

# SOLID WASTE DISPOSAL AND MANAGEMENT

## *Study on Solid Waste Disposal*

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**Abstract:** Solid waste disposal and management is each an urban and rural problem. Every character is a ability generator of waste and consequently a contributor to this problem. To generate waste is one issue, the form of waste generated is some other and yet additionally the way the generated waste is controlled or disposed of is pretty a exclusive difficulty. It has more frequently than not turned out that the rate at which stable waste is generated is far higher than the ability to responsibly manipulate this waste. Waste is generated by means of, and from exclusive sectors; home, commercial, industry and others and usually; the waste management duty has been left to the authorities or administrative authorities.

**Keywords:** Environmental Engineering, Civil Engineering, Solid Waste Management

### I. INTRODUCTION

Solid waste disposal and management is each an urban and rural problem. Every character is a ability generator of waste and consequently a contributor to this problem. To generate waste is one issue, the form of waste generated is some other and yet additionally the way the generated waste is controlled or disposed of is pretty a exclusive difficulty. It has more frequently than not turned out that the rate at which stable waste is generated is far higher than the ability to responsibly manipulate this waste. Waste is generated by means of, and from exclusive sectors; home, commercial, industry and others and usually; the waste management duty has been left to the authorities or administrative authorities.

There is developing consensus that the on the spot stakeholders in the difficulty of solid waste (the mills of waste), in this situation the residents need to enroll in hands with the government in managing this hassle that has far-attaining environmental and human fitness outcomes.

Uganda is one of the international locations in the world that rank low in urbanization however this notwithstanding, the urban populace is developing. Actually, the urban population is growing faster (three.7%) than the national common (3.Four%). The implication of this increase is that pollutants issues along with solid waste control and the provision of ok secure water along suitable degrees of sanitation insurance will want closer interest (National Environment Management Authority (NEMA), 2005). As Uganda's urban regions growth in quantity and make bigger in geographical and population size, solid waste is swiftly rising as a widespread difficulty in environmental management. Although there are installed pointers for stable waste control, there is want for clean law and ideally a country wide policy mainly on stable waste management (NEMA, 2005).

Particularly, waste volumes have extended in urban vicinity because of the developing city populace, concentration of industries, consumption of residents, and inadequate finance and centers to manage waste series and disposal (NEMA 2007:276). This scenario has caused the volume of solid waste generated to go beyond what the to be had centers can accommodate.

One of the essential factors that have contributed to negative waste collection and management in Uganda is restricted community participation in solid waste management (NEMA, 2007). The restricted participation has budded from co-ordination and collaboration troubles that exist some of the 3 stakeholders in stable waste management- the groups, the general public (authorities) and the non-public sectors (NEMA, 2007).

This look at seeks to explore public participation in strong waste management in Kira Town Council, Wakiso District in Uganda. The cutting-edge stage of participation in addition to whether and what, may be carried out to enhance public participation in stable waste management are concerns addressed via this observe.

Norway is placed at the western part of the Scandinavian Peninsula, on the northern a part of the European continent. According to the World Bank's 2014 information, its place covers a total of 365,245km<sup>2</sup>, and its population is 5.137 million. Norway is famous as one of the richest countries within the world, because its GNI in keeping with capita reaches 103,050USD. This is approximately ten times better than the arena's average GNI in keeping with capita, that's 10,778 USD.

With regard to waste, the Norwegian Environmental Agency (Miljodirektoratet) announced that the whole amount of waste in Norway elevated more than 50% on the grounds that 1995. In 2014, a total of 11.Nine million heaps of waste was generated<sup>4</sup>. The organisation regards consumption habits as a key cause for this big extent of waste, considering that this elevated according with GDP growth. However, it concluded that the quantity of brought waste for final disposal has been reduced thanks to the power healing and recycling strategies; the combined rate of recycling and energy restoration of the entire amount of waste reached 81% in each 2012 and 2013.

### LITRATURE REVIEW

#### Key Concepts and Terminologies

In this section, a number of concepts and terminologies are explained. These include: waste and a few types of waste, waste management and public participation.

## Waste

UNEP described wastes as materials or gadgets, which might be disposed of or are supposed to be disposed of or are required to be disposed of via the provisions of national law. Waste also refers to “an item, fabric or substance you as an individual remember vain at a given time and location” (Mugambwa, 2009:1). Waste is a dynamic idea which can be described in exceptional methods (Pongrácz, 2009:ninety three). Pongrácz introduces an progressive description of waste in what she refers to as “object-orientated modelling language, PSSP. PSSP stands for motive, shape, country and overall performance, that are object attributes” (Pongrácz, 2009:ninety three). In most instances, the definition of waste relies upon on the sort or class of waste under attention. Some of the dominant sorts of waste consist of; municipal waste, stable waste, hazardous waste and, digital waste. I will define municipal and stable waste, that are applicable to this have a look at.

### Municipal waste

Cointreau-Levine and Coad (2000:four) take municipal waste to refer “to wastes from home, industrial, institutional, municipal and business sources, but with the exception of excreta, besides when it's far mixed with solid waste”. It is however necessary to be aware that in developing countries, many a times, it turns into difficult or even impractical to place a line among excreta and strong waste. In many instances, solid waste mixes with excreta to the volume of being doubtlessly unsafe to human health.

### Solid Waste

Solid waste, additionally known as rubbish isn't always very one-of-a-kind from municipal waste. This study takes at the definition by the State of the Environment Report for Uganda (NEMA, 2007:275) that defines stable waste as “natural and inorganic waste substances produced through families, industrial, institutional and industrial sports that have lost cost in the sight of the preliminary user”. I discovered it prudent to undertake a definition and which means of stable waste this is inside the context of the place of observe.

### (Solid) Waste Management

Waste management refers to the “series, transportation, processing, recycling or disposal of waste materials”(Mugambwa, 2009). It must be favored that waste control practices vary for advanced and growing nations, for urban and rural regions, and for residential and industrial manufacturers. The volumes and styles of waste in these distinctive resources of waste justify the difference within the waste management practices. It therefore implies that the strategies appropriate in a single putting can be incompatible within some other putting. It is vital to think about the context of the waste supply, to arrive at the right technique.

### Three Public Participation

According to the Oxford English Dictionary, participation is “the movement or truth of engaging, having or forming part of”. Participation as a idea got here to the lime mild because of growing advocacy for the stop of the pinnacle-down techniques to improvement action, in favour of greater inclusion of the subjects of the improvement applications. Oakley and Marsden (1984) agree that participation is a technique and not only a strong product; however, they may be also short to observe that it's miles very hard to establish a everyday definition for participation. This suggests that different pupils, authors and companies define and apprehend participation differently. Their definitions and expertise is regularly guided via the orientation and motive of the individual or business enterprise defining participation, given the situations.

Although participation is widely known to be a unfastened system, in a few instances it nearly calls for that humans are dragged into getting concerned in operations which might be of no hobby to them, but they are coerced in the name of participation. Oakley and Marsden (1984), study participation as a idea that is closely connected to rural improvement. They also provide an explanation for that very regularly, participation is seen as some kind of factor that may be brought to the recipe for rural development in order that the outcomes from the development mission are palatable (Oakley and Marsden, 1984:17). The thought that participation is an important ingredient in development gives a temptation to pressure participation at any cost. However, it's far possibly beneficial to be aware that there may be what Oakley and Marsden discuss with as genuine participation, that is defined as a result of abottom-up method of development. The concept of participation requires clean interpretation and cautious comprehension earlier than it is adopted for any given cause.

Oakley and Marsden (1984) attempt to give an explanation for the specific interpretations of the idea of participation through use of 4 “phrases”, this is; collaboration-enter- sponsorship, community improvement, organisation, and empowering. These terms are used to give an explanation for the distinct orientations in the participation discourse, and the exceptional terms constitute unique intentions or functions for which participation is followed by way of the implementers.

According to Oakley and Marsden (1984), participation may be looked at as a way as a whole lot as it can be looked at as an result in itself. Participation can be perceived as a means if it's far followed as a method of attaining achievement in a improvement program. It also can be an end in itself if it's far seen as “a manner the final results of which is meaningful participation” (Oakley and Marsden, 1984:27). In modern practice of participation, the previous perception is greater distinguished. Participation is adopted as a catalyst to success of a useful task in a network.

(Barnes, 2005), advises that there is no need to search for a model of participation that is a one-sizefits- all; for this reason this look at takes at the attitude of participation as a way.

### Review of associated literature

This section includes five divisions, the first evaluations Sustainable Development as a means and as an end in itself, the second one presents waste management practices, the third affords an integrated approach to stable waste control, accompanied through how the strategy can paintings and the last gives in element the importance of public participation in stable waste management.

### Sustainable Development as a means and an result in itself

In this 21st century, difficulty approximately sustainable improvement is on the helm of most cutting-edge development debates/discussions and project undertakings. Most conventionally, sustainable development is thought as that development this is aware of the destiny generations' needs whilst assets are used to fulfill the desires of the prevailing era (Brundtland, 1987). Several

troubles stand up while we begin speakme approximately sustainable improvement. Most of those issues relate to the “how” of sustainable improvement. Sustainable development has constantly come to be a prominent word within the improvement discourse and has been impactful in converting the orientation and practice of development (Adams, 2001). Its prominence, however, has also bred various meanings and definitions of the concept. In my view conceive sustainable development as a idea with faces, on one hand as a way and on the alternative as an end in itself. Sustainable development as a way in this case refers to the orientation behind the one-of-a-kind methods in which interventions or undertakings of any nature (for development purposes) are made. In this, sustainable development gives an ideology upon which improvement-related activities are initiated and carried out. Such sports might include however no longer confined to, education provision, health provision, natural aid allocation, land use and waste control.

Sustainable improvement as an give up, however can handiest be tested and proved through the destiny generations, whether the ones generations can meet their wishes easily and but keep on the sustainable development legacy left in the back of via the previous generations.

Taking a better look at the listing underneath sustainable development as a means, brings out the fact that most, if no longer all such sports are dictates of both the nation or at the least a privileged group that possesses the power to accomplish that in any given society. I strongly feel that with out a right scrutiny of the way inclusive of those activities are done, sustainable development can also come to be only an ideal fable which can in no way be attained. As I actually have cited, in most instances the state or any other mandated structure of authority singly takes the obligation of figuring out how, how a lot, and to whom these sports/services, are provided. This unilateral nature of responsibility certainly has an impact on sustainability.

Waste control is one of the offerings which might be generally left to the government to take care of, and is mainly of concern in the debate on sustainable improvement. Particular interest has to be paid to the practices of waste management because if no longer properly carried out, may have a long way attaining consequences on the environment and thereby affecting sustainable development.

### **Waste management practices**

There are several factors which have facilitated increase within the volume of stable waste generated. One of the factors that have caused expanded stable waste era is rapid urbanization (UNEP, 2007). Urbanization comes with expansion of towns which manifests thru the boom of social and monetary infrastructure/services and industrialization. The increase in such services warrants the growth in population in such areas. An multiplied population robotically means improved demand for not handiest social services but additionally consumables which doubtlessly gift a larger base for waste technology-in most instances stable waste.

The boom inside the volumes of waste generated has additionally been proved to be synonymous with the “new lifestyles related to more affluence” which convert into higher intake tiers, consequently producing more waste amidst changes in waste composition (UNEP, 2007:224). Affluence impacts people to undertake superfluous demand and purchase styles making humans acquire greater of what isn't very essential for their well being. When humans own extra than what they really need, failure to consume all that they affluently have, sooner or later leads them to dispose of the vain extra which turns into stable waste. In maximum cases greater purchases also suggest more packaging material- which conveniently interprets into strong waste particularly for the manufactured merchandise. The synthetic products comprise materials which might be very hard to decompose, as an example plastics, for this reason increasing waste volumes uncontrollably (Bournay, 2006). In a capitalistic global, the remaining purpose of the producers is to make as a whole lot income as the marketplace can permit. Because of this line of thought, the producers are more worried approximately suiting the product to the client. Little or maybe no effort is made to package the products in an environmentally sensitive way and people that take some time, are still very few. Usually, the load is left to the consumer to eliminate the waste packaging cloth by their very own means. In doing so, the manufacturers certainly externalise the costs of solid waste management by extending it to the purchasers. The trouble here is that during maximum cases the manufacturers do not even hassle to give any instructions to the end person on the way to control the waste as it should be. This complicates the stable waste control process as folks that “manufacture” the stable waste have no longer taken into consideration internalisation of the fee of solid waste management, say as a manner of doing Corporate Social Responsibility.

Generally, there's an inclination for improvement to come with improved waste technology. Data from Asia confirms that the extra advanced international locations like Japan, Laos and Thailand, have extra municipal waste generated per capita. Interestingly also, there have now not been signs and symptoms of abating the increasing quantities of waste generated (UNEP, 2007:224). The fast growth in waste technology has therefore made powerful waste control in many countries, hard. Consequently, it has placed human lifestyles and the surroundings at stake. Some countries in Asia have taken on ecolabelling as a market-primarily based tool/approach to address the waste hassle (UNEP, 2007:225). On top of eco-labelling, the 3-R technique: (reduce, reuse and recycle) is likewise becoming popular in Asia (and different elements of the world).

There is an indication that the methods in which strong waste is controlled, are as diverse because the human race itself. Some strategies of waste control are right and environmentally sound, while some are not. Conventionally, solid waste (in most instances referred to as garbage) is commonly accrued as a package deal of trash via neighborhood authorities or with the aid of personal corporations to be taken to a transfer station and then to a landfill (every now and then amassed and taken straight to the landfill). However, thinking about the reality that there are not continually enough sources and infrastructure for waste control, specifically in developing international locations, this scenario ultimately implies that some waste will now not be accumulated, or will be improperly disposed of (UNEP 2002). As a end result, landfills, burning waste, rodents and odours which might be very not unusual in growing countries have made residential areas prone to health risks (UNEP, 2007). In agreement, the United States Environmental Protection Agency (USEPA) affirms that mistaken disposal of strong waste exposes the surroundings and human lifestyles to risk through way of emission of green residence gasses and infection of floor water, respectively (2002).

At landfills, the Kansas State University (KSU, n.D:6) reports that:



“Containers ruin open and spill their contents. Liquids put in the landfill combine with rainwater and soak via the garbage. Soluble dangerous substances can be washed with them, producing leachate. Leachate will glide downhill over floor land, or will percolate via the soil until it reaches an impermeable layer. Leachate can contaminate groundwater and floor water” (KSU, n.D:6). Therefore stable waste, if now not well controlled, can cumulatively have lengthy-lasting and tough-to-reverse bad effects on the surroundings. There have been efforts to improve on the management of solid waste. One of the suggestions has been the utility of an incorporated waste control method.

## METHODOLOGY

### 3.1 A combination of both Quantitative and Qualitative approaches

In this take a look at I followed a combination of each quantitative and qualitative methodologies to research. The objectives for this take a look at (in bankruptcy one) in reality display that the aim of this studies turned into to explore the way the public engages in stable waste management, at what degree and the way the connection between the nearby authorities and the public is with regard to strong waste management. Using a blended approach could therefore allow me to “collect numerous types of records and take a look at them from numerous angles to assemble a rich and significant photo of a complicated, multifaceted situation” (Leedy and Ormrod, 2005:133).

On one hand, the primary research questions have been addressed by use of quantitative strategies. On the other hand, the ultimate studies questions necessitated the usage of qualitative techniques. This selection became based on the conviction that for this observe to yield significant conclusions, it needed to draw on the benefits of the use of both qualitative and quantitative methods as defined under.

#### 3.1.1 Quantitative:

Quantitative studies is applauded for the truth that “the findings are generalisable and the information are goal”(Blanche et al., 2006). It became was hoping that the findings from this have a look at would assist in reflecting what's taking place within the entire of Kira Town Council. At the identical time, it became vital to have an amount of objectivity to dispel the issues to the effect that qualitative research may be biased. Quantitative information and statistical analysis might additionally help in testing a few hypotheses and increase on the validity of the findings from this take a look at.

#### 3.1.2 Qualitative:

In this examine, there was want for me to “dig deep” with the intention to get a entire information of the state of affairs from the perspective of the stake holders within the strong waste control zone (Blanche et al., 2006). Making statistical conclusions couldn't suffice in unveiling the picture of strong waste control in Kira Town council from exclusive views. The attitude of the human beings may want to only be liked with the gathering and analysis of qualitative facts also. Qualitative research allows “understanding in context”(Blanche et al., 2006). In this look at, I tried to apprehend whether or not there has been any sort of collaborative dating between the general public and the local administration (Town Council) in dealing with solid waste. The collaboration I turned into inquisitive about become the public participation in strong waste control along the Town Council. Special recognition changed into put on the demanding situations of concerning the public in solid waste management. I was similarly inquisitive about exploring whether there had been any mechanisms put in area by Kira Town Council to beautify collaboration in stable waste management with the general public.

### 3.2 Research layout

As already mentioned above, I employed each quantitative and qualitative methodologies. This research basically took on a descriptive survey layout, looking for to “describe phenomena correctly” (Blanche et al., 2006), not simplest using quantitative information but also qualitative statistics. This layout also corresponds to what Bryman describes as Cross-sectional studies design that targets at getting facts from multiple cases at a given factor in time in order to examine relationships throughout a number of variables of interest (Bryman, 2004:42). This have a look at was based on the sort of design due to the fact; its quantification characteristic helps in constant benchmarking (Bryman, 2004). However, move-sectional research normally lack internal validity (Bryman, 2004) and I tried to respond to this challenge via the qualitative aspect of this look at. In this observe consequently, the qualitative statistics turned into used to enhance the descriptions generated by means of, and or from the quantitative information and consequently build the photo of stable waste control within the have a look at place, better. In doing so, aspects of a phenomenological take a look at layout to analyze had been employed to guide qualitative information collection and evaluation. The rationale at the back of the aggregate turned into derived from the truth that qualitative studies is not always explanatory most effective, however can also be used in building “rich descriptions and motives of human phenomena” (Blanche et al., 2006). The awareness of this observe based totally on carried out studies; with a view to generalize the findings of this have a look at to a particular context underneath have a look at in order that conclusions to tell selection –making may be drawn. Since I was interested in locating out the beliefs and perceptions of the people concerning solid waste management, phenomenology turned into a paramount element to inform this research's study layout. My epistemological stand turned into interpretivism with inclination and goal to apprehend the manner people “make experience of the world round them” and basing on that then I would also be able to recognize the phenomenon (Bryman, 2004:13). This allows the researcher to interpret the people's interpretations in light of the associated principles and literature. Ontologically consequently, information might be produced from the researcher's interpretation of the peoples interpretations (Bryman, 2004).

### 3.3 Data series strategies

The methods for facts series have been dependent on the desired data for every unique studies query. However, usually considering that this have a look at took on combination of both qualitative and quantitative methodology, I selected to use report overview, statement, interview- structured and semi-established, and Focus Group Discussions (Leedy and Ormrod, 2005). Depending on the

form of statistics that was required, I used the most appropriate facts collection method to get the data from the extraordinary respondents. I consequently selected to use the exclusive methods for distinctive motives.

### 3.3.1 Document Review

Document review is an unobtrusive statistics series technique that is non-reactive for the reason that files can't be influenced by way of the truth that they're being used (Robson, 2002). Organizations in addition to authorities and in this situation local authorities, produce many files (Bryman, 2004). These files can doubtlessly be used to gather both quantitative and qualitative facts. I asked for permission and consequently documents so I may want to derive relevant statistics from them. Although I was hoping to without difficulty locate, and get entry to numerous files like; annual reports; survey reports; planning documents and other relevant documents, I was simplest able to quite simply get entry to the Town Council's Three-12 months Development plan for 2008/09-2010/11. This record, however, changed into not so poor of the facts that I had envisaged to collect from the several preferred files. It had very revealing facts about solid waste control in Kira Town Council and the absence of different documents did no longer compromise the excellent of the findings from this take a look at to a worrying volume. Some of the records from this record formed a precursor to the interviews with Town Council Officers. I felt that this would permit for greater meaningful mirrored image and triangulation of troubles from the files, in the interviews. This triangulation is generally essential for functions of examining information in files, in light of different records assets, considering documents won't be as objective as favored (Bryman, 2004:388).

### 3.3.2 Structured remark

A structured commentary is "very systematic and allows the researcher to generate numerical data from the observations" (Cohen, Manion & Morrison, 2000:306). This being a look at that is in part dependent on survey framework, it became hypothesised that the behaviour of the respondents might most in all likelihood be inferred; direct statement of people's behaviour in regards to their responses was consequently, achieved to test the accuracy of their responses (Bryman, 2004). Structured statement changed into mainly used with the assist of an remark schedule as a data collection device (Bryman, 2004). Notably also, unobtrusive statement is non-participatory within the hobby of being non-reactive and may be executed in an casual manner (Robson, 2002; Leedy and Ormrod, 2005), and that is why I decided to apply it alongside the opposite techniques. Residents, buyers and market vendors had been discovered, to collect facts for this study.

### 3.3.3 Interview

One of the motives for adopting a combination of qualitative and quantitative studies techniques on this study turned into because the research questions required one of a kind kinds of information. Some of those information might be correctly accumulated by use of structured interview at the same time as other records, by means of semistructured interview. Interviews were used due to the convenience at which they permit the gathering of information regarding, information, people's beliefs, emotions, reasons, present and past behaviour in addition to requirements of behaviour (Leedy and Ormrod, 2005:146).

### Structured interview

Structured interview, also known as standardized interview, is one of the techniques of accumulating statistics in a survey research (Cohen, Manion & Morrison, 2000; Bryman, 2004). Face-to-face dependent interview became used in area of a self-finishing touch questionnaire. The reason for this preference is that I anticipated that the literacy stages of the ability respondents might range. Not all of the potential respondents were anticipated to possess the talent of analyzing, comprehending and writing. Because of this, it might not be smooth to search for such respondents who possess the ones abilities and consequently, a face-to-face structured interview became favored additionally for "standardization of both the asking of questions and the recording of solutions" (Bryman, 2004:a hundred and ten). Since the interview device changed into to be translated into the local language, it was deemed easier to invite the respondents face-to-face than leaving them to write the solutions themselves. Structured interview approach became used to accumulate information from citizens, investors and market carriers.

### Semi-based interview

Semi-dependent interview was used to achieve qualitative data for this study. Qualitative statistics in form of attitudes, emotions and reviews would not be accrued by use of the dependent interview approach however became rather collected separately through semi-established interviewing. An interview manual, with a listing of guiding questions was formulated in order to give the interviewee a wider scope inside which to reply (Bryman, 2004). The semi-established interview technique became consequently, used because of its flexibility (yet with delimited generality) and allowance it offers to the interviewee in responding as they deem critical (Bryman, 2004).

### 3.3.4 Focus Groups

Focus companies are basically institution interviews (Bryman, 2004; Leedy and Ormrod, 2005). However, cognizance agencies may be differentiated from organization interviews. According to Bryman (2004), whilst focus organizations deal with a specific subject, institution interviews may additionally take on a wider span, and that institution interviews are carried out for purposes of saving time through interviewing a number of human beings simultaneously. He continues to be aware that the motive of awareness corporations is to recognize how human beings speak an difficulty as "individuals of a collection" (Bryman, 2004:346). In the point of interest institution, attention is placed on how the members have interaction with each other than with the interviewer and it's far from the interaction of the contributors that records emerge (Cohen, Manion & Morrison, 2000). In this have a look at, attention organizations had been accomplished for the category of folks that interact privately and personally in strong waste collection from houses, markets and buying and selling centres. This become intended to complement the qualitative facts that become accumulated via semi-dependent interview technique.

### 3.4 Sampling

Cohen, Manion & Morrison (2000:93) argue that a sample size is in a way “determined by the style of the studies”. In a survey study, there would be need for a representative pattern of the populace for generalizability of the take a look at findings, whilst in a basically phenomenological observe, the sample would be smaller given the amount of records that can be accrued qualitatively. In this take a look at, which is a aggregate of quantitative and qualitative techniques, the pattern was no longer necessarily representative of the population it would be expected to be in a merely survey examine.

#### 3.4.1 Sample length

Data turned into collected by means of dependent interview from one hundred and one respondents. These made from residents, traders and market venders from three wards out of the six inside the Town Council, which have been randomly decided on. 30 semi-dependent interviews had been also accomplished with respondents who were purposively sampled considering their region and the information they had been predicted to own. 10 semi-dependent interviews had been conducted in every of the 3 randomly selected wards. Three attention institution discussions (one from each ward) have been performed each comprising of 6 individuals. Three Town Council officials had been interviewed in this study. Such a restricted sample become used because of financial, time and manpower constraints (Cohen, Manion & Morrison 2000).

#### 3.4.2 Sampling process

First of all, the names of the six wards in Kira Town Council were written on small pieces of papers and 3 wards were randomly selected for this look at. The wards that have been decided on are Kireka/Naalya, Kirinya and Kyaliwajala. Kirinya and Kyaliwajala are dominantly residential regions with simple trading centers and market areas, while Kireka has each a deliberate residential estate at Naalya, some unplanned residential regions in addition to big markets and trading centers. The manner of accomplishing the person respondents to make up the sample for this examine become based totally on comfort sampling. However, attempt turned into made to have the pattern drawn from a dispersed region, to keep away from getting the sample from one region. Much as based interviews had been performed, it turned into not deemed possible to pick out the pattern by using random sampling. This is due to the fact there there was no hooked up information base or listing of all the residents, traders and marketplace venders inside the Town Council thus making random sampling for individual respondents not possible. Not everybody who were contacted have been willing to take part inside the look at through giving facts that became required for the study. Some refused outrightly, while others feared that they won't have the required information. Those who feared incompetence to offer the desired records had been folks that had either not long gone to highschool or people who had not attained any qualification in education. They regarded to imagine that the records required was educational and thought that it required educational competencies. Simplicistically however, the motive may also had been that they had by no means participated in any form of studies look at before so that they did not have a image of how to pass approximately the answering of questions. I consequently interviewed those respondents that had been inclined, and had some time to spare to reply the interview questions. This additionally justifies using convenience sampling method which turned into followed, however at the same time as retaining in mind the fact that the pattern had to be were given from a selection area.

### 3.5 Data Processing and Analysis

The quantitative records from the dependent interviews, changed into coded and a grasp sheet organized before the start of records series. After the facts were accrued, I went thru the statistics portions/ established interviews on the stop of every day of information collection. This changed into for purposes of screening the records pieces and staining the codes on the exceptional variables, to make the information geared up to be entered into the grasp sheet the use of SPSS programme. At the stop of the statistics series system, and when all of the codes were entered into the master sheet, records evaluation changed into finished the use of SPSS. Frequency tables had been generated and crosstabulation became also made between relevant variables. I used the out put derived from SPSS to speak about the findings of this examine.

On the alternative hand, qualitative statistics from the semi-established interviews and attention organizations, turned into edited every daybreak to get the clean transcriptions of the interviewees' money owed. The notes have been then typed on the laptop, whereafter, emerging themes have been recognized and category of the emerging issues done. The classification became continuously edited in mild of the emerging records from interviews, in order that the maximum relevant subject matters might be built. When the final category of the themes have been built, discussion of the findings turned into completed with regard to the literature evaluate and the statistics from documents reviewed.

## RESULT & DISCUSSION

### 4.0 Socio-economic/demographic characteristics of respondents

101 respondents from the public were interviewed by structured interview instrument for quantitative data while another 30 were interviewed by semi-structured interview instrument for qualitative data. Two Town Council officials were also interviewed by semi-structured interview instrument.

All the quotes presented in this chapter are excerpts from the interview transcriptions from the data collection.

#### 4.0.1 Respondents to structured interview

##### Number of respondents by ward

A total of 101 respondents were interviewed using a structured interview instrument, for quantitative data. The quantitative data was particularly to answer the first two research questions of this study. Table 4.1 represents the number of respondents from each ward, and shows that the variance between the numbers was minimised.

**Table 4.1: Respondents by ward**

Ward	Frequency	Percent	Valid Percent
Kireka	33	32.7	32.7
Kirinya	33	32.7	32.7
Kyaliwajala	35	34.7	34.7
Total	101	100.0	100.0

**Respondent categories by gender**

The major categories of respondents in this study were three (see table 4.2). Kira Town Council is largely a residential area although with numerous commercial centres and a few industries. It was therefore deliberate to have at least half of the total number of respondents sample to be drawn from the resident category. From a total sample of 101 respondents from whom quantitative data was gathered, 50 were residents while the rest were sampled from the market vendors, traders and others.

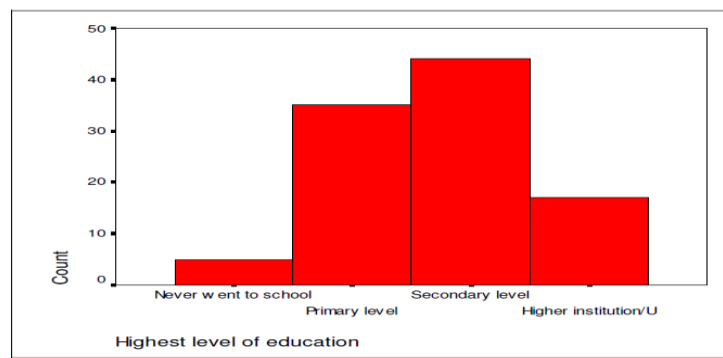
**Table 4.2: Respondents by category and gender**

	RESPONDENT				Total
	Resident	Market Vendor	Trader	Other	
SEX Male	16	8	9	5	38
Female	34	14	14	1	63
Total	50	22	23	6	101

The table above shows that in the major respondent categories, more female respondents were sampled than their male counterparts. However, this was not purposively done, but was due to the convenience sampling procedure that was adopted in this study. For different reasons, female respondents were more accessible and willing to give information as compared to the male who always seemed to be busy doing their own work. From the identification data, it was also discovered that 67.3% of the respondents were actually tenants in Kira Town Council, either renting the residences where they stay, or the commercial premises where they operated/worked from. Only 33 respondents (32.7%) owned the residences or the commercial premises where they were found. The “other” category included respondents who were interviewed neither as respondents nor fell in the other two categories. These were such as commercial water tap-attendant, metal fabricator, drug shop attendant, butcher, welder and cobbler.

**Respondents' highest educational level**

Figure 4.1 represents the educational level of the respondents with whom structured interviews were done. The majority 44 out of the 101 (43.6%) of respondents had secondary level as their highest education level while only 5 respondents had never attended school. The number of primary level respondents was also considerably high.

**Figure 4.1: Respondents level of Education****4.0.2 Respondents to semi-structured interview**

30 other respondents were sampled from the public, and semi-structured interviews were conducted with them for in-depth understanding of their attitudes and opinions toward solid waste management in the Town Council. 10 respondents were interviewed from each of the three wards. 16 out of the 30 interviewed were female, while 14 were male. The 30 respondents were interviewed at their premises, that is, their residences, stalls, shops and other premises where they operated their businesses. During the interview the surroundings were concurrently observed. Table 4.3 represents the number of respondents interviewed by semi-structured interview instrument from the different wards.



**Table 4.3: Respondents by category and ward**

		CATEGORY OF RESPONDENT				Total
		Resident	Market Vender	Trader	Other	
WARD	Kireka	3	4	3		10
	Kirinya	4	1	4	1	10
	Kyaliwajala	3	4	3		10
	Total	10	9	10	1	30

From the town Council, three officers were interviewed (the Deputy Mayor, the Principle Town Clerk and the Town Council Health Inspector). Three Focus group discussions were also done, one from each ward with individuals who engaged in private collection of solid waste within their respective wards. Each Focus group had 6 participants.

This study therefore, involved a total of 152 respondents.

#### 4.0.3 Strategies for future public participation

On one hand, Kira Town Council authority has strategies laid down to tackle the solid waste problem. On the other hand, the public also have their thoughts on what should be done to ensure that the people play a part in proper solid waste management. There is identification of what the roles and responsibilities of each side should be. This section discusses the proposals given in this regard.

#### 4.0.4 Formal disposal facilities

Illegal dumping in Kira Town Council indicates deficiency in terms of formal place for solid waste disposal. The apparent lack of landfill space and facility in the Town Council could be one of the reasons behind the profound illegal dumping phenomenon. There being no legal place to dump the solid waste, people find solace in dumping at any open place where they can feel convenient to. The Town Council also seems to face a setback in deterring this illegal dumping because they would have to present an alternative place to the public, which is not available up to now. It is quite clear from the findings that the preferred type of waste management that is convenient in Kira Town Council would be landfilling. However, this is only yet to be put in place leaving a dire need for such facilities at the moment. This means that there is little consideration for the first activities in the integrated strategy for solid waste management as outlined by USEPA (2002) but rather the last which is landfilling.

The people want waste bins (containers) stationed at strategic places so that they can dump their waste in such bins, so that the Town Council trucks can pick them when they are full and take the waste to landfills. Not all the people would manage to carry their solid waste by themselves to the landfill; some of them would rather pay a service provider to do that for them. The service providers on their part also need landfill facilities nearby and may be the amount they charge for solid waste collection could reduce. Either way, the people believe that the Town Council needs to come to their rescue by securing landfill facilities. Not only this but even the transport facilities that the people expect the Town Council to provide would be effective when there is a place to dispose of the waste. The way things are, waste management is quite expensive for both the Town Council and the public.

### CONCLUSION

The stage of public participation in solid waste control at present in Kira Town Council is low. There isn't any shape that permits for a greater synergistic courting among the general public and the Town Council government. The Town Council, being much less than a decade vintage is more preoccupied with infrastructural initiatives in the interim leaving the strong waste management issue much less attended to and with fewer assets for the venture. This has consequently given room for human beings to take away waste carelessly considering the fact that the difficulty has now not been practically followed as a priority inside the Town Council as yet. Everyone has the discretion to decide what fine suits them as far as stable waste management is involved. Waste reduction thru waste reuse is a number one characteristic of the public on the level of waste technology. In Kira Town Council, there has not been attempt in the direction of waste reduction. The human beings do now not possess knowledge on the blessings to the surroundings and therefore sustainable improvement while the quantity of waste is reduced. There is not any appreciation of the fact that solid waste affects sustainable development. The required instances for effective strong waste reduction are not popular in Kira Town Council given the low degree of social capital hooked up a few of the humans. The function capitalistic and individualistic existence fashion makes it harder for strong waste discount to be together finished. It leaves the Town Council with fewer options for sustainable stable waste management, albeit waste discount also can nonetheless be provoked.

Knowledge approximately the importance and blessings of sorting waste is one component, and having expertise on the recyclable waste material is every other. People do realise that it is a great issue to kind solid waste so that no longer all of it is dumped collectively. The aim is to smooth the control of the waste by having a number of the waste items recycled. The knowledge base approximately recyclable objects the various humans of Kira Town Council is minor and really low. The humans realize little approximately recyclable gadgets and this in itself forms a barrier to waste sorting. For one to embrace waste sorting, one desires to recognise which items to specifically type-out, without this information, it becomes useless and not going so that you can take place. From the attitudes of the people, it's far very clear that no longer all is misplaced. The future of sustainable solid waste management inside the town Council is vibrant but only so if the potentials of the human beings to take part are delicately and purposively tapped. There is willingness by the public to participate.

They are prepared to play their function in strong waste management, but as they unanimously agreed that they can't mangle on their very own, they want the technical steering of the government. Collaboration is thus very important for success of any assignment and stable waste management isn't an exception. The willingness many of the people to work together with one another and with the authorities for a not unusual suitable is a starting point for a synergy for you to circulate from just mere complementarity through



embeddedness to a co-efficient dating that's the epitome of participation. The time to act is now due to the fact if nothing is carried out right away, the more time passes, the extra complicated the strong waste control trouble gets. The populace is surely increasing day in day trip and the effect on the environment is also becoming sizable. The damage on the environment is already considerable within the Town Council due to the careless waste disposal practices. The state of affairs requires a direct arrest as the only manner to reverse the results in future.

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