



RESEARCH ARTICLE

A SURVEY OF ENTREPRENEURIAL ABILITY IN THE INFORMAL WASTE MANAGEMENT AND DISPOSAL ENTERPRISES IN KISII MUNICIPALITY

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ABSTRACT

The main purpose of this research was to investigate the relationship between the entrepreneurial ability of the informal waste management and disposal enterprises in Kisii municipality, the study research sought to; to establish the entrepreneurial ability embraced by Informal Waste management and disposal enterprises. The main assumption of the research was that the environmental Sustainability is a function of efficient entrepreneurial ability of the informal waste Management and disposal enterprises. The research covered a sample of 15 Informal Waste management and disposal enterprises, 10 employees were selected using purposive sampling and 25 employees stratified into departments. The research adopted a survey research design and the instrument of collecting data was mainly a questionnaire. Analysis of data was done using descriptive and inferential statistics; percentages, means and ANOVAs and Regression analysis were used to show the direction and magnitude also causality of the variables. From the findings of the study conclusions and recommendation were made since the study can be used by academicians, researchers and management consultants as a source of knowledge and reference.

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INTRODUCTION

Background of the study

Entrepreneurship is defined as the creation of new businesses with some element of novelty. Acs and Serb (2008) viewed the entrepreneur as one who seeks to improve the organization through change initiation. Ajzen, (1991) provided the economists' perspective; an entrepreneur is one who coordinates resources to create profits. Entrepreneurship has also been viewed as the identification of market opportunities and the recombination and allocation of resources to pursue them (Garand, 2001). Indeed, much of the present entrepreneurship literature has rested on the assumption that the entrepreneur is a risk-taker (Fporbes, 1999). Gartner, (1988) observes that There is intense debate regarding the origin of entrepreneurship in individuals. This debate revolves around some pertinent questions: Are some individuals more entrepreneurial than others Are individuals born with certain characteristics that predispose them to entrepreneurial endeavors, is there a set of traits that can be attributed to an entrepreneurial personality, or does environmental context, such as early exposure to entrepreneurialism make the entrepreneur. These questions can be answered by considering the theories that explain the origin of entrepreneurship in individuals. Entrepreneurs Are Born (Traits theory), Precipitating Events Theory (PET) and Beyond Born and made (Venture theory). Gibb, (1993) defines an Entrepreneur is one who undertakes innovation finance and business acumen in an effort to transform innovations into economic goods". This may result in new organization or may be part of revitalizing nature organization in response to a perceived opportunity. The most obvious form of entrepreneurship is that of starting new businesses. However, in recent years, the term has been extended to include social and political forms of entrepreneurial activity. Entrepreneurial activities are substantially different depending on the type of organization and creativity involved. Entrepreneurship ranges in scale from solo

projects (even involving the entrepreneur only part-time) to major undertakings creating many job opportunities. The benefits of entrepreneurship for development and economic growth have been widely highlighted. For instance entrepreneurship is seen as a self-development strategy for rural communities (Mitchel, 1979); allowing individuals and households escape poverty and innovation (Krueger, 1993). In fact, entrepreneurship has been claimed to be the single most important pathway out of poverty. Hence, international development agencies are demanding for stronger tools for expanding employment and entrepreneurial opportunities (Krueger, 2003). For example, it is demanded to improve the access of small and micro-enterprises to finance information and technology and develop new sound business practices. Further, there is need to create more inclusive business models that directly integrate low-income people as entrepreneurs, suppliers, distributions, retailers, employees and consumers. These entire requirements need more collaborative approaches between large companies, small enterprises, public sector entities, civil society organizations and the poor themselves.

Hai-Yong Kang, Julie Msochoeng (2005) defines Waste management as the collection, transport, processing or disposal, managing and monitoring of waste materials. The term usually relates to materials produced by human activity, and the process is generally undertaken to reduce their effect on health, the environment, Waste management is a distinct practice from recovery which focuses on delaying the rate of consumption of natural resources. Recycling refers to the collection and reuse of waste materials such as empty beverage containers. The materials from which the items are made can be reprocessed into new products. Material for recycling may be collected separately from general waste using dedicated bins and collection vehicles, or sorted directly from mixed waste streams. Kisii municipality produces an average of 20 metric tones of solid waste per day. Solid wastes are a by-product of a broad spectrum of industrial, service and manufacturing processes. Primary high-volume generators of industrial solid wastes include the metals, and wood, paper, leather, textile and transportation industries. Secondary smaller

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generators include auto and equipment repair shops, electroplaters, construction firms, dry cleaners and pesticide applicators. The two acre site behind Kenya Medical training College serves as the town's main refuse disposal site. But the area's residents want it moved elsewhere. Solid Waste Management is a major problem world-over and it offers several challenges from clogged drainage and sewers, waterborne diseases like typhoid, cholera and diarrhea, increased upper respiratory diseases from open burning of the garbage to malaria. Sustainable solid waste management is a new concept of dealing with waste which is gaining currency in Kenya. Waste management has been the responsibility of local authorities but the scenario is changing with the realization that local authorities on their own are not capable of managing waste. Solid waste management is an expensive venture gobbling up to 30 to 50% of revenues. (Recycling From e-waste to resources in July 2009) An important method of waste management is the prevention of waste material being created, also known as waste reduction. Methods of avoidance include reuse of second-hand products, repairing broken items instead of buying new, designing products to be refillable or reusable such as cotton instead of plastic shopping bags, encouraging consumers to avoid using disposable products such as disposable cutlery, removing any food/liquid remains from cans, packaging, and designing products that use less material to achieve the same purpose.

Problem statement

This study focuses on the entrepreneurial ability of the informal waste management and disposal enterprises in Kisii municipality the problems and opportunities of informal waste management and disposal enterprises in Kisii municipality. Youth groups have formed waste management and disposal enterprises to collect organic and inorganic wastes as means of cleaning the environment and generating income through the sale of the inorganic wastes. There has been concern that the youths are vandalizing the private and public property to obtain or gain access to inorganic waste hence pitying the enterprises with the general public. The central purpose of the study is to assess the entrepreneurial ability of the informal waste management and disposal enterprises and their success in improving the environmental cleanliness and town development goals despite the negative impression that people have created on them.

Literature Review

Theories of Entrepreneurship

Streams of theories that attempt to explain the origin of entrepreneurship in individuals have emerged and put together the various contributions over time. These theories explain the origin of entrepreneurship in individuals. They attempt to answer the question of why some people or even some communities are more entrepreneurial than others. The theories revolve around the roles of inborn traits and the environment in providing answers to the question.

Traits Theories

Traits theories hold that entrepreneurs are born not made. Through interviews with over 500 entrepreneurs over a three-year period Prof Allan Jacobowitz (cited in Garand, 2001) observed that entrepreneurs commonly share certain personality characteristics. These include: restlessness, independence, a tendency to be a loner, extreme self confidence, innovative, action oriented, high on need for personal control and highly autonomous. Trait theories such as Jacobowitz suggest that entrepreneurial aptitude is static-that is, either people are born with the related characteristics, or they are not. While personality and other individual differences may predispose individuals to entrepreneurial behaviour the dissatisfaction with the trait approach prompted a growing focus on identifying what the entrepreneur does (Bygrave and Hofer, 1991; Gartner, 1988). Some argue that situational factors such as the nature of the task and the environment have more impact on action than personality traits. However, if we

focus on what an entrepreneur does, it does not assist us in developing a better understanding of what encourages or discourages entrepreneurial activity as it ignores how perceived opportunities are constructed (Brockhaus and Horwitz, 1985; Gartner, 1989; Gibb, 1993; Mitchell, 1979). Some of the traits that entrepreneurs possess and that are expected to be genetically related include: restlessness, independence, a tendency to be a loner, extreme self confidence, innovative, action oriented, high on need for personal control, highly autonomous. The other theoretical basis for explaining and predicting entrepreneurial intentions are Shaper's 'entrepreneurial event' model as well as in Azjen's (1991) more general theory of planned behaviour. Indeed, both of these frameworks provide similar explanations of individuals' entrepreneurial intentions as being a function of the perceived feasibility and desirability of entrepreneurial behaviour (Krueger and Brazeal, 1994).

Entrepreneurial Events Theory

Gibb, A.A (1993) advanced a process model of new venture formation which included what they called a displacement event. They argued that inertia guided human action and as a result there needed to be a displacing event to push or pull an individual to change course, and in this case to found a business. This displacement has also been called the 'trigger' or 'precipitating' event. This model is more dynamic and suggests that entrepreneurial intention is based on the interaction between personal characteristics, perceptions, values, beliefs, background and environment (situational context). They base this approach on a model of the entrepreneurial event in which entrepreneurship is defined as "the pursuit of an opportunity irrespective of existing processes" (Delmer, Davidson, 2000). Unlike the traits models, this approach incorporates the influence of environment, and the notion that entrepreneurial behavior is planned and intentional. This approach is process-focused in that the interactions of several factors are examined in order to predict behavior. Beliefs, perceptions and assumptions are learned within the context of a given environment such as a business or community. These attitudes and perceptions predict intentions, which in turn influence behavior. Entrepreneurial intention is thus mediated in the following manner: Environment or event causes an individual to form perceptions, attitudes and assumptions (consider the assumptions and beliefs that might be formed in a change-oriented environment as opposed to a static environment). These perceptions then translate themselves into intentions, or potential. Intentions or potential then are expressed through behavior. Thus, this model suggests that entrepreneurial characteristics not only can be learned, but also can vary across individuals and situations.

While Gibb, (1993) did not propose their model as an intentions-based model, it was quickly seen as precisely that by many and has since been so utilized in entrepreneurship literature. They sought to identify key social factors that led to what they called 'entrepreneurial events', or the act of starting a business. Central to their model were the perceptions by the individual of the desirability and feasibility of launching a new venture combined with some propensity to act on opportunities, and then triggered by a displacement event. While many variables would be expected to influence an individual's intentions to act in a certain way, research supports the mediating effect for the three variables outlined in the model, namely perceived desirability, perceived Feasibility and propensity to act (Krueger, 1993). As a process model, the displacement made one open to consideration of different paths that he/she could choose. They proposed that any path being considered had to be perceived as not only desirable but feasible, and that there had to be some general propensity to act on an alternative. In their view, an individual's conclusion that an alternative was attractive and doable was an insufficient condition to action; hence, their belief that there must be some predisposition to act on opportunities for a new venture startup to actually take place. Displacement events were conceptualized as situations, positive, such as an opportunity is presented to get into business for oneself, or negative, such as being laid off from a job, or

more neutral as in life-transition situations, such as graduating from college. To Shapero and Sokol, these were necessary to break people out of the 'ruts' they develop over time. In terms of family business, the transition event could be viewed as the displacement event that would possibly trigger the entrepreneurship in offspring who otherwise considered other options in life. The demise of the founder for instance could become the event that as a matter of necessity, one has to take over the family firm even if they did not wish to. The PET suggests entrepreneurial intention is based on the interaction between personal characteristics (perceptions, values, beliefs, background) and environment (situational context). Unlike the traits models, this approach incorporates the influence of environment, and the notion that entrepreneurial behavior is planned and intentional. This approach is process-focused in that the interactions of several factors are examined in order to predict behavior. The Beliefs, perceptions and assumptions are learned within the context of a given environment (such as a business or community). These attitudes and perceptions predict intentions, which in turn influence behavior. Entrepreneurial intention is thus mediated in the following manner: Environment or events causes an individual to form perceptions, attitudes and assumptions. These perceptions then translate themselves into intentions, or potential. Intentions or potential then are expressed through behavior. This model suggests that entrepreneurial characteristics not only can be learned, but also can vary across individuals and situations.

$$E = f(Pc, I env.)$$

Where:

E =Entrepreneurial aptitude
P c =Personal characteristics
I env = Individual's environment

A rising trend in the number of entrepreneurship education initiatives supports the idea that entrepreneurs can be made, and thus the sentiment that entrepreneurship can be taught. Currently, entrepreneurship centers are opening worldwide offering programs or majors in entrepreneurship. It is suggested that economic shifts have sparked the increased interest in entrepreneurship. Entrepreneurialism is mediated by an atmosphere that foster innovation and change and provide appropriate mentors and role models. Information cues about the norms and culture of a given environment appear to be important, informal sources of education for would-be entrepreneurs.

Theory of Planned Behavior (Venture theory)

Ajzen (1991) argued that considered actions are preceded by conscious decisions to act in a certain way. He further theorized that these intentions were the result of attitudes formulated through life experiences, personal characteristics and perceptions drawn from these prior experiences. This model offers a more dynamic approach to entrepreneurial behavior. It explains sustained and repeated entrepreneurial behavior (venturing). In essence, the model moves beyond attempting to explain why individuals initiate ventures to why or how entrepreneurs are motivated to continue with the behavior as a career choice.

$$E=f(Pc, Ienv, Benv, Pgoals, Vbi)$$

Where:

P c – Personal characteristics
I env – Individual's environment
B env – Business environment
P goals – Personal goals
V bi – Viable business idea

Through these interacting factors, individuals make several comparisons between their perceptions of a probable outcome, their intended goals, intended behavior and actual outcomes. The model predicts that when the outcomes meet or exceed perceived outcomes,

positive behavior (continued engagement in entrepreneurialism) is reinforced. It also predicts that the opposite occurs when the perceived outcomes are not met. This model clearly incorporates psychological, behavioral and situational factors.

Entrepreneurial Personality Traits

Entrepreneurship is a construct viewed differently as a set of personal characteristics and as a set of behaviors. Is there a typical person who becomes a successful entrepreneur, Can anyone become or does it require a certain type of person to make it in entrepreneurship, It is necessary to identify the personality types who are more likely to give the business the necessary acumen for success. (Ajzen, 1991) Personality traits are constructs used to explain the irregularities in people's behaviour. They help to explain why different people react differently to the same situation. Various personality traits have been identified as important influences in successful entrepreneurship. Three personality constructs have emerged as "classic" characteristics typically associated with entrepreneurial personality: Locus of control, Need for achievement (n-Ach), and Risk taking Locus of control is an attribute indicating the sense of control that a person has over life. Enables an entrepreneur to sustain the drive and energy required to overcome the inertia in forming and managing a new venture and ensuring its growth. An entrepreneur requires both internal and external locus of control. Knowledge of self is critical in developing the motivation to venture. (Cooper, A Woo and Dunkelberg 1980) Closely related to self confidence, personal judgment, discipline, self starter, assertiveness and resilience.

It relates to need for being one's own boss and need for an individual to be recognized. He identified three characteristics present in entrepreneurs: individual responsibility for solving problems, setting goals and reaching these goals through own effort, moderate risk taking as a function of skill and knowledge of results of decisions/tasks accomplished. Risk includes financial, psychological and social risks. It is calculated risk. Tolerance of risk, ambiguity and uncertainty, limit risk by defining/strategizing ends, limiting risk by controlling/monitoring means, minimizing the negative effects of stress, opportunity recognition Focus on opportunity, let understanding of opportunity guide understanding of other issues, know when to say no, information seeking, adventuring, courage Related to setting of personal goals, independence, ability to tolerate stress, focus, appetite for hard work Cultural factors that have an influence on entrepreneurship include: religion, personal relations (collectivity, masculinity), attitude towards risk, networking, among others. Culture also influences the beliefs that the future will be different from the present and that it will be created by us. Like the intention to act entrepreneurially, the decision to continue behavior is influenced by the interaction of various factors

Urban Environment

Sub-Saharan Africa is one region where this experimentation is actively occurring now, especially after the 1980s economic crisis which resulted in increased hardship for most of the region's poor. The serious problems which confront African cities as a result of the 1980s' economic crisis have been well documented (Kenya Gazette supplement, 2006). One enduring consequence is the inability of African governments to sustain adequate levels of urban services. As continuing economic hardship forces a growing number of migrants to urban areas in search of employment, an even greater strain is placed on urban pressure points like solid waste management. Both financially and physically, a Town may be unable to provide waste collection, especially to the urban poor occupying peri-urban or other geographically inaccessible areas. The urban poor are left to contend with waste disposal on their own. The lack of support given to the urban poor in this area has serious consequences on their health and on the urban environment. Thus, in cities of the developing world, the management of solid wastes is now an issue of vital importance to urban sustainability. As urban environmental problems worsen in developing countries, non-conventional approaches to urban pressure

points like waste management will have to be adopted. The recycling of solid and organic waste is one approach which has positive ramifications in creating informal employment and offering an environmentally sound solution to waste management problems. One alternative waste management technique is the urban poor's re-use of refuse. Waste recycling is often undertaken as a survival strategy when the urban poor are unable to obtain formal employment, and when non-waste resources are scarce or unaffordable. Waste re-use also plays a role in improving the urban physical environment. By reducing the total amount of solid waste headed for the landfill (or left lying to rot in the streets), recycling and composting are land-saving and pollution-reducing strategies. Waste re-use also plays a valuable resource conserving role: by recycling materials, further exploitation of scarce natural resources is minimized, thus containing the spreading ecological footprint of the Town. Despite these environmentally and socially beneficial aspects of waste recycling, it is not without its negative impacts, which include exploitation by waste buyers and poor health and living conditions for the urban poor who deal in waste picking (Reynolds, 1997).

Waste management is identified as one of Kisii municipality's key environmental issues and is therefore the focus of this study. Local residents fondly recall the days when Kisii municipality was a clean, efficient Town. Researchers in Kenya and abroad discuss the externalities of structural adjustment; how the ability of local authorities to deliver services to urban residents has been hindered by deficit reduction, civil service streamlining. Local residents and researchers alike show concern for the impact that the lack of adequate waste management has on low-income urban residents. Both local residents and researchers are also looking for solutions which not only mitigate the environmental problems of waste, but also enhance informal waste management and disposal enterprises development efforts by generating income, sharing information and labour, and uniting informal waste management and disposal enterprises members in collective action. The lack of well paying formal sector employment opportunities due to slow economic growth, SAPs and the accelerated pace of urbanization has resulted in a growing *jua kali* sector in Kisii municipality. This sector has become an important alternative to employment in the formal sector and is estimated to employ approximately one half of the urban labour force, contributing twenty to thirty percent of total urban income (Shaver, K and Scott, L, 1991). For 1981-84, the growth rate of the informal sector (8.1%) was estimated to be twice that of the modern sector (4.1%). The sector caters for low-income consumers with the affordable goods and services the sector provides. Informal activities in Kisii municipality include street vendors, maize roasters, shoe shiners, auto-repairers, cart pullers, kiosk owners, street barbers, and water vendors, building contractors, charcoal sellers and furniture makers (Kim and Hunter, 1993). Organic wastes are not usually scavenged by waste pickers, but are important to street children who often pick through bins to find their next meal. Some of the larger restaurants and hotels also sell their scraps to farmers to be used as pig feed. Organic wastes are also important to the urban agriculture sector as all sorts of livestock, including goats, chickens and the occasional cow, feed on top of waste heaps.

Local Government in Kisii municipality and the Waste Management Situation

Responsibility for the provision of most urban services is allocated to the level of local government as a result of the British colonial heritage of the country. Because the westernized approach to service provision is failing, alternatives must be explored. In order to identify appropriate alternatives, the reasons for the failure of urban service provision must be established. (Kenya Gazette Supplement no. 57, 2007) Administration of urban areas in Kenya is the responsibility of local authorities and the Ministry of Local Government. Services provided by municipal governments in large urban areas include: primary education, health services, road construction and maintenance, water supply, sewerage, housing, solid waste management, drainage, markets, and social services. The problems

the waste management and disposal of Kisii municipality can be traced to both local and central levels of government. Staff at both levels suffers from a lack of decision-making authority, a lack of experience, a lack of accountability and heavy volumes of work due to under-staffing. There is also a lack of inter-local government cooperation in projects where coordination in planning and construction of infrastructure projects would result in significant cost savings. Smoke also identifies several financial problems that plague local authority: out-dated land rates, neglect in the collection of taxes, dishonesty of revenue collectors, inadequate enforcement authority, political pressure on officers to be less aggressive in revenue collection, and payment delinquency on the part of many government agencies and parastatals. Moreover, user fees for some urban services may be heavily subsidized to the point that the service is operated at a net loss (Waste management Regulation, 2005).

These problems are exacerbated by political difficulties at the Kisii municipality. Councillors are more concerned with the private accumulation of wealth than with the efficient management of urban services (Waste Management Regulation, 2005). There are also poor relations between the politicians and chief officers. The Kisii Municipal Council has been at the centre of these controversies. These organizational, fiscal and political problems faced by central and local government in Kenya have resulted in an inability to cope with the staggering rates of population growth and rural to urban migration. There is excessive strain on existing facilities and under-investment in new ones. Education, health facilities, and urban services including waste management are especially affected. Uncollected solid waste is one of Kisii municipality's most visible environmental problems: The municipal service which seems to fail most strikingly is garbage collection and disposal because it causes littering and untidiness which has an immediate adverse psychological impact. The lack of adequate garbage disposal in an area often results in negative attitudes that contribute to a general deterioration of informal waste management and disposal enterprises development and cohesion.

Research Methodology

Descriptive survey was adopted for this study; Descriptive survey involves collection and analyzing of data in order to answer questions concerning the current status of the subject of study. Descriptive survey was used because it is intended to provide statistical information about aspects of discipline that interest policy makers and educators. The research study involved the collection of data on the impact of entrepreneurial ability on management practices in Informal Waste management and disposal enterprises in Kisii Municipality. The study targeted all the staff in all the calibers in Informal Waste management and disposal enterprises so as to ensure as much representation as possible. These calibers informal waste management and disposal enterprise currently have staff strength of 50 employees. The researcher obtained the sample from a list of employees in the payroll register in the HR department which has categorized the employees according to the caliber and department where they are working. Questionnaire was developed and used to collect necessary information important for this research to enhance validity of the instrument a pilot study was carried out. This was expected to help the researcher in the identification of items in the research instrument, which might be ambiguous in eliciting the relevant information. Validity of an instrument was improved through expert judgment. As such the researcher sought assistance of research experts, experienced graduates, lecturers in order to help improve validity of the instrument.

Table 3.1 Staff Caliber

Caliber of Staff	Population Size	Percentage
Senior Management	6	12
Middle Level Management	4	8
Technical Level Staff	10	20
Lower Cadre Staff	30	60
TOTALS	50	100 %

Reliability of a research instrument refers to its level of internal consistency over time, Borg and Gall (1989). A reliable instrument therefore is one that constantly produces the expected results when used more than once to collect data from two samples drawn from the same population. To determine the reliability of the questionnaire, the researcher assessed its clarity so that those items found to be inadequate or vague were either discarded or modified to improve the quality of the research instrument thus increasing its reliability. The data was coded and analyzed using descriptive and inferential statistics. The descriptive statistics especially the mean scores, the standard deviations and percentages were used to show the extent to which the respondents agreed or disagreed with the statements in the questionnaire. The inferential statistics especially from the factor analysis and regression analysis were used to show the relationships between variables and the significance of the relationships. Results were summarized and presented in Tables and charts.

PRESENTATION, ANALYSIS AND INTERPRETATION OF DATA

Introduction

This section presents the data, its analysis and interpretation. It dealt with employees' questionnaires, interviews, document analysis, and observation schedule. The return of questionnaires given to employees is discussed below in the Table 1

Table 1: The sample and return rate

Caliber of Staff	Sample Size	Return rate
Senior Management	6	100%
Middle Level Management	4	100%
Technical Level Staff	10	100%
Lower Cadre Staff	30	100%
TOTALS	50	100 %

Analysis of the questionnaires for employees

Gender, Age and Educational level of the Respondents.

Below is a table discussing the gender age and educational level of the employees?

Table 2: Employees' Gender, Age and Educational level

Item		Frequency	%
Gender	Male	33	66 %
	Female	17	34%
Total		50	100.0%
Age	Below30 Years	8	16%
	31-40	6	12 %
	41-50	34	68.0%
	50 and above	2	4%
Total		50	100.0%
Educational level	Secondary	5	10%
	College	2	4.0%
	University	42	84%
	Masters	1	2%
Total		50	100.0%

Table 2 indicates that 33(66 %) of the respondents are male while 17 (34%) are female. It also shows that 8 (16%) of the employees were below30 years of age, 6 (12 %) were between 31 and 40 years, 34(68%) were between 41 and 50 years, while 1 (2 %) were above50 years of age. The table also shows that 5 (10%) of employees have attained secondary education, 2(4.0%) have college education, 42(84%) have attained university education while 1 (2%) have attained masters level of education. It is clear from this table that there were more male employees than female employees in the selected informal waste and disposal enterprises. This implies that most of the enterprises staffs are male dominated. It also shows that a majority of the respondents were between 41and 50 years of age. This is an

indication that most of the employees are mature people. It is also clear from the table that majority 105(83.3%) of employees are highly trained with attainment of University level of education. It is also clear that a small number of employees12 (9.5%) are untrained with only Secondary level of educational attainment. Employees' Duration worked in the informal waste and disposal enterprises Below is a Table showing the duration employees have worked in various informal waste disposal enterprises.

Table 3: Employees' Duration worked in the informal enterprises

Item		Frequency	%
Duration worked	Below 4 Yrs	17	34%
	5-10 yrs	25	50%
	11 yrs and over	8	16 %
Total		50	100.0%

From Table 3, 17(34%)of employees have worked in their current waste disposal enterprises for a period less than Four years while a major 25(50 %) have worked in their waste disposal and management enterprise for a duration of between five(5)and ten(10) years. This shows that the sampled employees have been in the waste disposal and management enterprise long enough and understand the waste disposal and management enterprise environment. It is also clear from the table that 8(16 %) of the employees, have been working in their waste disposal and management enterprises for more than eleven (11) years. Measures of central tendency, variance, skewness, and kurtosis were calculated on responses to all of the items. Skewness measures for all of the items were within the range of: +0.191 to +1.024, which is considered to be an excellent range for most research that requires using statistics appropriate to normal distributions. Therefore, we used statistics that assume scalar values and symmetric distributions to test our hypotheses. Confirmatory Factor Analysis (CFA) on the sixteen items was performed. Using Principal Components, as an extraction method, followed by Varimax rotation of components with Eigenvalue greater than 1.0, the data "unfolded" into three (3) factors. These three factors explained 63.40% of the variance in the sixteen items (see Table 4), and, in terms of convergent validity, all of the items loaded on the expected factors.

Table 4: Total Variance Explained – Rotation Sums of Square Loadings

Component	Total Variance Explained		
	Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %
1	4.118	25.738	25.738
2	3.339	20.867	46.605
3	2.687	16.794	63.399

Extraction Method: Principal Component Analysis

The Pearson correlation for the variables that were used in the regression model. The study findings indicated that the employee working in the informal enterprises entrepreneurial ability is positively correlated with better waste disposal and management in Kisii municipality. The positive correlations indicate that entrepreneurial skills used by employees and empowerment improve the waste disposal and management in Kisii municipality. By reducing the total amount of solid waste headed for the landfill (or left lying to rot in the streets), recycling and composting are land-saving and pollution-reducing strategies. Waste re-use also plays a valuable resource conserving role: by recycling materials, further exploitation of scarce natural resources is minimized, thus containing the spreading ecological footprint of the Town

Table 5: Pearson Bivariate Correlation Analysis.

<u>EA</u>	<u>EE</u>
EE 0.494**	0.452**
WMD	0.632**

** Correlation is significant at the 0.01 level (2-tailed).

WMD= waste disposal and management

EA = entrepreneurial Ability

EE = Employee Empowerment

A positive relationship between entrepreneurial ability and waste management and disposal by the informal enterprises

Table 5. Regression Coefficients ^{a, b}

R ² = 0.244		SEE = 0.872		F = 63.35;		ANOVA's Test Sig. = <0.0005	
Regression Equation: WD= 1.418 + 0.494 EA							
	B	Unstandardized Coefficients	Standardized Coefficients ^c	Beta	T	sig	
Constant			Std error				
Entrepreneurial ability	1.418	0.062				<0.005	
Waste disposal and management	0.494	0.062		0.494	0.959	<0.005	

a Dependent Variable: entrepreneurial ability

b Independent Variables: waste disposal and management

c Linear Regression through the Origin

SEE = Standard Error of the Estimate

Note that around 24.40% (R² = 0.244) of the variance in the entrepreneurial ability is explained by the variance in the perceived working experience and educational background. The ANOVA's tests are also significant at <0.0005.

Table 6: Parameter estimates of the relationship between the entrepreneurial ability of the informal waste and disposal management enterprises on the waste disposal and management.

CEI Vs WDI	Linear	Exponential	Logarithmic
Estimates			
R	0.305	0.251	0.285
R ²	0.093	0.063	0.080
A	0.042	0.661	-0.02
Model	CEI=0.042+0.305 WDI	Log CEI=0.661+0.251WDI	Log CEI= -0.02+ 0.283 log WDI

The variables informal waste and disposal enterprise Collective Efficiency Index (CEI) the dependent variable and the Waste disposal index (WDI) are examined for linear, exponential and logarithmic relationships. A Summary of Analysis of the parameter estimates of Relationship between waste disposal and management Index (WDI) and Collective Efficiency (CEI) are shown in Table 6. This shows that the relationship between waste disposal and management and informal enterprises Collective efficiency is linear since r=0.305 and R²=0.093 for the linear function are higher than those of log linear; exponential and logarithmic functions. This implies that the informal disposal and management enterprises affects collective efforts in waste management and disposal linearly and that there is need to deliberately develop infrastructure with a focus to supporting joint actions and collective efforts in waste management and disposal enterprises in particular. This would in turn contribute significantly to sustainable waste management and disposal in Kisii municipality.

RESEARCH CONCLUSION AND RECCOMENDATION

The research found out that 33(66 %) of the respondents were male while 17 (34%) are female. It also shows that 8 (16%) of the employees were below 30 years of age, 6 (12 %) were between 31 and 40 years, 34(68%) were between 41 and 50 years, while 1 (2 %) were above 50 years of age. The Table also shows that 5 (10%) of employees have attained secondary education, 2(4.0%) have college education, 42(84%) have attained university education while 1 (2%) have attained masters level of education. It is clear from this table that there were more male employees than female employees in the selected informal waste and disposal enterprises. This implies that most of the enterprises staffs are male dominated. It also shows that a majority of the respondents were between 41 and 50 years of age. This is an indication that most of the employees are mature people. It is also clear from the table that majority 105(83.3%) of employees are highly trained with attainment of University level of education. It is also clear that a small number of employees 12 (9.5%) are untrained with only Secondary level of educational attainment. From Table 3,

17(34%) of employees have worked in their current waste disposal enterprises for a period less than Four years while a major 25(50 %) have worked in their waste disposal and management enterprise for a duration of between five (5) and ten (10) years. Measures of central tendency, variance, skewness, and kurtosis were calculated on responses to all of the items. Skewness measures for all of the items were within the range of: +0.191 to +1.024, which is considered to be an excellent range for most research that requires using statistics appropriate to normal distributions. Therefore, we used statistics that assume scalar values and symmetric distributions to test our hypotheses. Confirmatory Factor Analysis (CFA) on the sixteen items was performed. Using Principal Components, as an extraction method, followed by Varimax rotation of components with Eigenvalue greater than 1.0, the data "unfolded" into three (3) factors. These three factors explained 63.40% of the variance in the sixteen items (see Table 4), and, in terms of convergent validity, all of the items loaded on the expected factors. There is a relationship between waste disposal and management and informal enterprises Collective efficiency is linear since r=0.305 and R²=0.093 for the linear function are higher than those of log linear; exponential and logarithmic functions.

Recommendation

The informal waste management and disposal enterprises sector needs to be included in the formal waste management efforts as both private and public sector actors are unable to provide waste services to low-income areas of the Kisii municipality. The involvement of the informal waste management and disposal enterprises sector as an effective way of increasing access of the poor to urban services, including waste management.

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