facilities that have been made available by the authorities. Kintampo town is in the geographical centre of Ghana and a major transit point for travellers, traders and tourists. For this reason, there is a very high influx of persons (Kintampo District Profile, 2006), thus huge volumes of waste is produced which cannot be handled by the facilities that have been provided. As a result, the uncollected waste, which is often also mixed with human and animal excreta, is dumped indiscriminately in the streets, open spaces and in drains, so contributing to flooding, breeding of insect and rodent vectors and the spread of diseases. Furthermore, even collected waste is often disposed off in uncontrolled dumpsites and/or burnt,

polluting water resources and air.

CONCLUSION

Indiscriminate dumping of waste materials and use of children and women for disposals of such waste poses major health hazards to both them and others. In order to adequately handle the waste disposal issues in the district, obstacles such as poverty, inadequate provision of waste disposal facilities and the low level of environmental health awareness have to be tackled urgently. Waste disposal should not be seen as a problem of one institution alone but as a problem that requires the collaboration of all stake holders.

RECOMMENDATIONS

Measures to improve environmental health in Kintampo North District must involve the introduction of physical, social, economic and organizational improvement. Collaboration with the private sector, improving human resources, recommendations to the authorities, and law enforcement will also be an added advantage.

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