

# Attitudes of Households toward Solid Waste Management in Kasoa Township in the Central Region of Ghana

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## Abstract

The purpose of the study was to assess the attitudes of households toward solid waste management within Kasoa Township. To achieve the study's objectives, a convergent-parallel design within the mixed-methods approach was employed for the study. Stratified sampling technique was deployed in selecting 246 household respondents in addition to 5 key informants who were selected purposively. A structured questionnaire, unstructured interview guide and observation protocol were the data collection instruments used. The quantitative data obtained were presented and analysed using descriptive statistics with the aid of SPSS version 21 software and were complemented by qualitative data under emerging themes. From the study, it emerged that majority of the households in Kasoa Township have poor attitudes toward source reduction and re-use of solid wastes materials although they were concerned about the generation rates. Also, it surfaced from the study that households in low-income areas including Zongo 94, Gadambo and Kasoa-New Town bear the brunt of the environmental effects stemming from indiscriminate open dumping and burning of solid waste materials albeit their social climate remain unaffected by the manner in which households discard solid wastes generated. It was recommended that the Awutu Senya East Municipal Assembly (ASEMA) sanitation taskforce should spearhead advocacy on attitudinal change for source reduction and reuse through intensive sensitization. Also, subsidization of the cost of procuring waste bins by the ASEMA for low-income households would decrease the environmental repercussions of the solid waste management problem on such households. Again, households should apply social pressure to drive attitudinal change for proper solid waste management practices within the study area.

## Keywords

Attitude, Environment, Households, Solid Waste, Solid Waste Management

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## 1. Introduction

Globally, a World Bank report on the proportion of solid waste generation around the world estimated that the volume of Municipal Solid Wastes (MSW) generation will increase from the current 1.3 billion tonnes per year to 2.2 billion tonnes per year by 2025, with majority of the increase coming from quickly rising cities in emerging countries [1]. According to Neizer, studies in Africa have shown that waste

management menace has become intractable and threatens to undermine the efforts of most city authorities [2]. Subscribing to the prior standpoint, Eshun, Bassaw and Bordoh, posited that the rapid increase in the volume and types of solid waste as a result of continuous economic growth, urbanisation, and industrialization is becoming a burgeoning problem for national and local governments to ensure effective and sustainable management of solid waste [3]. Agyapong, similarly contended that the bane of municipal solid waste management in Ghana is primarily due to wrong attitude of the

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general public to solid waste disposal [4]. Yoda, Chirawurah and Adongo, also reiterated that the perception of many households that solid wastes are an unwanted material with no value has dominated their attitudes towards indiscriminate solid waste disposal [5]. Hence, as major contributors to solid waste generation in Ghana, urban households cannot be side-lined in the country's quest to achieve the Sustainable Development Goal 6 geared towards improving sanitation and access to drinking water by 2030.

In spite of the creation of the Ministry of Sanitation and Water Resources in 2017 as government machinery primarily mandated to address the heightening spate of waste management problem in Ghana, it appears that the quest to ensure effective solid waste management has been elusive as envisaged with the Awutu Senya East Municipality being no exception. Current studies conducted by Quarcoo, as well as Peprah, Oduro-Ofori and Asante-Wusu, in the Awutu Senya East Municipality generally explored the challenges of solid waste management and analysis of accessibility to water supply and sanitation services respectively [6, 7]. Nonetheless, a study on how the attitudes of households in Kasoa Township contribute to the persistence of the solid waste management problem in the Municipality is yet to be conducted hence the need to fill this gap. From this backdrop, the study was therefore engineered to assess the attitudes of households

toward solid waste management practices in Kasoa Township and explored pragmatic measures that can be taken to engender attitudinal change towards effective household solid waste management in the study area. The objectives that underpinned the study were to: assess the attitudes of households toward available solid waste management options in Kasoa Township and examine the effects of solid waste management problem on households in Kasoa Township.

## 2. Literature Review and Theoretical Framework

The study was buttressed by Ajzen's Theory of Planned Behaviour (TPB) [8]. Shaw, opined that this theory provides a framework for systematically examining attitudes and intentions of people's behaviours on waste management practices [9]. The TPB proposes three key determinants of intention; the foremost is the attitude toward the behaviour which denotes the extent to which a person has a favourable or unfavourable evaluation of the behaviour in question, the second determinant is the subjective norm which connotes the perceived social pressure to exhibit or not to exhibit a particular behaviour and the third is the perceived behavioural control which implies the person's belief as to how easy or difficult the exhibition of the behaviour is likely to be [8].

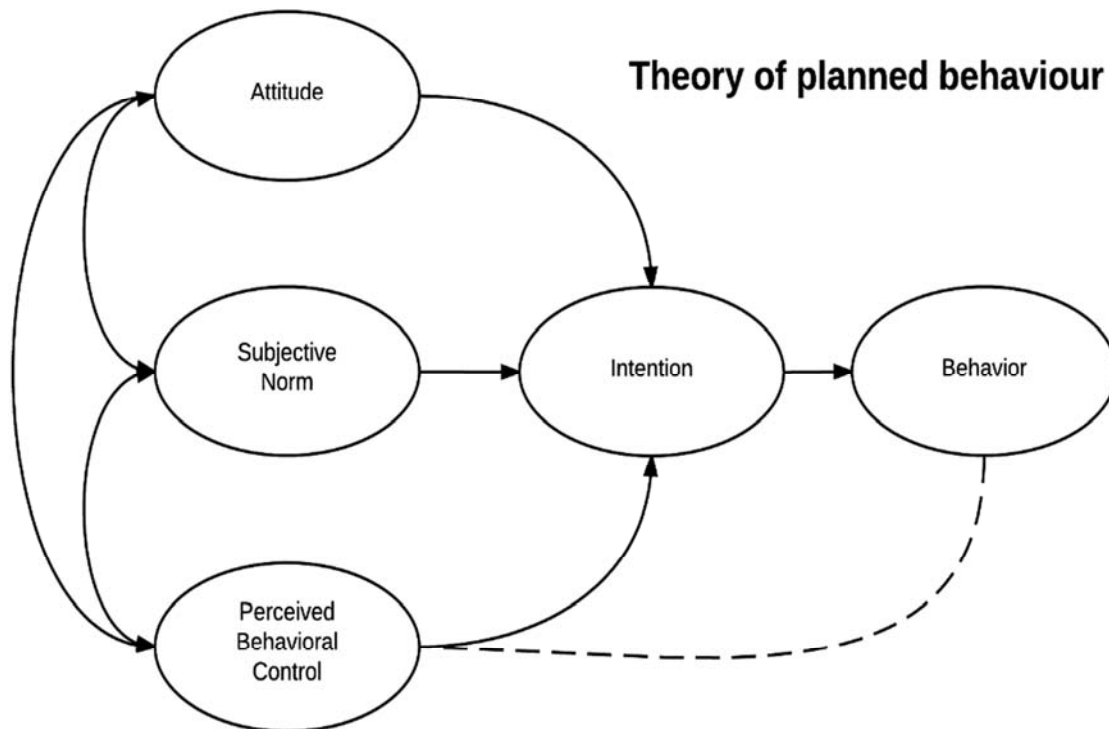


Figure 1. Theory of Planned Behaviour.

Source: Adopted from Ajzen, 1985.

The crucial component to this theory is behavioural intent. According to Dillon and Gayford (as cited in Sessi) [10],

behavioural intentions are influenced by attitudes about the likelihood that the conduct will have the desired consequence,

as well as subjective judgments of the dangers and benefits of that outcome. They further stated that attitudes, subjective norms, and perceived behavioural control all influence intention, which in turn influences behaviour. Background variables, such as age, gender, geography, occupation, educational attainment, and income levels, are thought to influence behaviour via the three determinants and the purpose. As a result, attitudes, subjective norms, and perceived behavioural control explain behavioural intention before the behaviour occurs, implying that intention is a good predictor of actual behaviour. As a result, Shaw proposed that perceived behavioural control is a measure of the abilities required to express the behaviour as well as the ability to overcome hurdles [9]. As a result, it's assumed that perceived behavioural control has a direct impact on behaviour, and that real behaviour leads to input regarding the behaviour's expectations.

Staats, justified the use of the TPB in the study by stating that it is one of the most commonly used theories in the literature to investigate pro-environmental behaviour such as littering, recycling, mode of transportation, energy consumption, water conservation, food choice, and ethical investment [11]. However, he stated that one of the theory's fundamental flaws is an attitude/behaviour gap, which he defined as a mismatch between one's values and deeds. This refers to the disparity between people's worry about the environmental harm caused by household garbage and their lack of action to decrease waste or engage in other environmentally friendly behaviours [11]. To put it differently, there is a disconnection between people's concerns about the state of solid waste management and the activities that are anticipated to be performed to address the environmental crisis. Therefore, by relating the attitude/behaviour gap in the TPB to the study, it enabled the researcher to establish whether the cherished value of environmental cleanliness held by the households in Kasoa Township were translated into positive actions and a consequent desirable behaviour towards proper solid waste management practices.

Solid waste, according to Chengula, Bahati, and Mzula, is made up of organic and inorganic waste products that originate from human and animal activities and are no longer needed and must be discarded owing to the loss of value to the user [12]. To Mantell, as cited in Sarpong, solid wastes are materials that come from human operations and are not in the form of liquid or gas but are compacted and substantial and are discarded because they are no longer in use. These materials are both in organic and inorganic form and also differ in shapes, sizes, forms and compositions [13]. These classifications, by implication, categorise solid wastes according to the state or form of the undesired materials dumped. As a result, solid waste is any unwanted material that

is neither liquid nor gas and must be disposed of. Organic and inorganic solid waste items from homes, businesses, farms, construction sites, mechanical shops and warehouses may be included.

The concept "Solid Waste Management (SWM)" is seen as the business of keeping our environment free from the contaminating effects of waste materials is generally termed waste management [14]. Solid waste management, according to Kumah, is the management of activities that include waste collection, source separation, storage, transportation, transfer, processing, treatment, and disposal. Othman also defined solid waste management as the control of waste generation, storage, collection, transfer and transport, processing, and disposal of solid waste in accordance with best practices in public health, economics, finance, engineering, administrative, legal, and environmental considerations [13]. Thus, for municipal waste management planning, sound waste management methods in terms of economic development, environmental impact, resource conservation, and even political consideration are required [4]. Consequently, Puopiel stressed that if solid waste management is to be done efficiently and methodically, the important mechanisms and interactions involved in it must be identified and understood thoroughly [15].

It may be deduced that proper waste management lowers or eliminates negative effects on the environment and human health, while also promoting economic growth and enhanced quality of life. Hence, the writers cited under this theme agree that solid waste management is vital and must be done in a specific method that follows best practices to protect both the environment and public health. Therefore, a clear-cut waste management hierarchy must be established in Ghana and rigorously implemented.

The waste management hierarchy is the foundation of Integrated Solid Waste Management (ISWM), which places a strong emphasis on the 3Rs (reduce, reuse, and recycle) principle [16]. The hierarchy ranks the various management strategies from the most environmentally friendly to the least environmentally friendly. As part of a sustainable materials management strategy, the hierarchy emphasizes reducing, reusing, and recycling.

Source reduction (also known as waste prevention) is the most environmentally preferable technique, according to the United States Environmental Protection Agency. Reusing or giving objects, buying in bulk, decreasing packaging, rethinking products, and minimizing toxicity are just a few examples [16]. Recycling is a set of operations that involves gathering used, reused, or unused goods that would otherwise be discarded. Sorting and processing recyclable products into raw materials, as well as remanufacturing recycled raw materials into new products [16], are all part of the process. The conversion of

non-recyclable waste materials into usable heat, power, or fuel by a number of processes such as combustion, gasification, pyrolysis, anaerobic digestion, and landfill gas (LFG) recovery is known as energy recovery from waste. Waste-to-energy is a term used to describe this process (WTE). Treatment can assist reduce the volume and toxicity of

garbage before it is disposed of. Physical (e.g., shredding), chemical (e.g., burning), and biological treatments are all options (e.g., anaerobic digester). This necessitates instilling and demonstrating constructive attitudes toward solid waste management in households.



Figure 2. Waste Management Hierarchy.

Source: United States EPA, 2017.

Nasir claims that the majority of city people are unconcerned about garbage management, which decreases their environmental responsibilities [17]. This is due to the fact that the majority of community members are not involved in decision-making and, as a result, develop a lack of care, rendering them unsuitable for waste management [18]. According to Kendie, as reported in Baabereyir, the current increase in waste disposal difficulties is due to a failure to effectively examine attitudes and perceptions of wastes, as well as the ranking of waste disposal issues in people's minds and in the scheme of official development plans [14]. Householders frequently complain about unsatisfactory or unreliable trash management services (Oteng-Ababio) [19]. As a result, they frequently refuse to pay the fees imposed and instead choose for illegal dumping. Chengula *et al.*, therefore intimated that other factors impeding the proper management of municipal solid wastes include a lack of awareness and active participation of households as key stakeholders in service provision, a delay in households paying collection fees to organizations concerned with waste collection, and a bad relationship between households and solid waste collectors [12].

Al-Khatib, Arafat, Daoud and Shwahneh, argued that littering

is a negative attitude commonly associated with the mismanagement of solid waste in poor countries [20]. They went on to say that a variety of factors can contribute to an increase in public littering rates, including a lack of social pressure to prevent littering, a lack of realistic sanctions or regular enforcement, and a lack of understanding of the environmental consequences of littering. In a study about household knowledge, attitudes, and behaviours toward solid waste management in Abadan, Babaei, Alavi, Guordazi, Teymouri, Ahmadi, and Rafiee found that just 1.7 percent of home participants practiced source reduction and reuse of solid waste materials [21]. According to Baabereyir, local officials' incapacity to enforce existing garbage disposal by-laws leads to a general lack of respect for the law and a "throw-it-where-you-like" mentality among the populace [14]. Due to this, it's not uncommon to see drivers, pedestrians and passengers polluting the roadways with little regard for the law. Many households, traders and other business operators resort to dumping rubbish in open places and into drains, streams and drainage channels indiscriminately for the same reason of non-enforcement. This public attitude contributes to filthy conditions in cities and the blocking of existing drainage routes, resulting in floods after heavy rain.

Moreover, Awasthi, Zeng and Li, contended that research in less developed nations focuses mainly on specific variables that influence municipal solid waste management [22]. The identification of waste management issues and their root causes, as well as the analysis of waste compositions and the scope of service delivery, are examples of such studies. Tahulela, in agreement with Awasthi et al., stated that behavioural studies of waste management in poor countries have mostly focused on recycling and approaches to persuade people to recycle [22, 23]. Few studies on social norms and attitudes toward garbage management have been done, Tahulela [23]. He went on to say that there are few research done in underdeveloped nations to investigate the implications of people's social norms and attitudes regarding home trash management. Succinctly put, the paragraph reflects the general public's negative attitude about solid waste development and disposal. Despite the fact that public education has been promoted as a feasible solution to the problem, it appears that the negative attitude towards solid waste management is due to psychological, sociological, and environmental variables. However, due to a lack of research, few studies have been conducted in Ghana to determine the impact of societal norms on people's views about municipal solid waste management.

Improper municipal solid waste management has far-reaching consequences. The appalling solid waste management status in a developing country's cities, according to Neizer, can have huge consequences for human health and the environment [2]. To this purpose, it should be underlined that poor municipal solid waste management has a negative impact on households and towns in general, posing environmental, social, and economic issues [24]. Boadi and Kuitunen argue that home collection is limited to high and some middle-income neighbourhoods, leaving the poor to deal with the problem on their own [25]. As a result, waste is disposed of indiscriminately in surface drains, canals, and streams, resulting in unclean and ugly conditions in many parts of the city. Decomposing garbage piles, particularly in impoverished regions, have the potential to attract and harbour vermin and rodents that spread illness [13]. Foraging animals such as dogs and goats are attracted to the collected wastes, which disseminate diseased waste materials, spreading diseases and producing a nuisance [26]. Furthermore, accumulated waste in cities serves as a breeding ground for pathogens that cause diseases such as dengue fever, malaria, leprosy, and even elephantiasis, while waste materials clog drainage systems, resulting in stagnant waters that serve as ideal breeding grounds for mosquitoes and other disease vectors.

According to Oteng-Ababio, the United Nations Environment Programme identified the following health risks associated with improper solid waste management: skin and blood infections from direct contact with waste and infected wounds,

eye and respiratory diseases from dust exposure, particularly during landfill and road construction operations [19]. One out of every five children in Africa is killed by infectious diseases connected to poor environmental conditions, with diarrhoea and acute respiratory infections being the two leading causes of death [17]. Guinea worm, cholera, bilharzia, and malaria are other sanitation-related illnesses [25]. The terrible solid waste condition in cities, according to Achankeng, is a tragedy for human health and environmental destruction [27]. As a result, the city's bad solid waste status is a nightmare for human health and environmental deterioration.

In addition to polluting both surface and subsurface water, solid waste pollution in cities damages natural ecosystems [13]. Solid waste products that find their way into waterways such as sewers, streams, and lagoons obstruct the passage of flash flood waters during storms, resulting in widespread flooding in some of these cities. Take, for example, the fire-flood tragedy in Accra on June 3, 2015. When drainage systems and other storm control mechanisms overflow their embankments owing to water blockages, urban floods occur. In line with this assertion, Achankeng, opined that flooding in cities results in the death of people, the destruction of property, the stoppage of economic activity, the relocation of affected households to low-lying areas and an increase in municipal spending to give relief packages to flood victims [27].

Research conducted by Agyapong on the state of solid waste management in the Berekum Municipality indicated that poor residential solid waste management has evident consequences such as garbage accumulation in neighbourhoods, waste clogging drains and water bodies, and smelly gutters [4]. When it rains, polythene bags, empty water sachets, and other waste products can be found strewn about the streets and backyards of homes [4]. This condition arises as a result of people depositing rubbish in gutters and waiting for rainwater to transport it. Uncollected rubbish is also discovered on the streets and in the vicinity of homes, causing pollution in the municipality. Consequently, inefficient urban solid waste management techniques create an unsightly sight in the environment, ruining the attractiveness of Ghana's municipalities. The foul odour and unsightly appearance of piles of unregulated solid waste along streets, markets, and other recreational areas may deter investors from establishing companies to offer jobs for some municipal families [4].

Moreover, Tahulela, in a study on the effect of social norms and attitudes toward domestic waste management in a selected formal settlement in the Western Cape, South Africa hypothesized that residential waste management procedures have no effect on social interactions among metropolitan people in filthy environments [23]. Nonetheless, he added that rising health-care costs as a result of recurrent illness outbreaks linked to poor solid waste management put a

financial strain on municipal households. Malaria, diarrhoea, and typhoid fever are the most frequent infectious and vector-borne diseases in Ghana, with major health consequences [25]. The consequences of improper urban solid waste management on urban households can be summarized as environmental effects, health effects, and social effects, as inferred from the preceding paragraphs. This encompasses an unattractive picture of urban settlements, environmental deterioration, disease outbreaks, and annual urban floods in a broader sense. Therefore, it is incumbent on local governments and the government to devote far more attention to the challenge of solid waste generation and disposal in order to reach the Sustainable Development Goal 6 targets.

### 3. Methodology and the Study Area

The study was conducted within the context of the mixed-methods approach and pragmatic paradigm in research, in accordance with the convergent-parallel design [28, 29]. The research was carried out at Kasoa Township, also known as Oduponkepe, which is the capital of the Awutu Senya East Municipality. This region is part of the Zongo Zonal Council, which contains three electoral districts: Zongo, New-Town, and Iron City. Kasoa has a population of roughly 69,384 people and 16,445 homes. [30].

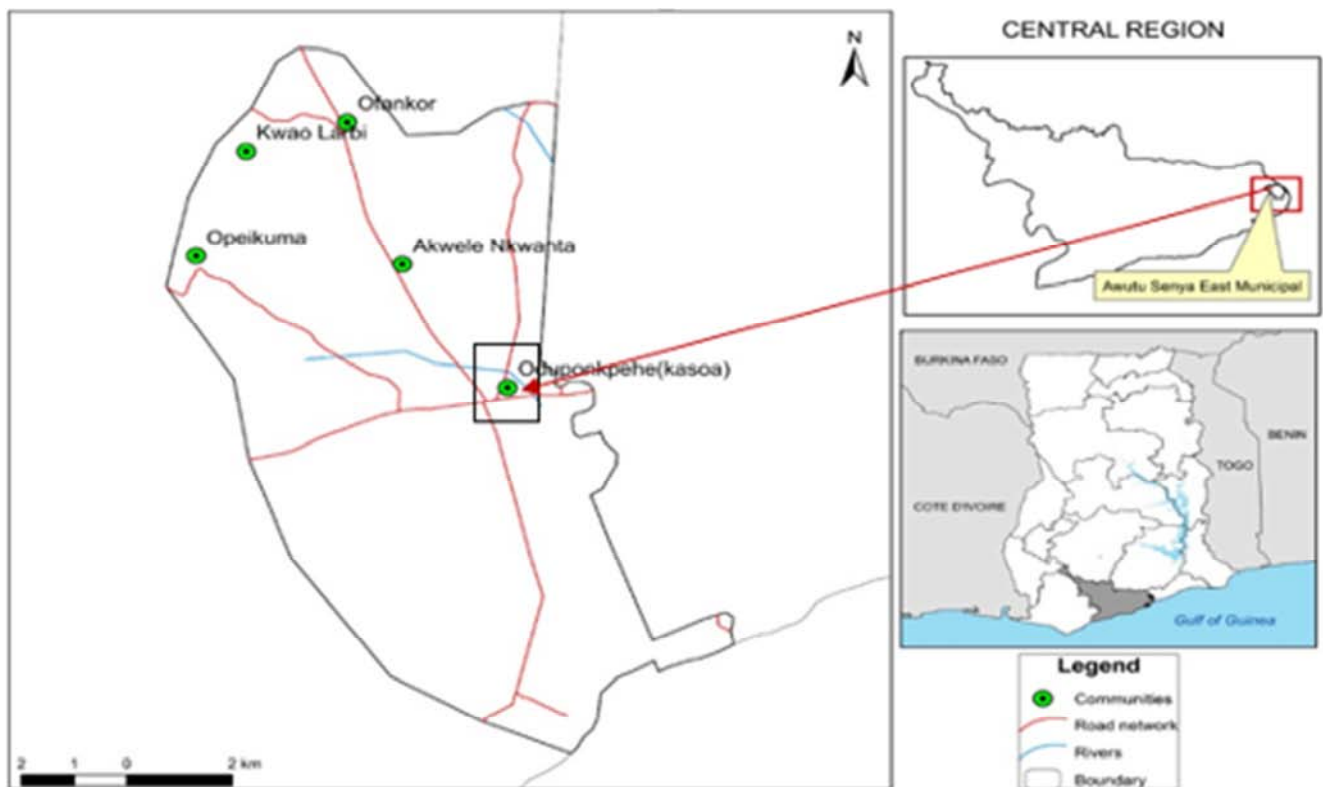


Figure 3. Study Area.

Source: Sanda, 2019.

The target population included all residents’ of Kasoa Township and key informants in waste management whereas the accessible population comprised only household respondents’ and waste management officers (key informants) who were available and willing to participate in the study. A total sample size of 251 comprising 246 household respondents and 5 key informants were involved in the study. The Fisher, Laing, Stoeckel and Townsend formula, as cited in Gyimah, was adopted to determine the sample size for the household respondents [31].

$$n = \frac{z^2pq}{d^2}$$

Where; n= the desired sample size (when population is greater than 10,000 people);

z= the standard normal deviation, usually set at 1.96 which corresponds to the 95 percent confidence level;

p= the proportion in the target population estimated to have a particular characteristic set at 0.8;

q= 1.0-p. Thus, q=1.0-0.8= 0.2; and

d= degree of accuracy desired, usually set at 0.05.

Substituting these figures into the formula:

$$n = \frac{(1.96)^2(0.8)(0.2)}{(0.05)^2}$$

$$n = \frac{(3.8416)(0.16)}{0.0025}$$

$$n = \frac{0.614656}{0.0025}$$

$$n = 245.86$$

$$n = 246$$

The 246 household respondents for the study were chosen using a stratified sampling technique from the three electoral areas within the Zongo Zonal Council. To do so, the study region was divided into three strata based on the number of electoral areas that make up the Zongo Zonal Council (i.e., Iron City, New- Town and Zongo). Following that, the total number of households who responded (246) was divided by the three strata, yielding 82 household respondents each stratum. The 82 household respondents in each stratum were chosen at random using the lottery method. The researchers used the Zongo Zonal Council's housing numbers as the sample frame for the lottery procedure, which involved listing the number of houses in each stratum on pieces of paper, thoroughly mixing the pieces of paper together, and picking them one by one without replacement. Respondents were then chosen at random from each household whose number related to the number chosen at random. In addition, a purposive sampling technique was used to select an additional 5 key informants who were stakeholders in solid waste management in the study area, including an official from the ASEMA Waste Management Department, a Zoomlion Waste Management Company Limited officer, and three Assembly Members from the electoral areas. The sample size is summarized in Table 1.

**Table 1.** Summary of sample size.

Cohort	N
Household respondents	246
ASEMA Waste Management Department	1
Zoomlion Waste Management Company Limited	1
Assembly Members	3
Total	251

Source: Field Data, 2020.

Only household respondents who could read and write were given a sets of structured questionnaire with a few open-ended questions. In addition, an unstructured interview guide was used to obtain the key informants' perspectives, and an observation checklist was created for the same reason.

The questionnaire items were aligned with the study questions given, and my supervisor and another professor double-checked the content validity. From the 13<sup>th</sup> to the 17<sup>th</sup>

of January, 2020, a pilot study for 15 household respondents was conducted in Akweley to establish the pre-test reliability. The internal consistency score of Cronbach alpha was 0.71, which was considered satisfactory for a statistical study [32].

More so, the confirmability of the qualitative data obtained was verified throughout the transcribing and analysis process by ensuring that the researcher's bias did not influence the opinions supplied by the respondents as a produced narrative. The interview guide items and observation checklist were also aligned with the significant concerns in the questionnaire, which increased the trustworthiness of the qualitative data collected. With the use of the Statistical Package for Social Sciences (SPSS) software, quantitative data obtained in the field was presented and analyzed using descriptive statistics such as frequency, percentages, mean, and standard deviation. The qualitative data was also evaluated for emergent themes and used to support the quantitative data. The study's ultimate conclusion was based on a side-by-side comparison of findings from the two data sets that were analysed separately. Furthermore, throughout primary data collection, the study was regulated by research code of ethics such as access, informed consent, confidentiality, and anonymity of the respondents. The secondary data that was used was carefully re-examined and acknowledged.

## 4. Findings and Discussion

This primary objective of the study was sought to assess the attitudes of households toward solid waste management practices in Kasoa Township in Ghana. In more concrete terms, the household respondents involved in the study were asked to reply to questions about their attitudes regarding source reduction and reuse of household solid waste. The interview guide was used to elicit additional perspectives from the key informants who took part in the study in order to gain extensive information on this objective- *assessing the attitudes of households toward source reduction and reuse of solid wastes in Kasoa Township*.

As suggested in the waste management hierarchy, households' attitudes toward source reduction and reuse of solid waste materials is the first step in addressing the persistent solid waste management difficulties experienced by households in Kasoa Township. To this end, the household respondents involved in the study were asked to rate how much they agreed or disagreed with statements on a 4-point Likert scale reflecting their attitudes toward source reduction and reuse of household solid wastes. Subsequently, the mean and standard deviation scores obtained were used to determine the attitude of household respondents toward source reduction and reuse of household solid waste items. The scale of attitude assessment statistics was interpreted as 0-1.4 (strongly

disagree), 1.5-2.4 (disagree), 2.5-3.4 (agree), and 3.5-4.0 (highly agree) (strongly agree). Table 2 summarizes the information gathered.

**Table 2.** Attitudes of Household Respondents toward Source Reduction and Reuse of Solid Waste Materials

Statement	SD (%)	D (%)	A (%)	SA (%)	Mean	SD
I am concerned about the solid waste generation situation in my household	20 (8.1)	34 (13.8)	144 (46.9)	78 (31.7)	3.04	0.89
Littering is a common practice in my household	46 (18.7)	58 (23.6)	106 (43.1)	36 (14.6)	2.54	0.94
I often take actions to reduce the volume of solid wastes generated in my household	76 (30.9)	110 (44.7)	46 (18.7)	14 (5.7)	1.99	0.85
I usually prefer to reuse reusable solid waste materials in my home	95 (38.6)	102 (41.5)	41 (16.7)	8 (3.3)	1.85	0.81
I frequently separate the types of solid wastes generated for sale	104 (42.3)	86 (35.0)	37 (15.0)	19 (7.7)	1.88	0.93
The cost of managing solid wastes influence my attitude towards proper solid waste management	8 (3.3)	28 (11.4)	90 (36.6)	120 (48.8)	3.31	0.79
My attitude towards household source reduction and reuse generally affects waste management efforts by the authorities in Kasoa Township	11 (4.5)	32 (13.0)	89 (36.2)	114 (46.3)	3.24	0.85

Key: SD= Strongly Disagree, D= Disagree, A= Agree, SA= Strongly Agree  
 Source: Field Data, 2020.

Table 2 shows that the majority of respondents (M = 3.04, Std. = 0.89) were concerned about the solid waste generating issue in their households. However, the results suggest that a slight majority of respondents (M = 2.54, Std. = 0.94), believed that littering was a widespread habit in their households. Furthermore, the low mean and standard deviation scores indicated that the majority of household respondents disagreed with the statement that they frequently take actions to reduce the volume of solid waste generated in their homes, as indicated by a mean of 1.99 and a standard deviation of 0.85, respectively. As proof of this, the majority of the household respondents stated they prefer buying plastic packaged stuffs to unpackaged stuff from the market and retail shops to their homes.

A substantial majority of the respondents disagreed with the assertion that they normally prefer to reuse solid waste products once they have been used, as evidenced by a mean score of 1.85 and standard deviation of 0.81. As observed in the study area, most householders' attitudes toward reusing plastic bottles for storing or drinking water, as well as reusing plastic bags for shopping for food items, were absent. As a result, reusable waste materials such as sachet water rubber, bottled water, and 'take away' food packages were immediately thrown away into bins or open space.

In addition, the household respondents were asked to express their feelings on the separation of their solid wastes. As a result, the mean and standard deviation scores of 1.88 and 0.93, respectively, revealed that the majority of household respondents in the research area rarely differentiate the various categories of solid waste generated. Solid waste components, both organic and inorganic, are thrown into receptacles without regard for the sale of recyclable components to waste pickers. A comparable study done in the Ga East Municipality in Accra by Yoadra et al. confirmed this finding, revealing that around 83 percent of household respondents do not separate their garbage before disposal [5].

Furthermore, most respondents agreed that the expense of

managing solid wastes influences their attitudes toward good solid waste management (M = 3.31, Std. = 0.79), according to the statistics in Table 2. Furthermore, the statistics in Table 2 show that, with a mean of 3.24 and a standard deviation of 0.85, the majority of household respondents agreed with the statement that their attitudes toward household source reduction and reuse generally affects waste management efforts by the authorities in Kasoa Township.

Confirming the prior findings, the key informants interviewed also re-echoed that the general attitude of the households in the research region toward source reduction and reuse of solid wastes was not particularly favourable. They shared that some households still believe that solid wastes are useless materials, therefore they generate and dispose of them at their will. The following excerpts represent some of the participants' points of view:

*You should realize that this is a business and settlement town. As a result, households generate a lot of garbage, which they discard anyplace. When you tell them Kasoa is growing and they need to limit the quantity of rubbish they produce, they find it weird. They still have the traditional mindset that "borla eye borla, aden nti na ew) see me b) ka w) ho?. The attitude towards source reduction and reuse is not all that positive but gradually it is improving (Key informant, ASEMA Waste Management Department, Field Data, 2020).*

... not in the least. In most cases, households combine the many forms of solid trash they generate in their bins. In my region, I have yet to see a single household that recycles or separates their trash. They throw all of the plastic bottles, food garbage, papers, and take-away rubbers into one dustbin (Key informant, Zoomlion Waste Management Limited, Field Data, 2020).

However, one of the Assembly Members interviewed stated that only a small percentage of homes pick recyclable solid waste materials from neighbouring households or



communities and resell them to individuals that come around to buy recyclable wastes on a regular basis. He opined that:

*A few individuals go around collecting sachet water rubbers and plastic bottles. Though not all of them are interested, a few do view it as a business opportunity, so they try to separate the sachet water rubbers and plastic bottles so they may sell them to individuals who regularly come around to buy them* (Key informant, Assembly Member, Field Data, 2020).

Even though households are concerned about the generation rates, the juxtaposition of the study findings from the perspectives of both the household respondents and key informants involved in the study reveal that the majority of households in Kasoa Township have poor attitudes toward source reduction and reuse of solid waste materials. This study finding is linked to the TPB (Figure 1) element on attitude, implying that the majority of families' negative attitudes influence their intentions for source reduction and reuse of solid wastes, resulting in their undesired SWM behaviour. In line with this study findings, Babaei et al. found that only 1.7 percent of household participants in an Abadan study on household knowledge, attitudes, and behaviours regarding solid waste management practiced source reduction and reuse of solid waste materials [21]. Al-Khatib et al., who opined that a negative attitude is commonly connected with the mishandling of household solid wastes in underdeveloped countries, also corroborated this finding [20]. As a result, Eshun and Bassaw proposed that homeowners segregate their domestic solid waste into glass, paper, and plastic categories for efficient trash management, allowing for easier collection.

#### *Effects of Solid Waste Management Problem on Households in Kasoa Township*

The data validation form of the convergent-parallel design, according to Creswell, allows for a few open-ended questions on the questionnaire to compare and validate the interview data acquired on the same issue [28]. Hence, a few open-ended questions were added to the questionnaire in order to get more detailed information about how the problem of solid waste management affects households. In this direction, the varying responses elicited from the household respondents were classified into emerging patterns that encompassed environmental, health, economic, and social implications in this manner. Following that, the main informants' in-depth interview information gave incisive expositions into the emerging themes. The environmental and social implications were among the most important discoveries.

#### *Environmental Effects*

Environmental issues such as perennial flooding, aesthetic

blight, odour from choked gutters, and stench from open dump sites caused by improper household solid waste management practices were revealed to be a bane to the majority of households in Kasoa Township, particularly in neighborhoods such as Gadambo, Zongo 94, and parts of New-Town, according to the study.

*We have two flood-prone neighbourhoods in this area, notably Gadambo and Zongo 94. When it rains, the plastic garbage clogs the drains, resulting in overflow floods during the rainy season. Furthermore, because the majority of houses in these neighbourhoods have the mentality of dumping their trash indiscriminately, the entire area has become dirty. When walking around these areas, you may notice a foul odour coming from stagnant water in the front or rear yards of people's homes, which is packed with sachet water rubber and black polythene bags. This does not offer a positive impression of the surrounding areas* (Key informant, ASEMA Waste Management Department, Field Data, 2020).

In consonance with this finding, Agyapong, remarked that solid waste management situation in the Berekum Municipality has visible implications on poor households as garbage accumulation in communities, wastes clogged in drains, water bodies and stinking gutters are prevalent [4]. Similarly, Sarpong, intimated that, urban floods occur when water blockages from unregulated home solid wastes generated cause drainage systems and other storm control measures to overflow their embankments [13].

#### *Social Effects*

The study found that the way householders in the study area manage their solid wastes has become ingrained in their way of life, therefore it has had little impact on their social climate. One of the members of the Assembly who was interviewed bemoaned the fact that:

*Individuals in low-income communities are "I don't care" people, therefore these issues don't bother them. Whether you tell them or not, they are aware that they live in a filthy atmosphere. As a result, it has no bearing on their interpersonal connections. They know it's typical, so they won't even bring it up. Even if you mention it, it will go unnoticed. That is the situation. (Field Data, 2020, key informant, Assembly Member)*

In accord, another key informant also admitted that people in the study area are unperturbed by the solid waste management situation in their households. He remarked that:

*...It has no effect on their social relationships as a result of this. You see, some of the people are hustlers, they come home in the evening to rest before returning to sell the next morning. As a result, they consider their social lives to be*

normal. They don't even have the time or inclination to consider those issues. As a result, individuals regard the solid waste issue as normal because they share the same neighbourhood or territory. It has become an integral part of their lives; it is akin to a culture for them (Key informant, Zoomlion Waste Management Limited, Field Data, 2020).

From the preceding excerpts, there is no social pressure among the households irrespective of how they handled their solid wastes generated, this study finding affirms the TPB (Figure 1) element on subjective norm, which represents felt social pressure to exhibit or not exhibit a given behaviour. In line with this finding, Tahulela hypothesized that household waste management practices have no impact on the types of social interactions among urban dwellers in unclean environments in a study on the effect of social norms and attitudes toward domestic waste management in a selected formal settlement in the Western Cape, South Africa [23].

## 5. Conclusions and Recommendations

Households' attitudes regarding source reduction and solid waste material reuse are unfavorable. Hence, attempts by local authorities in Kasoa Township to mitigate the threat continue to be hampered, resulting in the persistence of the solid waste management problem in the study region. Households are constantly subjected to environmental consequences as a result of the solid waste management issue they face. Their social interactions, on the other hand, remain intact since it has become part of their culture, regardless of how the material wastes generated are managed.

In tandem with the conclusions drawn from the study, the following recommendations were made; the ASEMA sanitation taskforce should promote source reduction and reuse through extensive sensitization and prosecution of households that breach solid waste disposal by-laws. Coupled with this, subsidization of the cost of purchasing waste bins by the ASEMA for households in low-income areas such as Gadambo, Zongo - 94, and Kasoa - Newton would help ensure proper solid waste disposal and minimize the environmental consequences of the solid waste management problem on the study area's households. Households in Kasoa Township should use social pressure as an attitudinal change tool to encourage proper solid waste management among residents in the study area.

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