**URBAN COMMUNITY’S DOMESTIC ACTIVITIES IMPACT ON SUSTAINABILITY OF ROADS AND DRAINAGES INFRASTRUCTURE IN TANZANIA: THE CASE OF KINONDONI DISTRICT**

**ESPERATUS F. MUKYANUZI**

**A DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF PROJECT MANAGEMENT OF THE OPEN UNIVERSITY OF TANZANIA**

**2017**

## CERTIFICATION

The undersigned certifies that he has read and hereby recommends for acceptance by Open University a dissertation titled; “Project Proposal for Assessment of Urban Community’s Awareness of their Domestic Activities Impact to Sustainability of Roads and Drainages Infrastructure in Tanzania’’ in partial fulfillment of the requirements for Master of Project Management of the Open University of Tanzania.

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Dr. O. K Mbura

(Supervisor)

…………………………

Date

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Signature

……………………

Date

**DEDICATION**

I extend my appreciation to my wife Rosemary G. Shumbusho.

## ACKNOWLEDGEMENT

I would like to thank, my supervisor Dr. Omar Mbura of the University of Dar es Salaam Business School. His guidance at different stages from the research proposal to a fully dissertation has been valuable. He was persistently available, fully committed and supportive more often than not obliged to come earlier in his office than usual in order to make sure he meets me and helps me to put this work into its final product as it is seen now.

I am also obliged to extend my sincere gratitude to all parties who in one way or another were involved in the production of the dissertation. These include Municipal Director of Kinondoni District, the Ubungo Ward Executive and the respondents of Manzese and Ubungo Wards. I also extend my appreciation to the employees of TANROADS at Dar es Salaam Headquarter who responded whenever they were called upon.

## ABSTRACT

This study assessed the urban community’s understanding of their domestic activities’ impact to the sustainability of infrastructure of roads and drainages in urban areas. The study was carried out in two areas of Dar es Salaam regions namely Manzese and Ubungo, which are among the busiest areas that urban citizens seem to carry out their businesses activities alongside the infrastructures of roads and drainages. Specifically, the study examines the extent to which integrity amongst urban citizens’ community, level of education, economic level, level of poverty (income) and their level of understanding of general matters that governing the use of roads and drainages influence its sustainability. The sample size selected was 150 of urban citizens; it was conveniently selected. The study found that the levels of formal education was at a good level as 75 (50%) and 60 (40%) of respondents were having primary and secondary school education respectivelywhich can be influential in educating others over the message of sustainability of infrastructures. Level of integrity guided by the existence of institutions in urban area for monitoring damage of infrastructures was poor as only 68 (45.4%) of the respondents appeared to recognized its existence hence the reason behind poor handling of infrastructure. From the findings it is recommended that, for the sustainability of the infrastructures of roads and drainages to be viable and sound, institutions concerned should involve the public who are the main users of the infrastructures particularly at the initiation stage in order to instill sense of ownership. Institutions such as TANROADS would address the importance at all levels to all people within urban area. Other ways to support it should be by the way of improving the primary and secondary school curriculums which should incorporate the teachings of sustainability that will enable the impart of knowledge to the pupils who in turn would impart it to other citizens of the urban community.

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**LIST OF ABBREVIATIONS**

ABD African Development Bank

DLAs Dar es Salaam Local Authorities

IDA International Development Agency

KASUPDA Kaduna State Urban Planning and Development Authority

KEPA Kaduna Environmental Protection Agency

NZM New Zealand Merino

REPOA Research and Poverty Alleviation

RF Road Fund

RFB Road Fund Board

RMI Road Maintenance Initiative

SNA Social Network Analysis

SPI Social Performance Indicator

TANROADS Tanzania National Roads Agency

USA United States of America

**CHAPTER ONE**

**1.0 INTRODUCTION AND BACKGROUND TO THE STUDY**

**1.1 Introduction**

This is an introductory chapter. It lays the foundation of the study. This chapter consists of background of the study, statement of the problem, research objectives, and objectives of the study, research questions, and significance of the study, scope and limitations of the study as well as organization of the study.

**1.2 Background to the Study**

The transport system in Tanzania consists of five modes. These comprise of roads, rail, water, air and pipeline. The road transport sub-sector is a major mode of the surface transport comparing to the other modes as it is the cheapest, popular, and convenient, and can be afforded by many people regardless of the mechanism used. Though important, high proportion of it was not modernized overtime due to limited resources to invest into the sub-sector and because of large amount of infrastructure to be maintained (AfDB, 2013).

In Tanzanian, the sub-sector has undergone several restructuring. In the early 1970’s under the financing of IDA, the Government of Tanzania embarked on the mobile maintenance system with an objective of improving the maintenance of the road infrastructure. According to Lyatuu, (2000), in 1973, a study done earlier by Mckinsey and Company Inc titled ‘’Making Comworks’’ became the basis of the then decentralization that took place in 1974. Prior to the study, IDA had funded another consultant; M/S LyonAssociates Inc of Baltimore Maryland-USA to conduct a study on “ Tanzania Highway Maintenance and Organization.’’ The aim of the study was to carry out all engineering, organizational; economic and financial studies required at the time to provide the Government of Tanzania with a five year program 1972-1976, for the rehabilitation and maintenance of National Highway System. The study also recommended which Districts Roads should be included in the COMWORKS maintenance program and best methods and organizations needed to take over and maintain them as well asthe recommendations for the improvement of highway construction and maintenance organization.

The concept behind these reforms were for improving the rate of delivery of the level of service with respect to road maintenance which at that time had deteriorated below the required standards as measured against by the usual methods which were in use at the time (Brushett, 2005). The road maintenance at the time could not cope with the rate of deterioration of roads as well as fear of an act of disinvestment of losing sacrifice of past investment. The mobile maintenance proved a failure within about two years in 1974 during the decentralization as mention earlier.

In trying to strengthen the Regional Administration, another major restructuring took place in the sector which involved transferring the development and maintenance of the trunk and regional roads to the Regional Engineer and making him/her responsible for theentire road network within the region (Lyatuu, 2000). The road maintenance reforms in Tanzania and in African countries are well documented further by the World Bank’s Road Maintenance Initiative (RMI) unit. The reforms were for the road management and maintenance systems (Kumar, 2002). The reforms focused on improving the level of service in the road sector. Tanzania was among the first African countries to adopt it where the Parliament of the Republic enacted the Road (Amendment) Toll No.2 Act in July, 1985. The toll was for collection of funds from tolls and be treated as part of government taxes.

Its further improvement involved its commercialization with the establishment of two declarations; the special Road Fund and Local Government Road Fund in 1990 and 1991 with the objectives to finance maintenance and rehabilitation for regional core network and to finance urban and district roads respectively. Its consensuses, acceptance and political will were achieved in 1998 when the Road Toll Act was enacted by the Parliament of the United Republic of Tanzania. It was an attempt to give the fund some legal force and secure stable financing for road maintenance. The attempt led to establishment of the Road Fund (RF) and the RF Board (RFB). The Road Fund resulted in the increase of road maintenance which assumed 90% of the funds whilst 10% for road development, upgrading and for local costs compensation and counterpart funds for projects financed donors.

In subsequent years as further developments to the road sector reforms and as the most notable developments on several institutional sectors, the government transformed its semi-agencies whose functions are operational or service delivery in nature (Kumar, 2002). In the roads sector, the transformation involved the establishment of Tanzania National Roads Agency (TANROADS) as an autonomous and commercially oriented agency on 1st July, 2000.

All infrastructures upon built including all start as projects need effective project management and sustainable construction or development. Effective project management must benefit from the 4E’s (Economic, Effective, Efficient and Ethical), while sustainable development must benefit from the 4 Poles/factors (social, technology, economic and environmental). The ‘’effectiveness’’ factor a project relates to the ‘’social’’ poles of a development (which is effective use of people). The ‘’efficiency’ factor of a project maps to the technology pole of sustainable development, as this is efficient use of resources including materials, land, space, water and plants/equipment needed to achieve required objectives.

The ethical factor/integrity within project management links to the environmental pole of a project. This makes everyone ethically responsible for the environment impact. The commonality between the poles and the factors is economic aspect *(*Mensah, *et.al,* 2012*)*. The Sustainable development can be accelerated by Community participation such as private sector, priorities and traditions (Shafqat, 2010). Considering the importance of community participation under the poles of sustainability, an assessment should be made to determine how the integrity, economic level, education level and general understanding of urban community help inmaking the infrastructure of roads and drainages sustainable particularly during their performance of domestic or business activities alongside it.

**1.2.1 Profile of the Kinondoni Municipal**

According to the Dar es Salaam Infrastructure Development Program 2010 report, Kinondoni District is found north of Dar es Salaam region. It is largest populated Municipal among the three of the region. This is reflected in higher traffic volumes, higher amount of solid waste generated and intensive socio-economic activities. It is where the majority of Dar es Salaam higher and middle income population resides. The District also collects more revenues than the other DLAs (Dar es Salaam Local Authorities). It has 531sq.km of land which is 36% of the whole percentage of Dar es Salaam Region. By the year 2002, it was estimated that Kinondoni Municipal had 1.1 million people which is 44% of the whole population of the region of Dar es Salaam.

The City road network is divided into four categories, namely national highways, arterial roads, distributor roads and local roads. The Municipal councils are responsible for maintaining urban distributor roads and local roads. The Ministry of Infrastructure through TANROADS is responsible for maintaining the major roads. By May 2010, there were about 466 Km of paved and unpaved roads in the whole region of Dar es Salaam which were under the responsibility of TANROADS. The City has the responsibility for a total of about 2,170 Km of which only 411 Km (i.e. 20% of the whole) were in good condition.

Together with other Municipals, Kinondoni Municipal has several challenges connected with poor state of roads. These challenges include addressing insufficient coverage, connecting emerging settlements, rehabilitating and maintaining road networks, integrating flood control and protection. By May 2010, Kinondoni Municipal Council had 106 Km roads that were in good condition; 31 Km were in fair state, while 557 Km were in poor state. In March, 2010, US$ 110 million were required to construct/rehabilitate around 167 Km of road networks in all of the three municipals, of which US$ 40 million alone were for Kinondoni Municipal to rehabilitate 61 Km of roads that were in poor condition.

Government and other stakeholders face challenges to ensure that the expensive infrastructures of roads and drainages put in place achieve sustainability. In this challenge, the urban community seems to contribute the least in the role of ensuring that the sustainability is achieved particularly during their performance of domestic activities alongside the infrastructure of roads and drainages.

**1.3 Statement of the Problem**

Implemented infrastructures projects of roads and drainage just like any other projects, experience difficulties in post implementation sustainability. This is a concern to major donors and stakeholders such as World Bank, Asian Development Bank, Bilateral aid agencies, including African governments such as Tanzania which incur large sums of money to execute the projects (Khan, 2000). Infrastructure sustainability is an important element for all stakeholders to realize the expected benefits, the highest maximum return of investment, andan improved and better access to the transportation by the community (Thorpe, 2002).

Symptoms of non-sustainability of projects are many; these may include the inability of projects not to see out their expected life span and failure of them to achieve the expected returns and benefits. Despite of these challenges, Governments and other stakeholders take initiatives to ensure that sustainability of infrastructure of roads and drainages is achieved. One of the indicative of the efforts is the existence of policies and regulations that govern the maintenance and preservation of roads in Tanzania. Because of this, this study intends to investigate on how the urban community residents through their performing of domestic activities alongside the infrastructure contribute to its sustainability.

**1.4 Research Objectives**

**1.4.1 General Objective**

The overall aim of the study was to examine the urban community’s domestic activities impact to sustainability infrastructures of roads and drainages in Tanzania.

**1.4.2 Specific Objectives**

The study was guided by the following objectives:

1. To establish the extent to which the level of integrity of urban citizens impact the sustainability of the infrastructure of roads and drainages through their domestic activities they carry alongside it.
2. To ascertain the extent to which the level of education of the urban community impact the sustainability of the infrastructures of roads and drainages through their domestic they carry alongside it.
3. To delineate the influence of economic level of urban community impact the sustainability of infrastructure of roads and drainages through their domestic activities they carry alongside it.
4. To assess the extent to which awareness of the urban community of government laws, by laws and regulations impact the sustainability of roads and drainages infrastructure through the domestic activities they carry.

### 1.5 Research Questions

The following questions guided the study

1. To what extent does the level of integrity of the urban community influence the sustainability of roads and drainages infrastructures?
2. To what extent does the level of education of the urban community facilitate usage of infrastructure of roads and drainage?
3. To what extent does the economic level amongst urban community citizens influence the sustainability of infrastructure of the roads and drainages?
4. To what extent does the level of awareness of the urban community citizens of government laws influence the sustainability of the infrastructure of roads and drainages?

**1.6 Significance of the Study**

It is expected that the findings of the study will help the government and other policy makers to strengthen the laws, bylaws rules and regulations that gover the maintenance of the infrastructures of roads and drainage. It will also assist the urban community to contribute through saving of the cost of maintaining by proper use of the infrastructure of the roads and drainage, it will is also for other researchers and finally it is for the accomplishment of the degree of master of project management.

**1.7 Scope and Limitations of the Study**

The study focused on urban people who carry out trading activities alongside the infrastructure of roads and drainages.. The study did not involve the drivers of the motor vehicles and motor cycles who could be termed to be the passersby whose impacts to the infrastructures could be discussed in other papers.

**1.8 Organization of the Study**

This chapter is organized into five chapters. Chapter One contains the introduction and background of the study, Statement of the problem, Research objectives, significance of the study, scope and limitations of the study. Chapter two provides the Literature review. It begins by defining key concepts and the theoretical review. It also provides the empirical literature review and conceptual framework of the study. Chapter three describes the research methodology. It explains the research philosophy, area of the study, the population of the study and the sampling design. The chapter also provides variables measurement procedures, methods of data collection, data collection, data processing and analysis and the expected results of the study. Chapter four is the heart of the study. It presents the findings of the study. It also analyses and discusses the findings of the study based on the objectives of the study stated in chapter one. Chapter five is a concluding chapter. It provides the summary of the findings, the general conclusion as well as the recommendations, including areas for the studies.

**CHAPTER TWO**

**2.0 LITERATURE REVIEW**

**2.1 Introduction**

This chapter provides the literature review related to the topic understudy. The first part defines key concepts used in the study. It further provides the theoretical perspectives, the empirical review and the conceptual framework of the study.

**2.2 Definitions of Key Concepts**

This section defines key concepts used in the study; they are project, urban community and sustainability.

**2.2.1 Project**

A project is a temporary endeavor undertaken to create a unique product, service or result (PMBOK, 2000). The world temporary means that every project has a definite beginning and a definite end. The end is either reached when the project’s objectives have been achieved or when becomes clear that the project objectives will not or cannot be met. Temporary does not necessarily mean short run in duration; many projects last many years. However, the duration of a project is finite. Projects are not ongoing efforts, temporary also does not apply to product, service or result created by the project. Most of the projects are created to create a lasting outcome in terms of the products, service or results. Unique means that every project creates unique deliverables, which are either products, service or results, and each one of these, are different and in distinguished form from all other previous products, services or results (Ibid).

**2.2.2 Stakeholders Participation**

Stakeholders are the people who in one way or the other have an interest or contribute to the project and or are deemed to be impacted by the project (Khan, 2000). Various factors/dimensions influence the sustainability of the project, community (people) dimension is among them others being Economic, Logistic, Equity, Institution and Environmental dimensions. Stakeholders are responsible for foreseeing the operations of the project occasionally or on daily basis if there is a creation of long term shared value.

**2.2.3 Urban Community**

The urban community means the external community of town areas which consist of people or organizations affected by the infrastructures of roads and drainages (Thorpe, 2012). They could be property owners or tenants bordering or near the road, people who depend on the road for delivery of goods and produce, taxpayers who pay for the road, and other people impacted by the road. The road may either deliver to this community benefits (better access to transportation, improved property values) or costs (noise, pollution, resumed property, reduced access to local facilities). They are likely to be the group most directly impacted by the presence of the road and have considerable influence within the local social environment.

**2.3 Theoretical Perspectives**

This section covers the definition of sustainability of the project and its dimensions that are capable of influencing project sustainability if they are in coordination.

**2.3.1 Sustainability of the Project**

Sustainability is an ability of a project to maintain its operations, services and benefits during its projected life time or in its implementation stage. In pondering the issue of sustainability should also be seen within time and changing social, economic and political contexts. A project that is seen as worth today may not be so in the future. In public sector activities this decision is crucial and should be made right at the planning stage. This will then help incorporating those elements that are relevant for sustainability, (Khan, 2000).

**2.3.2 Factors of Project Sustainability**

 Depending on a sector or a project in question, there are factors/dimensions that if available and work in unison are capable of influencing project sustainability. The dimension can be from Logistics which implies necessary support budgetary and institutional wise to enable the maintained level of facilities to a project. It could also involve Economic Dimension which implies the continued flow of net benefits by weighting properly given varying conditions all costs and benefits and that the project guarantees an acceptable level of financial and economic return. Community Dimension on the other hand, implies the involvement of the community which can stimulate new actions and for cost recovery of the project in question. Incorporated in this is an Equity Dimension which means the project inclusion of mechanisms that guarantee equitable access to and distribution of project benefits on a continuous basis. Institutional Dimension and Environmental Dimension imply the consideration of adequate institutional requirements and provisions for management support of project operations (Khan, 2000).

**2.4 Empirical Literature Review**

Studies under the project management and sustainability have been done by different researchers, this study attempts to utilize the information from these studies so as to understand the topic under study and fill the knowledge gap.

**2.4.1 World Related Studies**

In a study on causes and effects of water logging in Dhaka City, Bangladesh Tawhid, (2004) intended to find the factors behind the causes of water logging in the Capital city of Dhaka, Bangladesh. The study also investigated the effect of water logging and provided the recommendations for its better management. The study outlined the growth of the city into mega city in the world and extensive monsoon rains as among the causes. The methodologies used to conduct the study were the questionnaire survey; informal interviews and open discussion. A total of 100 respondents from different organizations were involved, experts and local people living in different parts of the Dhaka City.

The study found that causes of water logging were due to the increase of human activities which comprised of waste management which accounted to 82%. The study revealed that, Dhaka City with a total population of about 10 million generated a massive quantity of wastes every day from various sources. Major sources of solid waste were from residences, streets, market places, commercial establishment, and hospitals. Sources and characteristics of wastes showed that domestic wastes comprised 40%-60%, commercial wastes 5%-2% and street sweeping 20%-30%. Other causes comprised 20% to 50%. The composition of solid wastes varied according to location, standard of living, energy sources and season. Despite the findings, the study did not reveal how responsible the urban community as one of the factors/dimensions of project sustainability of infrastructure was not addressed. This study therefore intended to fill this gap.

In their study ‘’Building in sustainability, social responsibility and value co-creation, Biggeman *et al.,* (2013) aimed at addressing the question of how value can be created through social responsibility programs or other means in order to achieve sustainability. The findings were handled by two embedded Case Studies. The first case study was in the mining industry and the second in the fashion industry in New Zealand. The Case study number one was for a large mining company where the main focus was on the effects of the company’s relationships with stakeholders on sustainability.

Multiple strategies for data gathering were used in this study. These included the study of the sustainability development practices in the context of the mining industry in the region; it also included the study of the published reports from mining company’s website, affiliated stakeholders’ websites and online search in news articles. The second stage consisted of interviewing two company’s field managers working in sustainability in five key stakeholders groups. The informants of the in-depth interviews were key decision makers representing their organization with expertise in the arena of sustainability in the organizations. Case study number two involved the New Zealand Merino Company. This is an integrated marketing and sales and facilitator for the New Zealand merino wool industry.

A total of eight semi-structured interviews lasting in an average of one hour were conducted to collect the desired information; four within the company, two with retailers and two with wool growers, senior and key account managers and owners were typical interviewees. The interviews were tape-recorded and fully transcribed for analysis; thematic networks were used for data analysis. The study found out that, sustainability can be increased by increasing stakeholders’ participation in the process of design and selection of programs as transparency is maximized with trust built over the lasting benefits of co-creation value. The study did not reveal how the communities as one of the dimensions in achieving project sustainability contribute towards it while carrying out their normal activities.

Doloi (2012) studied on stakeholders’ influence on social performance of infrastructure projects. It was carried out in Australia. The aim of the study was to develop a framework for an accurate understanding and assessment of social performance and value creation of public infrastructure projects. The study wanted to measure the social sustainability performance of projects within sustainable development context by quantifying terms of social benefits flowing to the stakeholders and to community at large. The study used a Social Network Analysis (SNA) as a methodology for developing a framework for evaluation of social performance based on stakeholders’ networks and their influence in the project. A case study was then used to demonstrate the applicability of the framework, integrating the impact of stakeholders and their satisfaction level.

A social performance indicator (SPI) was synthesized as a measure for quantifying social sustainability in projects. The study revealed identification of subsystems functioning in social sustainability as economic, political and cultural systems. Social performance required the project to produce immediate benefits for stakeholders rather than simply the creation of shareholders alone. The findings revealed that, infrastructure projects are backbone of national economy in any country due to involvement of a multitude of stakeholders.

It was also revealed that, development of these projects is highly complex, success or failure of it are highly dependent on the perception of communities at large rather than the technical characteristics such as type and size of the physical facility alone. The study also revealed that, community perception is usually based on how well a particular project performs in a social context while the economic and environmental performances of these projects are as important as social performance. Given all the findings, the study did not reveal how well the community as one of the dimensions through their normal activities impact in the sustainability of these infrastructures.

**2.4.2 Africa related Studies**

Mangzvo (2010) studied on illegal dumping of solid wastes in the alleys in the central business District of Gweru in Zimbabwe. The objective was to find reasons behind the alleys of the district having piles of waste. It also intended to analyze waste streams in the alleys, to discuss the perceptions of business community in the Central Business District over their actions towards such situation, the implementation of statutory regulations on environmental issues and recommending the best ways of dealing with waste management in the area. The study was basically exploratory. It adopted a number of strategies to elicit data on illegal dumping of waste in the alleys.

In order to conduct the study objectively, observations were undertaken in the alleys. Interviews were carried out with the health officers of Gweru City, the street cleaners, the business community and members of the public. Questionnaires which mainly sought perceptions of business community were administered mostly to shop owners who were randomly selected. Observations showed that both the size and the number of waste heaps continued to grow as days passed by. The study found out that the prevalence of solid waste dumps was due to non-collection of waste by the municipality. There were number of factors such as financial, human and material resources that were attributed to the situation.

Members of public worsened the situation by having very little concern over the environment and dumping of their solid wastes. The study revealed that behaviors was indiscriminately done despite of the existing of statutory instruments that governed the hygiene of the city of 2007, the Statutory instrument 6 CAP 20.27. Despite the efforts, the study did not reveal factors behind the urban community’s behavior as towards the unfair treatment of the infrastructure that failedto ensurethe sustainability of the infrastructures.

Stanley *et al.*, (2008) assessed a households solid waste disposal practices in Sabon Gari Zaria. It aimed at assessing households waste disposal practice, agencies responsible for its management and its challenges it brought around the area. Thestudy was carried out through administration of questionnaire, checklist, and physical inspection, photographing of dump sites and interview with staff of Kaduna Environmental Protection Agency (KEPA) and Kaduna State Urban Planning and Development Authority (KASUPDA). A sample size of 150 was randomly selected where 150 questionnaires were administered to the respondents particularly where heaps of municipal solid wastes were found.

Statistical tools of mean, percentages and frequency where used to analyze the data. Findings were presented in the form of charts, tables and plates. Majority of the households revealed to use bins in keeping wastes, other means used were plastic bags, open dumps and the rest in other means. Methods of disposal of wastes were burning, where the study showed that the majority used this method. Other methods used were dumping, payment of agents for disposal services and in open dumping. The study also showed that, among other dumping areas were along roadsides and drainages.

The study further revealed that, most of households generated substantial quantity of wastes which were not properly disposed of. The study recommended for further community-based public enlightenment on the health impact due to improper disposal of waste in the environment. The government was advised to employ all necessary machinery to encourage and make household waste disposal in such communal routine; in addition to sensitizing households to provide bins for waste collection which should be evacuated regularly by paid agent for proper disposal to sale places.

Moruff, (2012) conducted a study on cultural understanding of space and waste disposal habit among the urban populace in Ibadan Metropolis, South Western Nigeria. The study objective was to know why despite of the measures taken in maintenance of the city, people’s attitude towards throwing of wastes remained unchanged. The study was carried out from twenty communities in Beere/Oje axis of Ibadan metropolis in Nigeria where poor waste disposal habit was visible. The study was based on ethnographic field work. The data were collected qualitatively from twenty communities.

The selection of informants was based on simple random, purposive and snowball sampling approach. A combination of structured and unstructured interviews (of key informants), focus group discussion, and observation techniques were used to elicit relevant data. The population study comprised all adults; officials concerned with waste management service system, including the agencies were also sampled and interviewed. The study revealed the inefficiency of government intervention which was viewed as a result of inadequate or misdirected project implementation. The findings further revealed that there were poor people’s concept on space management within Ibadan metropolis characterized by disorderliness and chaos. It was observed that people in the area dumped wastes in gutter and open drainages as if they were natural areas for dumping wastes claiming that upon rain coming it will clean it up.

The study also revealed that, economic, cultural, educational, institutional and environmental factors determined and informed people’s choice of waste disposal practices and habits in the area of Ibadan. The respondents eluded that, high unemployment rate, low income, poor living conditions, low literacy level, lack of recreational facilities and poor established human, physical and organizational structures within the urban communities were notable contributing factors that hindered adopting a proper and effective waste disposal habits. Culture habits of urban people of always wanting a manageable situation that would not make excessive use of their demands of time and resources were also among the findings of the study.

Asoka *et al.,* (2013) studied on effects of population growth on urban infrastructures and service the case study of Eastleigh Neighborhood Nairobi, Kenya. The objective of the study was to put into perspective the impacts of population growth on infrastructure and services provision in Eastleigh neighborhood. Its main themes were, to understand trends in population growth, to understand the impact of population growth on infrastructure and services and to explore available initiatives and their effectiveness in guaranteeing sustainable infrastructure and effectiveness services in the neighborhood. Data collection techniques broadly involved the use of questionnaires, face to face interviews, and in-depth interviews.

Observation and photography were utilized to identify physical parameters that were associated with ruined infrastructure and service negligence as a result of population growth. The survey findings indicated that, population growth in the neighborhood was occasioned by pull factors such as trade and investment opportunities. They were also contributed by factors such as refugee and droughts. The study showed that there was an increase in maintenance costs due to frequent repair of roads. High population led to illegal structures to emerge on road reserve; poor parking of trailers along the footpaths. The high population also caused carriage ways to be eroded due to construction of embankments from buildings that encroached on the roads.

The study further revealed that, the continued absence of formal and informal educations to most of the urban residents were the factors behind the increased throwing habits of wastes. The study suggested that there was a need to enforce existing legislation on physical development to help control the explosion of illegal and substandard developments alongside the infrastructures easements and drainage canals.

### 2.4.3 Tanzania Related Studies

The Sustainable Dar es Salaam Project (SDP) report on Poverty and Environment by Repoa (2003) conducted a study on the impact analysis of sustainable Dar es Salaam Project on Sustainable Livelihoods of Urban Poor. The study was carried out in Hannanasif and Kijitonyama wards of Kinondoni Division in Dar es Salaam. The study objectives were to find out the strengths and weaknesses in the institutional structure and associated legislation that support measures to improve the environment of the City of Dar es Salaam. The objective was to equip policy makers, particularly local government leaders, with an understanding of better means and ways of keeping the city safe and clean without depriving its inhabitants of their sustainable livelihoods.

The methodology used to collect data was purposive sampling. The systematic random sampling was used to select the sample wards. Wards executives secretaries were consulted during the selection. Hamlets in the respective wards and corresponding households were selected by simple random sampling using the lottery method with a combination of purposive sampling to include key elements for study (the poor, middle class and upper class households). Primary and Secondary data were used to collect the information needed for the study. The composition of primary data involved one survey document and administered to each household.

The survey was complemented with structured and unstructured interview with local government officials (Ward Executive Secretaries, Locality Chairpersons and Hamlets leaders) supplemented with focus group discussions with community leaders. Cross-sectional or panel surveys were also used for collecting qualitative open-ended interviews were perceptions on poverty, environment degradation, protection of environment, and prevention of poverty were gathered. Field observation was used to assess and verify information from secondary data and interviews on quantity and quality of services. The information from secondary data was collected from published and unpublished research/study reports, census results and other statistics from the National Statistics Bureau.

The study revealed how human activities such as petty trading, land encroachment, erection of buildings and waste management carried out uncontrolled and unplanned lead to the acceleration of poor environment and difficult in its management. It revealed the link between poverty and environment, individual awareness and environment, education and environment. Poverty as articulated by the study is inseparably linked to lack of control over resources, skills, knowledge, capital and social connections. It is the activities associated with poverty people in rural areas that link to environmental degradation and to de-forestation.

The study further revealed that the depleted environment tends to hurt more poor people than the rich ones as the poor depend more on it than the later. From the findings of the study in urban areas, rapid deterioration of environments tend to relate with increase of poor people and their lack of settlement patterns; as they settle in squatter from villages in search of employment lead to poor sanitation system. Lack of decision making because of the poverty culminates to link between poverty and environment. The study suggested the issue of poor land management to be solved by a participatory approach and public/private partnership approach in order to restore habitable environment of Hannasif and Kijitonyama.

### 2.5 Conceptual Framework for the Study

Figure 2.1 provides the conceptual of study. With the independent variables, if they are strongly provided or are available to the urban community its impact will be felt directly and indirectly to the existing sustainability of infrastructure of roads and drainages. If the independent variables are weak, negative impacts will likely be felt to the sustainability of infrastructure in question. It is not necessarily that all of them should be strong in a combined way; one or two of them or more can be strong and thus cause or bring about the sustainability desired, though the combination of them would provide stronger results.

In an absence or weakness of any of the independent variables it is likely to cause missing or under/below desired performances or results. Figure 2.1 below shows that the government has triple roles, in that it plays a role of bringing or cause about the availability and improvement of the independent variables if exist. Secondly, the government is the provider and administrator of the policies, laws, regulations channeled, of which two of these roles through urban community will ensure the desired sustainability of infrastructure of roads and drainages. Thirdly, the government has a role and interests in ensuring that the expected benefits of sustainability of infrastructure of roads and drainages are being realized as it was planned.

**Independent Variables Dependent Variable**

|  |
| --- |
| Urban Community Domestic Activities Dimensions  |
| 1.Intergrity Level2.Economic Level3.General Knowledge4.Education Level |

Sustainability of Infrastructure of Roads

And Drainages

**Figure 2.1: Conceptual Framework of the Study**

**Source:** researcher, 2017

**CHAPTER THREE**

**3.0 RESEARCH METHODOLOGY**

**3.1 Introduction**

This chapter presents methodology used in this study. The chapter describes the population of the study, sampling plan and frame- sample unit, sample size, sample procedure, variables and measurement procedures. The chapter is concluded by discussing the approaches used for data collection and analysis.

**3.2. Research Philosophy**

The positivism research philosophy was used to support the quantitative methodology that was used to collect data. The positivism research paradigm claims that, knowledge is statistically generalized to a population by statistical analysis of observations about an easily accessible reality Sobh et al., (2006). Therefore, in this case positivism paradigm is used to test the theory of sustainability of projects to examine that generalization can be made that an existence of various factors/dimensions, urban community dimension included do influence sustainability of infrastructure projects of roads and drainages or not.

**3.3. Area of Study**

 The study was conducted in the Kinondoni District in Dar es Salaam Region. The reason behind selection of the District is because; this is one a busier district than the other two Districts of Dar es Salaam Region. It is the district with a lot of domestic activities and higher amount of wastes production (Dar es Salaam Infrastructure Development Program, 2010). The researcher also chose the district because it is the district where he resides and thus he afforded to reach the research areas with ease taking into consideration with his constrained budget he had to operate under.

**3.4. Population**

The population of the study was all urban individuals who are supported by the said infrastructures, as they live, develop structures, and conduct businesses alongside the infrastructures of roads and drainages. They excavate sands and involve themselves in removal of infrastructures built materials. The population of the study was from Kinondoni District of which according to the national census of years 2012, it was 1,775,049 for both sexes of which females were 914247 and males were 860,802 (Populations and Housing Census, Population distribution by Administrative Areas. National Bureau of Statistics, Ministry of Finance, and Office of Chief Government Statistics President’s Office, Finance Economy and Development Planning Zanzibar, 2013).

**3.5 Sampling Design**

The sample design involved one type of respondents, who filled the questionnaires in order to cater the quantitative side of the study

**3.5.1 Sampling Unit**

The sampling unit was all urban citizens conducting either domestic or business activities alongside the infrastructures of roads and drainages.

**3.5.2 Sampling Size**

The sampling size involved 150 respondents who filled the questionnaires. The size of the sample is considered adequate as it exceeds the minimum number provided by the formula N=104 +M, where M is the number of independent variables i.e. 104+4=108 (Mbura, 2007).

**3.5.3 Sampling Procedure**

The sampling selection involved the use of convenient sampling method because the population list of the urban community was not available and population items were not readily numbered at the time of conducting the study Kothari, (2004).

**3.6 Variables and Measurement Procedures**

The information needed was for the assessment of urban community’s awareness of their domestic activities impact to sustainability of infrastructure of roads and drainages. The dependent variable here is sustainability of infrastructure of roads and drainages. The independent variables of the urban community assessed are education level, level of integrity, poverty level and general level of understanding or knowledge of the urban community. It is from the independent variables that the 5 point likert type of questionnaires were created and centered. This catered for the quantitative method side of the research. An ordinal scale type of measurement was used. The permissible statistics of median, percentiles and rank order correlation determined the types of statistical analyses that were conducted and hence the conclusion was made.

**3.7 Data Collection Methods**

Two types of data were used to collect the primary and secondary data in order to attain the collection.

**3.7.1 Sources of Data**

Primary data were collected using the pre-coded (survey)-the self-administered questionnaires for the interviewees so as to complete the quantitative side of the study; each item in the questionnaire were developed to address specific objective of the study. Documentaries reviews were completed as the part of secondary data as another source to complete the study.

**3.7.2 Data Collection Tools**

Questionnaires were used as data collection tools to complete the quantitative side of the study which is the only method that was used.

**3.8 Reliability and Validity**

The reliability and validity were done to test the dependability and quality/ rigor/trustworthiness of information and data collected from different sources.

**3.8.1 Reliability**

Reliability is the property by which consistent results are achieved when one repeats the measurement of something (Kothari 2011). A questionnaire used in similar population that produce similar results is termed as reliable. In this study, Cronbach’s Alpha was used as an instrument in order to test the reliability of information and data of the study collected among researchers.

**3.8.2. Reliability Analysis**

Cronbach’s alpha results were used to test the reliability; usually value of coefficient greater than 0.7 is usually deemed to be reliable and can be used for further statistical analysis.

**3.8.2.1 Cronbach’s alpha Results of the Test of Reliability**

The Cronbach’s alpha findings for each of the independent variables are as presented in Table 3.1.

**Table 3.1: Cronbach’s Alpha Reliability Coefficients for each Studied Independent Variables**

|  |  |  |
| --- | --- | --- |
| **Independent Variables** | **No. of items in the Scale** | **Scale of Reliability** |
| Integrity | 5 | 0.7966 |
| Education | 5 | 0.7306 |
| Economic | 5 | 0.5605 |
| General Knowledge | 5 | 0.6849 |

**Source:** Field Data(2015).

The study consisted of 24 variables, in which 20 variables were in likert scale, 3 variables were nominal and 1 variable was discrete. There are 20 different variables that have been used in the study to generalize the findings of reliability. Reliability analysis was conducted to assess the chances of random error entered. Analysis has supported the study on how much variation are in scores of different variables in the study. The Cronbach’s alpha findings in regards to the independent variable of Integrity Level and Sustainability is 0.7966, for Education level and sustainability is 0.7306, Economic level and Sustainability is 0.5605 and for General Knowledge and Sustainability is 0.6849. Since findings for each construct is above 0.6, the instrument is considered to be robust (Saunders 2004).

### 3.8.2 Validity

The validity of the instrument for data collection was made by the researcher;a sample questionnaire paper was prepared and tested by giving it to few respondents to see if it could be understood and filled by the respondents. The supervisor made necessary improvement and approved it to be used to collect data for the study.

### 3.9 Data Processing and Analysis

The objective of this study was to assess the urban community’s their domestic activities impact to sustainability of infrastructures of roads and drainages. Data were collected by the use of questionnaires; theywerecomputed using simple statistical tools ofmean, percentages and frequency and standard deviations. The statistical tools were analyzed by the help of the SPSS to quicken the analysis.

## CHAPTER FOUR

### 4.0 FINDINGS, ANALYSIS AND DISCUSSION

### 4.1 Introduction

This chapter presents the findings of the study. It also analyses and discusses the findings of the study in line with the objective of the study stated in chapter one. The chapter begins by providing the socio-demographic profile of the respondents. It further presents analyses and discusses on the level of education and their employment status. Other findings include integrity level and sustainability, education level and sustainability, economic level and sustainability and general understanding of individual urban citizens in urban area and sustainability.

### 4.2 Socio-Demographic Profile of the Respondents

The demographic parameters were important as it helped to assess whether urban citizens’ demographic characteristics combined with their domestic activities could impact the sustainability of infrastructures of roads and drainages. The respondents interviewed were male and female. Their other background demographic characteristics included age, sex, education and employment status.

###

### 4.2.1 Gender of the Respondents

The respondents interviewed composed of both male and female. The approach to interview any male or female was of no priority. The approach was randomly made, as gender had no influence towards the objective of the study. Though no emphasis was made towards identifying the type of gender of the respondents, the study through Table 4.1 shows that of 150 respondents interviewed, males were 105 (70%) while women were 45 (30%). This reflects that the greater proportion of urban citizen conducting domestic activities alongside the infrastructure of roads and drainages were men as indicated by percentage.

##### **Table 4.1: Sex of Respondents**

|  |  |  |  |
| --- | --- | --- | --- |
| **Personal Particulars** | **Frequency** | **Percentage** | **Cumulative** |
| Male | 105 | 70 | 70 |
| Female | 45 | 30 | 100 |
| Total | 150 | 100 |  |

**Source*:*** Field Data (2015).

### 4.2.2 Sex of the Respondents

Respondents were asked to indicate their age. The objective was to help the study to identify the kind of age group that carry out domestic activities alongside the infrastructures and which in turn could be responsible at impacting the sustainability of the infrastructures of roads and drainages. Table 4.2 below illustrates the findings of the study.

##### **Table 4.2: Age of Respondents**

|  |  |  |
| --- | --- | --- |
| **Personal Particulars** | **Frequency** | **Percentage** |
| Age between 18 and 39  | 133 | 88.6  |
| Age between 40 and 59  | 13 | 8.7 |
| Age above 60  | 2 | 1.3 |
| Missing age  | 2 | 1.3 |
|  Total  | 150 | 100 |

**Source:** Field Data (2015).

Table 4.2 shows that of the 150 respondents interviewed, the age group of 10-39 years were 133 (88.6%) of the respondents, while those aged between 40-59 years were 13 (8.7%) of the respondents. Those respondents aged above 60 years were 2 (1.3%) while those who did not know their age were 2 (1.3%) of the respondents. This implies that, a greater part of the respondents carrying out domestic activities alongside the infrastructures of roads and drainages at Ubungo and Manzese are adult individuals.

The study further indicates that the majority of the age groups are young and energetic enough to be responsible and respond towards the demands of the sustainability of the infrastructure of roads and drainages. This group has different faces and attributes which if used properly can enhance the desire to achieve the required sustainability of infrastructures of roads and drainages. They are the beneficiaries of users of improved urban infrastructures of roads and drainages and given that either directly or indirectly finances the setting up of the infrastructures through the taxes they pay, if used properly can effectively bring about the desired sustainability. This can be enhanced if they are given proper formal or informal education and guidance by road authorities as they spread source of spreading important message of measures towards the sustainability of infrastructure of roads and drainages to rest of the society they live in.

###

### 4.2.3 Employment Status of the Respondents

The objective of identifying the employment status of the respondents was to know whether the respondents found along the areas of the study were real owners of the businesses or they were trading on behalf of someone else or if they were customers or passersby. Table 4.3 provides the findings of the study.

The information from Table 4.3 shows that the majority of the respondents 133 (88.70%) found in the targeted areas owned the businesses as they carry out this job as owners. This implies that they were almost likely to be found around these places often times, meaning that they were usual users of the infrastructures of roads and drainages as they traded alongside it frequently.

##### **Table 4.3: Employment Status of the Respondents**

|  |  |  |
| --- | --- | --- |
| **Employment Particulars** | **Frequency** | **Percentage** |
| Self employed  | 133 | 88.7  |
| Others  | 17  | 11.3  |
|  **Total**  | **150** | **100** |

**Source:** Field Data (2015).

This further implies that, because these were places where they depended it to earn their daily living can be well monitored and controlled from time to time to ensure the desired sustainability of the infrastructures of roads and drainages. They could be used as a source of education other people in the community they live in over the importance of good management of the infrastructures of roads and drainages.

### 4.2.4 Education Level of the Respondents

The objective of identifying the level of education of the respondents was to assess the level of education so as to be able to evaluate their capacity of understanding of some of basic issues when addressed to them, their capacity to analyze them and transmit them across the society they live in. It was thought that it is basically difficult for one to deal with a society where people cannot read and write and that the higher the level of education an individual has, the higher the level of understanding, interpreting and analyzing different issues. Table 4.4 demonstrates the findings of the study.

##### **Table 4.4: Education Status of Respondents**

|  |  |  |
| --- | --- | --- |
| **Education Particulars** | **Frequency** | **Percentage** |
| Never attended school | 5 | 03.03 |
| Primary education  | 75 | 50 |
| Ordinary sec. school education | 60 | 40 |
| Advanced sec. school education | 1 | 00.07 |
| College  | 3 | 02 |
| University Graduate | 5 | 03.03 |
| Missing system | 1 | 00.07 |
|  Total  | 150 | 100 |

**Source***:* Field Data(2015).

Based on the Table 4.4, the information shows that the majority of the respondents 144 (96 %) were having different levels of education from primary school level to higher learning institution level. This implies that they knew how to read and write and that if right knowledge were to be imparted to them over the importance of the sustainability of infrastructure of roads and drainages, they can be a good base for spreading it to other people in communities they live in.

They issue of education can be linked to the study by (Ibem, 2010) who cited how the formal education system was deficient in disaster education in the area comparing it to the informal education which was effective. His findings were that because of the weakness of the formal education, and then the informal education prepared by responsible institutions could be used to counteract the deficiency. The study found out that the informal education can communicate the right kind of information to urban residents on how to counteract the disaster vulnerability. The informal education includes enlightenment campaigns, public awareness, seminars, talk shows, workshops and conferences. This means both types of education can be important towards advocating urban communities to do whatever is right to ensure the sustainability of the infrastructures of roads and drainages while performing their domestic activities.

### 4.3 Findings, Analysis and Discussion

This section presents the findings of the study. It also analyses and discusses the findings of the study based on the objectives of the study stated in chapter one.

###

### 4.3.1 Integrity Level and Sustainability of Infrastructure of Roads and Drainages

The first specific objective of the study was to establish the extent to which the urban community’s level of integrity influences the domestic activities and impacting the sustainability of infrastructures of roads and drainages. Findings, analysis and discussions are presented in the context of existence of institutions for monitoring damage of infrastructures, urban culture, and urban community more responsibility, the need to change urban centers and the interdependence of responsibility between integrity and sustainability of roads and drainages.

**4.3.1.1 Existence of Institutions for MonitoringDamage of Infrastructures**

The question was posed to establish if the respondents based on their experience within the urban community they live in, have ever come across any institution(s) that is/are responsible for monitoring those who sabotage the infrastructures of roads and drainages, The institutions that are responsible for receiving report and charge those who are found to be misusing the infrastructures of roads and drainages in urban areas. Table 4.5 illustrates the findings of the study.

The study revealed that, out of 150 respondents interviewed, 54 (36%) of the respondents denied to know the existence of such institution(s) that is specifically responsible for monitoring, receiving reports and charge those who misuse the infrastructures of roads and drainages. 28 (18.7%) of the respondents neither in agreed nor disagreed, meaning they were not sure of the existence or inexistence of such institutions with the claim on the other hand, 68 (45.4%) of the respondents accepted being aware of the existence of the institutions.

##### **Table 4.5: Existence of Institutions Monitoring Sabotages of Infrastructures**

|  |  |  |
| --- | --- | --- |
| **Ratings** | **Frequency** | **Percentage** |
| Strongly Disagree | 27 | 18 |
| Disagree  | 27 | 18 |
| Neutral  | 28 | 18.7 |
| Agree  | 58 | 38.7 |
| Strongly Agree  | 10 | 06.7 |
|  Total  | 150 | 100 |

**Source:** Field Data (2015).

With the revelation that only 82 (54.6%) respondents do not know or not sure of the existence of the institutions, it implies that either the institutions do not exist or they were inactive enough to make themselves heard off. This can be linked to a study by Mangizvo, (2010) who revealed that among other causes of the illegal dumping in the area were members of public ignoring the existence of statutory instruments that governed the hygiene of the city of 2007. This means that if there is an existence of the institutions in urban areas that are responsible for implementing the statutory laws, bylaws, rules and regulations that govern the sustainability of the infrastructure of roads and drainages and are active, they would have been heard off and known and thus help the reduction of mismanagement.

Experts gave their views on the issue. They unanimously said that there is a poor level of integrity displayed by the urban citizens while performing the domestic activities alongside the infrastructures of roads and drainages. They remarked that the level of integrity displayed is largely influenced by the culture which is in turn is reflected by the level of economy of individuals in the urban area. The experts claimed that, those who are economically well off would usually display a good level of integrity while those who are poor would mismanage the infrastructures of roads and drainages because their focus on earning their daily bread.

**4.3.1.2 Urban Culture as Part of Integrity to Support the Sustainability of Infrastructures**

The question was poised to the respondents in order to gather their views in regard to whether or not culture as part of integrity of urban community was providing a real support to the domestic activities of urban people impacting the sustainability of the infrastructures of roads and drainages. Table 4.6 provides the findings of the study.

Table 4.6 shows that of the 150 respondents that were interviewed, 56 (37.4%) respondents did not agree that the culture of the urban community embraced and supported the sustainability of the infrastructure of roads and drainages. 29 (19.3%) respondents claimed not to know anything and 65 (43.3%) agreed that the existing of culture of the urban community embraced and was in support of the sustainability of infrastructure of roads and drainages. Since only 43.3% of the respondents were in supportive of the claim, it can be argued that the culture of the urban citizens in larger part do not embrace enough the sustainability of the infrastructures.

**Table 4.6: Urban Community Culture Embracing Infrastructure Sustainability**

|  |  |  |
| --- | --- | --- |
|  **Ratings** | **Frequency** | **Percentage** |
| Strongly Disagree | 22 | 14.7 |
| Disagree  | 34 | 22.7 |
| Neutral  | 29 | 19.3 |
| Agree  | 54 | 36 |
| Strongly Agree  | 11 | 07.7 |
|  **Total**  | **150** | **100** |

**Source:** Field Data (2015).

It could be argued that this is because of the way in urban are being brought up that, to them they are not accustomed to liking and maintain what they already have no matter how good it is, how costly it has been and how beneficial it is to them. The problem of culture within the urban can be linked to the study by Moruff, (2012) who found that one of the reasons that led to the failure of the maintenance of city of Ibadan despite the measures that were taken was the problem of the urban people dumping wastes in the gutters and open spaces.

The research respondents upon being interrogated over the behaviour they were of the opinion that, rain upon coming would sweep and clean them up. This justifies a poor hygiene culture of the urban people of Ibadan that they had. This means one could describe their culture to be that of laziness where they assumed that someone else or a nature would settle their problems. This signifies that the culture of the urban people needs to improve and be of help people on the way they carry their domestic activities alongside the infrastructures of roads and drainages that impact the desired sustainability.

**4.3.1.3 Urban Community Moral Responsibility over Good use of Infrastructures while Working**

This question was asked to the urban citizens carrying domestic activities alongside the infrastructures of roads and drainages in order to find out from the respondents whether or not while performing their daily domestic activities that impact the sustainability of infrastructure of roads and drainages display the moral responsibility required. The objective was to find from them the level of caring and honesty they display to the infrastructures. The findings are depicted in Table 4.7

##### **Table 4.7: Urban Community display of Moral use of Infrastructure**

|  |  |  |
| --- | --- | --- |
| **Ratings** | **Frequency** | **Percentage** |
| Strongly Disagree | 17 | 11.3 |
| Disagree  | 47 | 31.3 |
| Neutral  | 28 | 18.7 |
| Agree  | 42 | 28 |
| Strongly Agree  | 16 | 10.7 |
|  Total  | 150 | 100 |

**Source:** Field Data(2015).

The study revealed that 64 (42.3%) of the respondents of the urban community did not show moral responsibility whilst performing their duties alongside the infrastructure of roads and drainages. 28 (18.7%) of the respondents did neither accepted nor denied the claim, while 58 (38.7%) of the respondents accepted that the urban community exercised moral responsibility while performing their businesses alongside the infrastructures of roads and drainages. With the results showing that only 58 (38.7%) respondents were agreed that the urban community exercises moral responsibility whilst working is an indication that the majority of them do not care about the good use of infrastructures of roads and drainages.

This can be linked to the findings by Doloi (2012) who described that, since the infrastructure projects are crucial to the economy and are complex, their success or failure greatly depend on perception of communities at large rather than the technical characteristics. This means that, the successful sustainability or failure of the infrastructures largely depends on how the urban citizens perceive it and how morally and honestly they will use the infrastructures whilst performing their domestic activities. This signifies that, if the infrastructures of roads and drainages are highly regarded by the urban communities it is likely that them as urban citizens will up their ethical level whilst using the infrastructures of roads and drainages and thus help achieve the desired level of sustainability.

**4.3.1.4 Need to Change Urban Culture to Support the Sustainability of Infrastructures**

Respondents were asked to test their consistency in relation to the response they provided in the previous question of almost similar nature. The previous question tested their thinking over the urban community existing culture in supporting the required level of integrity. The objective of the previous question was to know whether or not the existing culture was embraced the required level of integrity as a pre-requisite support to the sustainability of infrastructure of roads and drainages in the urban community. In this regard, the objective of this question to the respondents was to elicit from them their opinion if the existing culture (they supported before) was in need to be changed by way of its improvement in order to provide the required level of support to the sustainability of infrastructures. Table 4.8 below illustrates the findings the study.

##### **Table 4.8: Need to Change Urban Culture to support the Sustainability of Infrastructure**

|  |  |  |
| --- | --- | --- |
| **Ratings** | **Frequency** | **Percentage** |
| Strongly Disagree | 05 | 03.3 |
| Disagree  | 01 | 00 |
| Neutral  | 18 | 12 |
| Agree  | 87 | 58 |
| Strongly Agree  | 39 | 26.7 |
|  Total  | 150 | 100 |

 **Source:** Field Data (2015).

Table 4.8 indicates that, of the 150 respondents interviewed, 6 (4%) of the respondents did not accept that there was a need to change the culture in order to support the sustainability of the infrastructures. 18 (12%) respondents did not deny or accept the claim, while 126 (84%) of the respondents accepted that there was a need to change the existing culture of the urban community in order to support the sustainability of infrastructures of roads and drainages. With 126 (84%) respondents who agreed, that the culture needed to change so as to support the sustainability of infrastructure of roads and drainages, it signifies the consistency of the responses that was provided previously where the majority of the respondents agreed that the existing culture did embrace the sustainability of the infrastructures of roads and drainages.

This implies that the respondents grasped what they were asked before in which only 65 (43.3%) agreed that the urban culture was embracing the sustainability of infrastructures. Moruff (2012) on describing the importance of culture quoted that ‘’our culture has no perhaps value if it makes no significant contribution to the growth of our society and sustenance of life in them at large’’**.**This supports the findings of this study that we need to check out and change or improve the culture if it does not currently provide a desirable contribution for whatever good that is being introduced or done to our urban communities, which impliedly will signify the growth of our society and sustainability of the developments.

**4.3.1.5 Interdependence between Integrity and Sustainability of Roads and Drainages**

From the respondents’ point of view, the study wanted to elicit from them how they could relate between the integrity of urban community and sustainability of infrastructure of roads and drainages; how the sustainability is affected by the domestic activities carried by the urban communities. The objective here was to find out the views of the respondents on how the two relates, meaning the higher the level of integrity of the urban communities, the higher the level of sustainability of infrastructures of roads and drainages to be attained. Table 4.9 shows that 42 (28%) of the respondents disagreed that there is an interdependence between the level of integrity of urban communities and the sustainability of infrastructure of roads and drainages. 18 (12%) of the respondents did not either agree or disagree with the suggestion, and 90 (60%) of the respondents agreed that the there is an interdependence between integrity and sustainability of infrastructures of roads and drainages.

##### **Table 4.9: Interdependence between Integrity and Sustainability of Infrastructure**

|  |  |  |
| --- | --- | --- |
| **Ratings** | **Frequency** | **Percentage** |
| Strongly Disagree | 09 | 06 |
| Disagree  | 33 | 22 |
| Neutral  | 18 | 12 |
| Agree  | 39 | 26 |
| Strongly Agree  | 51 | 34 |
|  Total  | 150 | 100 |

**Source:** Field Data (2015).

This implies that, the respondents reckon that urban citizens’ community have a great influence between the integrity displayed by them as stakeholders and for the longevity of existence of infrastructures of roads and drainages. This is linked from the definition of stakeholders by Khan, (2002) who defines stakeholders as people who in one way or the other have an interest or contribute to the project and that are deemed to be impacted by it.

**4.3.1.6 Mean and standard deviations values of Interdependence between Integrity and Sustainability of Roads and Drainages**

Mean and standard deviations values are normally used to ascertain variables having greater influence on dependent variable of the study and measuring the dispersion of a series of data (Kothari, 1990).

#####

##### **Table 4.10: Mean and the Deviations of Integrity and the Sustainability of Infrastructure of Roads and Drainages**

|  |  |  |  |
| --- | --- | --- | --- |
| **Statement** | **Obs** | **Mean** | **Std. Dev.** |
| There exist institutions within urban community responsible to monitor, receive report, and charge those who misuse the infrastructure of roads and drainage | 150 | 2.98 | 1.25 |
| Urban communities' culture embrace the required level of integrity as part of pre-requisite to support the sustainability of infrastructure of roads and drainages | 150 | 2.99 | 1.22 |
| Whilst performing duties urban Community exercise moral responsibility of good use of infrastructure of roads and drainages | 150 | 2.96 | 1.22 |
| There is a need of a change to the existing culture among urban communities in order to support the sustainability of infrastructure of roads and drainages | 150 | 4.03 | 0.84 |
| Sustainability of roads and drainages depend greatly on the degree of integrity among urban community | 150 | 3.60 | 1.32 |

**Source*:*** Field Data (2015).

Table 4.10 illustrates the mean and standard deviation of variables of the independent variables of integrity and that of dependent variables of sustainability of infrastructure of roads and drainages. Mbura (2007) suggests that, when standard deviation is less than (<) 3, it means there is a minimum dispersion of opinion amongst the respondents. He also suggests that, when the mean score is greater than (>) 3, means there is greater dispersion of opinion amongst the respondents. In reference to that, the results from the table above of the standard deviation suggest that there were minimum dispersions of opinions amongst the respondents as all the standard deviations of all statements were less than (<) 3. The mean results of the statement “there exist institutions within urban community responsible to monitor, receive report and charge those who misuse the infrastructure of roads and drainage’’ is 2.98. This means that based on the result, the respondents had opinion that, within the urban community there exist limited institutions that were responsible for monitoring, receive report and charge those who misuse it.

Lack of these institutions can have negative impact to the sustainability of infrastructures of roads and drainages. Mangzvo (2010) in his study on illegal dumping of solid wastes in the alleys in central business District of Gweru in Zimbabwe cited several reasons behind the existed situation. He found out that members of public were responsible behind the harsh situation despite of the presence of institutions and statutory instruments that were responsible to guide and help govern the behavior towards the illegal dumping of wastes. This signifies that, having institutions around the community alone without them fulfilling its responsibilities does not help adhering of the urban community in any case to ensure the sustainability of any infrastructure.

The mean result of the statement “urban communities’ culture embrace the required level of integrity as part of pre-requisite condition to support the sustainability of infrastructure of roads and drainages’’ is 2.99. Since the mean result is less than (<) 3, it suggests that, the respondents were of the opinions that urban communities had inadequate culture to embrace the required level integrity as part of pre-requisite situation to provide a support to the sustainability of infrastructure of roads and drainages.

The lack of it within the urban community suggests a negative impact it has towards its lack of contribution to the sustainability of infrastructures of roads and drainages. Culture is very much coinciding with the study on illegal dumping of solid wastes in the alleys in the central business District of Gweru in Zimbabwe by Mangzvo (2010). The objective of the study was to find the reasons behind the alleys of the district having piles of waste. It also wanted to establish perceptions of business community in the Central Business District over their actions towards such situations. The results of study found out that the community was less concerned over the environment and dumping of wastes. This is exemplified by some respondents’ responses which showed lack of good values in cleanness as they commented that as the rain comes, it would clean them up.

The mean result of the statement “whilst performing duties urban Community exercise moral responsibility of good use of infrastructure of roads and drainages” is 2.96. The result being less than (<) 3, suggests that respondents were of the opinions that the urban community did not exercise moral responsibility of good use of infrastructure of roads and drainages. The lack of moral responsibility by the urban community indicates the existence of the current situation.The result above is supported by Stanley *et al*., (2008) in their study on assessing households waste disposal practices in Sabon Gari Zaria. It aimed at assessing households waste disposal practice, agencies responsible for its management and the challenges it brought in the area. The study found out that, the controlling of waste and its ultimate disposal were deliberately done by the occupants of the households, they lacked moral responsibility whilst producing and dumping of wastes. This means despite the economic and social challenges that the urban community face, having right desire and moral responsibility can be vital towards improving the sustainability of any infrastructures that surround them.

The mean result of the statement “there is a need of a change to the existing culture among urban communities in order to support the sustainability of infrastructure of roads and drainages’’ is 4.03. The mean result is greater than (>) 3. This implies that respondents’ opinions seem to suggest that, the existing culture of the urban community was not at the required level to support the sustainability of infrastructure of roads and drainages.The result above is highlighted in the study by Stanley *et.al* (ibid), which on giving his recommendation towards counteracting the households’ solid waste disposal practices in Gabon Saria provided some good recommendations. He suggested to the Government to employ necessary machinery which would encourage and make household waste disposal a communal routine. The study also suggested to the government to sensitize households to provide bins for waste collection which would be evacuated regularly by paid agent for proper disposal to sale places.

The mean result of the statement “sustainability of roads and drainages depend greatly on the degree of integrity among urban community” is 3.60. Since the mean result is greater than (>) 3, means that the respondents were of the views that there is a greater dependency between the degrees of integrity of the urban community and the sustainability of infrastructures of roads and drainages. This is to propose that as the level of integrity amongst the urban community increases or decreases, so would the achievement or failure of sustainability of infrastructures of roads and drainages.The result is supported by Tawhid (2004) on his study of causes and effects of water logging in Capital City, Dhaka in Bangladesh. The study found that, among other causes of water logging, human activities comprised a greater part of the cause of water logging in the city as it was revealed by 82% of the respondents. The cause of water logging by human activities in the area is very much connected to the lack of integrity by the city dwellers which their action in one way or the other reflects lack of integrity amongst them. This means that sustainability cannot be achieved if the urban community does not display a good and required level of integrity.

### 4.3.2 Education Level of Urban Community and Sustainability of Infrastructure

The second objective of the study was to ascertain the extent to which education level of the urban community impact the sustainability of infrastructure of roads and drainages. Findings, analysis and discussion are presented in the context of the role of media in promoting education over the sustainability of infrastructure of roads and drainages, primary school curriculum and the sustainability of infrastructure of roads and drainages, primary school as trainers of infrastructure sustainability to urban residents, specific education to all citizens on the importance of infrastructure sustainability and level of education and influencing sustainability of infrastructure.

**4.3.2.1 Role of Media in Promoting Education on the Sustainability of the Infrastructures**

The second objectivewas to examine the respondents’ views on how they regard the importance of media of radio and televisionsin spreading education messages to urban communities’ over the importance and proper use of the infrastructures of roads and drainages in urban area. Table 4.11 illustrates findings of the study.

##### **Table 4.11: Role of Media on Promoting Education on the Sustainability of Infrastructure**

|  |  |  |
| --- | --- | --- |
| **Ratings** | **Frequency** | **Percentage** |
| Strongly Disagree | 09 | 06 |
| Disagree  | 33 | 22 |
| Neutral  | 18 | 12 |
| Agree  | 39 | 26 |
| Strongly Agree  | 51 | 34 |
|  Total  | 150 | 100 |

 **Source**: Field Data (2015).

Table 4.11 reveals that, of the 150 respondents interviewed, 42 (28%) of the respondents disagreed that the media of radio and televisions were doing enough to educate the urban community over the importance of the sustainability of infrastructures of roads and drainages. 18 (12%) of the respondents neither agreed nor accepted over suggestion, while 99 (66%) of the respondents agreed there the media were holding educative sessions in regard to the importance of sustainability of roads and drainages. The findings imply that, the media is used by many and could be used to spread educating messages as it reaches a large number of people of urban community in urban areas. Again this implies that if road authorities in urban areas use the media appropriately, it can be a source of not only promoting the importance of sustainability of infrastructures, but also of educating and reminding the urban community over the costs involved in setting up the infrastructures and the benefits it offers to them.

The media can also be used at the initiation stage of a project. It can be used as a source of spreading the importance of the participation of a community as the theory of sustainability by Khan (2000) suggests. The theory suggests that the sustainability of any project is achieved if community as one of the stakeholders is involved at the very early stage of project initiation. He advocates that a community tends to accept and take that project serious as they regard it to be one of their own because of valuing their involvement and thus enhance its sustainability.

**4.3.2.2 Primary School Curriculum Addressing and the Sustainability of Infrastructures**

Respondents were asked whether or not primary school curriculum should address the sustainability of infrastructure of roads and drainages. The objective of the question was also to get an indirect confirmation from the respondents whether actually or not, the current curriculum incorporates the teachings in regards to the sustainability of infrastructures. Table 4.12 reveals that, 33 (22%) of the respondents disagreed that the primary school syllabus clearly addresses the importance of infrastructure sustainability given the costs it takes to put it in place. 31 (20.7%) of the respondents neither agreed nor disagreed with the claim, whilst 86 (57.3%) of the respondents agreed that the primary school syllabus clearly addressed the importance of sustainability of roads and drainages.

##### **Table 4.12: Primary School Curriculums Addressing the Sustainability of Infrastructures**

|  |  |  |
| --- | --- | --- |
| **Ratings** | **Frequency** | **Percentage** |
| Strongly Disagree | 17 | 11.3 |
| Disagree  | 16 | 10.7 |
| Neutral  | 31 | 20.7 |
| Agree  | 63 | 42.0 |
| Strongly Agree  | 23 | 15.3 |
|  Total  | 150 | 100 |

**Source:** Field Data(2015).

Despite that 86 (57.3%) of the respondents had opinion that the primary school curriculum addresses the issue of sustainability of infrastructures of roads and drainages at primary school level, some primary school teachers when interrogated over the same issue denied to have any idea of the curriculum containing such lessons. This implies that, the 64 (42.3%) of the respondents even though they were minority could be right that the primary school curriculum does not cover the teachings about the sustainability of infrastructures of roads and drainages. It is important that given huge costs that countries incur in setting up the infrastructures, it is vital that the curriculum incorporates the teachings over the sustainability of infrastructures of roads and drainages.

The omission of such teachings could be a source of lack of awareness and lack of knowledge to the urban community which may lead them into failure of controlling and management of their environments, surroundings and resources. This weakness is well articulated in the report by Repoa (2003) which found out that one cannot separate between education and environment control. The study revealed that lack of uncontrolled and unplanned human activities of petty trading, land encroachment, erection of buildings and waste management has its background associated with the lack of proper education amongst the urban communities. This means for a long term solution, there is a great need for the primary school curriculum to incorporate lessons that teach about the sustainability of roads and drainages, the costs it takes for the country to build them up and the benefits it offers.

**4.3.2.3 Primary School Leavers as Trainers of Infrastructure Sustainability to other Urban Residents**

The objective of the variable on whether or not primary school leavers can be trainers of infrastructure sustainability to other urban residents was to test the thinking of the respondents over an effect the primary school leavers can have on influencing and improving the level of awareness of fellow urban community citizens in urban areas in regards to the sustainability of infrastructure of roads and drainages if they are well trained. Table 4.13 provides the findings of the study.

#####

##### **Table 4.13: Primary School Leavers and the Sustainability of Infrastructures**

|  |  |  |
| --- | --- | --- |
| **Ratings** | **Frequency** | **Percentage** |
| Strongly Disagree | 01 | 00 |
| Disagree  | 06 | 04 |
| Neutral  | 09 | 06 |
| Agree  | 78 | 52 |
| Strongly Agree  | 56 | 37.3 |
|  **Total**  | **150** | **100.00** |

**Source**: Field Data (2015).

Table 4.13 indicates that of the 150 respondents interrogated, 7(4.7%) of the respondents disagreed on the variable that the primary school leavers could be a source of educating fellow urban communities in the urban areas over the good use of the infrastructure of roads and drainages. 9 (6%) of the respondents neither agreed nor disagreed on the statement while 134 (89.30%) of the respondents suggested that if well trained, primary school leavers could be a source educating fellow citizens over the issue of sustainability of infrastructures of roads and drainages. In his study Ibem (2012) found out that lack of formal and informal education to the residents were the reasons behind their continued bad practices around the city which accelerated the disaster vulnerability. This means there is great need for governments using those urban residents of urban community who happen to get the education either formal or informal to spread it up to others in order to speed up positive reactions such as the sustainability of infrastructures of roads and drainages.

**4.3.2.4 Special Education to all Citizens on the Importance of Infrastructure Sustainability**

The respondents were asked if they ever knew in the urban area where they live in that there was a special education offered to urban community apart from that of the formal primary school that they were interrogated before. The objective was to see if there could be any other type of education such as that of informal that could suit those who never went to school and also would be used as regular reminders of the public over the importance of sustainability of infrastructure of roads and drainages. Table 4.14 illustrates the findings of the study.

##### **Table 4.14: Special Education to all citizens to Emphasize Infrastructure Sustainability**

|  |  |  |
| --- | --- | --- |
| **Ratings** | **Frequency** | **Percentage** |
| Strongly Disagree | 21 | 14 |
| Disagree  | 37 | 24 |
| Neutral  | 21 | 14 |
| Agree  | 27 | 18 |
| Strongly Agree  | 44 | 29.3 |
|  Total  | 150 | 100 |

**Source:** Field Data (2015).

Table 4.14 reveals that, 58 (38.7%) of the respondents among 150 interviewed disagreed that there is a special education to citizens focusing on the importance of sustainability of infrastructure of roads and drainages. 21 (14%) of the respondents interviewed either agreed or disagreed while 71 (47.3%) of the respondents agreed that there was a special education that is offered over the importance of infrastructures of roads and drainages. This implies that 79 (52.7%) of the respondents disagreed that there was a special education that was being offered to urban community citizens over the sustainability of infrastructures of roads and drainages.

This indicates that responsible road authorities were exerting little effort at keeping the urban community updated in regards to the costs, benefits and overall importance pertaining to the sustainability of urban infrastructures of roads and drainages. The result is well linked to a study by Moruff’s (2012) where he wanted to know why despite of the measures that were taken by the city, people’s attitude of lack of hygiene towards the city remained unchanged. The study suggested that among other factors, low literacy level among the urban dwellers was among the reasons behind the behavior of the people, meaning there was little or no education to help improve the behavior.

**4.3.2.5 Level of Urban Education on Influencing on the Sustainability of Infrastructure**

Respondents were asked to give their opinion on the extent to which sustainability of infrastructure of roads and drainages depend on the level of education of the urban community. The objective was to find out how they value the education and if they see it as influential to the urban domestic activities impacting the sustainability of the infrastructure of roads and drainages in urban areas. Table 4.15 below demonstrates the findings of the study.

##### **Table 4.15: Urban Community’s Education Level and Infrastructure Sustainability**

|  |  |  |
| --- | --- | --- |
| **Ratings** | **Frequency** | **Percentage** |
| Strongly Disagree | 46 | 30.7 |
| Disagree  | 50 | 33.03 |
| Neutral  | 09 | 06 |
| Agree  | 27 | 18 |
| Strongly Agree  | 18 | 12 |
|  Total  | 150 | 100 |

**Source:** Field Data (2015).

Table 4.15 illustrates that, 96 (64%) of the respondents that the sustainability of infrastructures of roads and drainages depended on the level of education the urban community citizens possess. 9 (6%) of the respondents either agreed or disagreed on the statement, whilst 45 (30%) of the respondents were in supported on the claim that the two could influence one another. This implies that the respondents do not perceive an idea that if urban community citizens are educated it can be an influence towards each other about a good management of infrastructure of roads and drainages, and hence sustainability. It could be because they have not seen significance justification as they carry on their activities within themselves the significance difference in terms of behavior between those who have gone to school and those who had not.

**4.3.2.6 Mean and Standard Deviations on Level of urban Education Influencing the Sustainability of Infrastructure**

**Table 4.16: Mean and Standard Deviations of the Education and Sustainability of Infrastructure of Roads and Drainages**

|  |  |  |  |
| --- | --- | --- | --- |
| **Statement** | **Obs** | **Mean** | **Std. Dev.** |
| Media campaigns of Radio and Televisions strongly holds sessions to promote the importance of sustainability of infrastructure of roads and drainages | 150 | 3.62 | 1.19 |
| Given the cost of infrastructure of drainage and roads to the country, the primary school syllabus clearly address its importance to the leavers | 150 | 3.39 | 1.21 |
| If well-equipped the primary school leavers are able to impact the good practice of use of infrastructure of roads and drainages | 150 | 4.21 | 0.78 |
| There is special education provided for all citizen on the importance of infrastructure of roads and drainages | 150 | 3.24 | 1.45 |
| Sustainability of roads and drainages depend greatly on the level of education that the urban community posses | 150 | 2.47 | 1.40 |

**Source*:*** Field Data (2015)

The mean result of the statement “media campaigns of radio and televisions strongly hold sessions to promote the importance of sustainability of infrastructure of roads and drainages’’ is 3.62. The mean result is greater than (>) 3, meaning that the respondents were of the opinions that media of radio and televisions hold strong sessions in promoting the importance of sustainability of infrastructures of roads and drainages. This implies they believed that media has an influence in bringing a greater and positive impact to the sustainability of infrastructure of roads and drainages. The result above matches with the findings in the study on challenges of disaster vulnerability reduction in Lagos Megacity Area, Nigeria by Ibem (2010). His study pointed out that poor formal education and wavering governance among others were the reasons responsible for inability of authorities in rapidly growing megacities in developing counties to integrate disaster risk vulnerability reduction strategies with development plans. The study singled out that informal disaster education of enlightenment campaigns, public awareness, seminars, talk shows and workshops could be effective and reduce the inefficiency of formal education by communicating right information in addressing the vulnerability.

The mean result of the statement “given the cost of the infrastructures of roads and drainages to the country, primary school syllabuses clearly address the importance of sustainability of infrastructure of roads and drainages to the school leavers’’ is 3.39. The mean result is greater than (>) 3 which imply that majority of the respondents were in agreement that, the primary school syllabus contained teachings that have an influence towards the sustainability of infrastructure of roads and drainages as far as the cost of installing it is concerned. The report by the Sustainable Dar es Salaam Project (SDP) on Poverty and Environment by Repoa (2003) suggested that among other causes, the failure of urban poor to control the environment is very much reflected with lack of good education system. This means given the cost it takes to implement the infrastructure of roads and drainages, the primary school syllabusdoes not address the importance in that regard. The opinions provided above suggest otherwise as one when compares it to the actual situation of infrastructures of roads and drainages in so many areas in Tanzania which are bad state.

The mean result of the statement “if well-equipped the primary school leavers are able to impact the good practice of use of infrastructure of roads and drainages” is 4.21; the result is greater than (>) 3. This indicates that, majority of the respondents were in agreement that it is important to give the primary school leavers a right knowledge so that they can help others on how to use the infrastructure of roads and drainage in a noble way. Just like the Sustainable Dar es Salaam Project (SDP) report on poverty and Environment by Repoa (2003) reported, the mean result above suggest that education is important everywhere. The report suggested that, poverty is very much associated with numerous variables such as lack of education as one of the variables which in turn is very much associated with poverty and failure of control of environment by human beings. This means in an effort to eradicate poverty, good primary school education can be a good source to urban community to improve the infrastructures of roads and drainages.

The mean result of the statement “there is special education provided for all citizens on the importance of infrastructure of roads and drainages” is 3.24; it is greater than (>) 3. The result suggests that, the majority of the respondents were in agreement that there is a special education that was given to all the citizens over the importance of infrastructure of roads and drainages. The result though contravenes with a study by Ibem (ibid. p.68) who suggested that lack of formal and informal education to most of the urban residents made the urban community to continue in its engaging of malpractice of erection of structure on top of drainage channels and relentless indiscrimination of dumping of domestic wastes.

The mean result of the statement “sustainability of roads and infrastructures depend greatly on the level of education that the urban community possesses” is 2.47; the result is less than (<) 3. This implies that, majority of the respondents did not agree that education level of urban community did have an influence and that impacted the sustainability of the infrastructures of roads and drainages. The result is contrary to the education factor among other factors that were identified by Moruff (2010) on his study on cultural understanding of space and waste disposal habit amongst the urban populace in Ibadan Metropolis, South Western Nigeria. The study revealed that lack of education amongst the inhabitants determined and informed people’s disposal practices and habits in the city.

### 4.3.3 Economic Level of Urban Citizens and Sustainability of Infrastructure

The third specific objective of the study was to delineate the influence of economic level amongst urban community citizens on the sustainability of roads and drainages. Findings, analysis and discussions are presented in the context of the individual poverty level in relation between poverty and destruction of sustainability of infrastructure, poverty condition of individual and whether only the rich people influence the setup of urban infrastructure of roads and drainages.

**4.3.3.1 Individual Poverty Level in Urban Area on influence of Bad use of infrastructure.**

The study was interested to know whether an individual poverty level in urban area can influence the bad use of infrastructure. The objective was to establish if the condition of poverty of individuals could have any influence the bad use of infrastructures of roads and drainages in urban areas. The aim was to asses if the poverty condition of an individual forces someone towards the mismanagement of the infrastructures of roads and drainages. In other words, can one link the un-sustainability of infrastructures of roads and drainages with poverty of individuals in the urban area?

##### **Table 4.17: Urban Individual Poverty and Sustainability of Infrastructure**

|  |  |  |
| --- | --- | --- |
| **Ratings** | **Frequency** | **Percentage** |
| Strongly Disagree | 53 | 35.3 |
| Disagree  | 50 | 33.3 |
| Neutral  | 10 | 06.7 |
| Agree  | 18 | 12 |
| Strongly Agree  | 19 | 12.7 |
|  Total  | 150 | 100 |

**Source:** Field Data (2015).

Table 4.17 shows that, 103 (68.6%) of the respondents interviewed disagreed that there were relationship that the level of poverty of an individual can influence the bad use of infrastructures of roads and drainages. 10 (6.7%) of the respondents did not support or deny the claim and 37 (24.7%) of the respondents agreed that the level of poverty of individuals in urban community could influence the bad use of infrastructures of roads and drainages. This implies that the respondents were of the thoughts that the level of poverty of an individual influences the mismanagement of infrastructures of roads and drainages. Despite of their opinion this is opposite to some literatures where poverty is always linked to many negatives in the society.

The study by Repoa (2003) revealed that one cannot separate an individual’s level of poverty with lack of control of resources, skills, knowledge, capital and social connections. The revelations of the study further suggested that in rural areas, it is the activities of the poverty people in rural areas that are linked to environmental degradation and to de-forestation as they depend on it in a larger part than the rich ones. This implies that poor people both in urban and rural areas are very much linked to the mismanagement of the infrastructures and environments. The lack of control of resources, skills, knowledge and capital which are essential in a standard living force them in a position to badly influence the infrastructures and environment they live in.

**4.3.3.2 Relationship between Poverty and Destruction of Sustainability of Infrastructure**

The respondents were asked to relate between the levels of poverty of urban people through their domestic activities they carry out with impact sustainability of infrastructures of roads and drainages. The objective was to establish opinions from respondents on whether the poor people’s domestic activities in urban area were leading line over the destruction of infrastructures of roads and drainages. Table 4.18 indicates that, 106 (70.7%) of the respondents disagreed that there was a relationship between the poverty situation of an individual and the destruction of infrastructure of roads and drainages. 28 (18.7%) of the respondents did not deny or agree with the suggestion, whilst 16 (10.7%) of the respondents agreed that there was relationship between poverty and destruction of infrastructures of roads and drainages. This implies that there was no relationship between poverty condition of an individual and the mismanagement of the infrastructures of roads and drainages.

##### **Table 4.18: The Linkage between a Poor individual and Destruction of Infrastructure**

|  |  |  |
| --- | --- | --- |
| **Ratings** | **Frequency** | **Percentage** |
| Strongly Disagree | 49 | 32.7 |
| Disagree  | 57 | 38 |
| Neutral  | 28 | 18.7 |
| Agree  | 13 | 08.7 |
| Strongly Agree  | 03 | 02 |
|  Total  | 150 | 100 |

**Source**: Field Data (2015).

This is contrary to the argument made in the study by Repoa (2003) which believe that even rich people are involved with destruction infrastructures of roads and drainages. This signifies that the un-sustainability of the roads and drainages could be affected by different root causes that can be associated either the lack of culture, formal education, informal education, and lack of awareness, poor integrity or a combination of them which can be found in both urban people - poor or rich.

**4.3.3.3 Poverty Condition of Individual and Mismanagement of Infrastructures**

The objective of the study here was to establish if the condition of poverty of an individual in urban areas relate to the mismanagement of infrastructures of roads and drainages despite the literature. Table 4.19 demonstrates the findings the study.

##### **Table 4.19: Individual’s Poverty Condition and Acceleration of Mismanagement of Infrastructure**

|  |  |  |
| --- | --- | --- |
| **Ratings** | **Frequency** | **Percentage** |
| Strongly Disagree | 28 | 18.7 |
| Disagree  | 65 | 43.3 |
| Neutral  | 15 | 10 |
| Agree  | 20 | 13.3 |
| Strongly Agree  | 22 | 14.7 |
|  Total  | 150 | 100 |

**Source:** Field Data (2015).

Table 4.19 indicates that, 93 (62%) of the respondents disagreed that the condition of an individual does not necessarily accelerates the mismanagement of infrastructures of roads and drainages.15 (10%) of the respondents did not agree or disagree, whilst 42 (28%) of the respondents agreed that the poverty condition of individuals could lead to the mismanagement of infrastructures of roads and drainages. This implies again as seen previously that from the respondents just on almost similar kind of question imposed to them previously, the condition of some of them being poor does not make individuals to qualify to mismanage the infrastructures of roads and drainages rather it could be a combination of different factors. This means that if an improvement is to be done, it will have to be in all areas of culture, integrity, education and any other areas to all classes of people either poor or rich.

**4.3.3.4 The Rich People finance and Set up of Urban Infrastructures of Roads and Drainages**

Respondents were asked to comment on the statement that only rich people’s money finances the building of infrastructure of roads and drainages in the country. The objective was to obtain their understanding in regards to which they think thought is responsible at financing them and in that case would be supposedly keen at caring its sustainability. This means the question wanted to know if the respondents ever knew that the country projects are usually financed collectively by each individual through taxes; be it poor or rich. Table 4.20 illustrates the findings of the study.

##### **Table 4.20: Urban Rich People and the Setup of Infrastructures of Roads and Drainages**

|  |  |  |
| --- | --- | --- |
| **Ratings** | **Frequency** | **Percentage** |
| Strongly Disagree | 64 | 42.7 |
| Disagree  | 52 | 34.7 |
| Neutral  | 15 | 10 |
| Agree  | 09 | 06 |
| Strongly Agree  | 10 | 06.7 |
|  Total  | 150 | 100 |

**Source:** Field Data (2015).

Table 4.20 shows that 116 (77.3%) of the respondents disagreed that its only rich peoples that finance the infrastructures of roads and drainages. 15 (10%) of the respondents did not accept or deny the opinion. 19 (12.7%) of the respondents had the opinion that only rich citizens were responsible in financing the set-up of infrastructures of roads and drainages through the taxes they pay to the country. This implies that the majority of the respondents understood that even their money through taxes they pay is used to finance the infrastructures of roads and drainages One would wonder if they understood so why they would engage in un-sustainability of infrastructures of roads and drainages while performing their business activities. This is where one must consider that in order to attain the sustainability of infrastructures of roads and drainages, one must look at solving issues pertained to education, low level of awareness, culture, integrity of individuals.

**4.3.3.5 Mean and Standard Deviation of Economic Level of Urban Citizens and Sustainability of Infrastructures of Roads and Drainages**

The mean and standard deviation of the data used to analyze the economic level of urban citizens and sustainability of infrastructures of roads and drainages are given in Table 4.21 which shows the mean and standard deviation of the independent variable of economic level and that of dependent variable of sustainability of infrastructure of roads and drainages.

##### **Table 4.21: Mean and Standard Deviation of Economic level of Urban Citizens and Sustainability of Infrastructures of Roads and Drainages**

|  |  |  |  |
| --- | --- | --- | --- |
| **Statement** | **Obs** | **Mean** | **Std. Dev.** |
| Level of poverty of individual in urban areas does influence the bad use of roads and drainage infrastructure | 150 | 2.33 | 1.39 |
| It's the poor people that are linked with the destruction of infrastructure of drainages and roads | 150 | 2.09 | 1.02 |
| Poverty condition of urban community accelerate mismanagement of infrastructure of roads and drainages | 150 | 2.62 | 1.33 |
| Only rich people pay tax for the government to finance the infrastructure of roads and drainages in the country | 150 | 1.98 | 1.17 |
| Sustainability of roads and infrastructure is greatly influenced by level of poverty, the deeper the level of poverty the higher the rate of sustainability. | 150 | 2.23 | 1.01 |

**Source**: Field Data (2015).

The results of the standard deviations of all variables are less than (<) 3, which signify that respondents had minimum dispersions in the opinions gave. The mean result of the statement “level of poverty of individual in urban areas does influence the bad use of infrastructure of roads and drainages” is 2.33; it is less than (<) 3. This signifies that, respondents were not in agreement that the level of poverty of an individual in the urban area does influence the bad use of infrastructures of roads and drainages. This means the respondents are of the thinking that the level of poverty of an individual had less impact to the sustainability of infrastructure of roads and drainages. The result above is against the findings by Moruff (2012) on his study on cultural understanding of space and waste disposal habit among the urban populace in Ibadan Metropolis Western Nigeria. The study pointed out that, the waste disposal habit was determined by the increase in unemployment rate, low income, poor living conditions, and low literacy level.

 The mean result statement “it’s the poor people that are linked with the destruction of infrastructure of roads and drainages” is 2.09 which is less than (<) 3. This implies that the respondents were of the thoughts that the states of poorness of individuals in the community are not linked with the destruction of infrastructures of roads and drainages. The result contradicts the findings of the report by the Sustainable Dar es Salaam Project on Poverty and Environment by Repoa (2003) conducted on the impact analysis of sustainable Dare es Salaam Project on Sustainable Live hoods of Urban Poor. Its objective was to equip policy designers’ particularly local government leaders with the understanding of better means and ways of keeping the city safe and clean without depriving its inhabitants of their sustainable live hoods. The report revealed that there is a close link between poverty and environment. It was articulated in the report that poverty is always inseparably linked to lack of control over resources, skills, knowledge, capital and social connections. It was advocated that even in rural areas the degradation and deforestation acts are usually very much found within the areas where there is a rapid increase of poverty.

The mean result of the statement “poverty condition of urban community accelerates mismanagement of infrastructure of roads and drainages” is 2.62; it is less than (<) 3. The result implies that few respondents were not in agreement that the condition of urban community accelerates the mismanagement of infrastructure of roads and drainages. This means respondents were of the thought that, the poverty condition of urban community had less impact to the sustainability of infrastructures of roads and drainages.The result is conflicting to the findings by the study on the Sustainable Dar es Salaam Project report on Poverty and Environment by Repoa (ibid, pg. 79) which suggested that there is always a connection between poverty and mismanagement of environment that surrounds human beings. The study suggested that, where there is higher level of poverty, there is always a higher rate of damage to the environment. The mean result of the statement “only rich people pay tax for the government to finance the infrastructure of roads and drainages” is 1.98; again, this is less than (<) 3. This is suggests that the majority of the respondents were not abiding to the opinion that its only rich people that pay taxes for the government to finance the infrastructure of roads and drainages.

The mean result of the statement “sustainability of roads and drainages is greatly influenced by level of poverty, the deeper the level of poverty the higher the rate of sustainability” is 2.23. The result is less than (<) 3 which is interpreted that the respondents were of the thinking that level of poverty has less impact to the sustainability of infrastructure of roads and drainages. This means the respondents were of the opinion that it is not necessarily that as the level of poverty of urban community gets deeper so should be the poor rate of the sustainability of infrastructures of roads and drainages. The result is contrary to Moruff (2012) who conducted a study on cultural understanding of space and waste disposal habit among urban populace in Ibadan Metropolis, South Western Nigeria. The study found out that the hallmarks of poverty of high unemployment rate, low income, poor living condition and low literacy level among others of urban community greatly influenced the habit of waste disposal of the people in the area.

### 4.3.4 General Understanding of Citizens and Infrastructure Sustainability

The fourth objective of the study was to assess the extent to which awareness of the urban community citizens of government laws, by laws and regulations relate to the sustainability of infrastructures of roads and drainage. The objective here was to test the level of awareness and understanding of the urban citizens with regards to the existence of country’s general laws, by-laws, rules and regulations that if adhered to would improve the level of awareness of urban community when using the urban infrastructures of roads and drainages, findings, analysis and discussion are presented in the context of the citizens role, individual, economic improvement, the existing of roles and regulations and government responsibility.

**4.3.4.1 Citizens’ Payment of Tax and the Ensuring Infrastructure Sustainability**

The study sought opinions of the urban citizens on their thinking behind their responsibility in following the taxes they pay that finance different economic and social issues including that of infrastructures of roads and drainages. The variable wanted to test the level of awareness and level of interest the urban individuals’ responsibility as citizens that come next after they pay taxes that finance the infrastructures. Table 4.22 indicates that, 71 (47.2%) of the respondents did not view that urban rich citizens had any responsibility at ensuring the good use of infrastructure of roads and drainages following the taxes they pay. 12 (8%) of the respondents did not deny or support the claim and 67 (44.6%) respondents agreed that it is not enough for tax payers to only pay taxes. They were of the opinion that citizens as tax payers should have a keen interest on the good use of infrastructure of roads and drainages following the taxes they pay. This implies greater part of the citizens do not know that whatever is done by governments is indirectly financed by their taxes and it is their responsibility thereafter to ensure that whatever is put in place is well spent or used.

##### **Table 4.22: Citizens’ Role as Tax Payer in Ensuring Infrastructure Sustainability**

|  |  |  |
| --- | --- | --- |
| **Ratings** | **Frequency** | **Percentage** |
| Strongly Disagree | 08 | 05.3 |
| Disagree  | 63 | 42 |
| Neutral  | 12 | 08 |
| Agree  | 17 | 11.3 |
| Strongly Agree  | 50 | 33.3 |
|  Total  | 150 | 100 |

**Source:** Field Data (2015).

Khan (2000) advocates the endurance of projects sustainability to be attributed to the involvement of the people where projects benefits are to take place. He advocates that the lack of interest following up of many completed projects could be attributed to various reasons. He advocated that one of the reasons is poor participation of the surrounding community. He argues that poor involvement of surrounding community could lead to people paying little attention towards completed projects by governments as they fail to find a real connection between the governments or donors’ efforts and the real benefits expected to be enjoyed by them upon completion of the projects.

The community participation if done properly could arouse the urban citizens’ awareness of projects that are being carried within their areas and that some of them are not fully financed by the donors rather that it is their taxes that are being used. The people carrying out their trading businesses alongside the infrastructures of roads and drainages had different views with regard to the level of awareness on how their businesses activities impact the infrastructure of roads and drainages. The participants cited that even though the pay fee which among others is for the purpose of keeping the urban infrastructures neat and tidy they were not sure that part of the fee was used to put in place the infrastructure they see around them.

**4.3.4.2 Economic Improvement and Maintenance of Infrastructures**

The study was also interested to know respondents thinking behind that there was no relationship between improved individual’s economic condition with well-maintained infrastructures of roads and drainages in urban areas. The study wanted to assess the thought behind the argument whether a poor or rich state level of economy of individuals in the economy affect good infrastructures of roads and drainages in urban areas that surrounds them. Table 4.23 shows that, 73 (48.7%) of the respondents agreed that there is no relationship between the improvement of an economy of individuals and the well maintenance of infrastructure of roads and drainages, 19 (12.7%) of the respondents neither agreed nor disagreed, whilst 58 (38.6%) of the respondents supported the argument, that there was a relationship between the two. This implies that the respondents concur that, it is not only the level of individuals of poorness or richness that dictate whether one would care about the improvement and maintenance of infrastructures of roads and drainages in urban areas. This once again assures us that the maintenance and sustainability of infrastructures of roads and drainages is a combination of different factors and that every individual whether rich or poor has to participate.

##### **Table 4.23: Improvement of Individual’s Level of Economy and Infrastructure Sustainability**

|  |  |  |
| --- | --- | --- |
| **Ratings** | **Frequency** | **Percentage** |
| Strongly Disagree | 28 | 18.7 |
| Disagree  | 45 | 30 |
| Neutral  | 19 | 12.7 |
| Agree  | 32 | 21.3 |
| Strongly Agree  | 26 | 17.3 |
|  Total  | 150 | 100 |

**Source:** Field Data (2015).

This is unlike to what the Road Authorities are currently doing in urban areas where they only focus on penalizing only those who misuse the infrastructures of roads and drainages by either fining or imprisoning as the only means of ensuring sustainability which in actual practice it is a weak and single means of ensuring the sustainability. The roads management, 2009 of the Road Act, 2007 (No.13 of 2007) sec.11, for instance states that **“**Any owner or occupier of land adjoining a road, who permits any drain, gutter, sluice or watercourse on the road and bordering on such land to be stopped or clogged for any purpose shall be liable to a penalty of not more than one hundred thousand or to imprisonment for a term not more than one month’’. Authorities responsible for the infrastructure maintenance of roads and drainages should focus on having wider and repeatedly programs that would keep on educating and enlightening the urban citizens over the issue of sustainability of infrastructures of roads and drainage.

**4.3.4.3 Existence of Rules and Regulations Guiding Usage of Infrastructures in Urban Area**

The respondents were tested their knowledge over the existence or non-existence of rules and regulations that govern over the good practice of usage of infrastructures of roads and drainages. The objective of the variable was to test level of awareness of the respondents with regards to an existence of the rules and regulations that guide the proper usage of infrastructures and drainages in urban areas while carrying out their domestic activities.

Table 4.24 indicates that 83 (55.3%) of the respondents disagreed that there were no rules and regulations with regards to the good use of infrastructure of roads and drainages. 34 (22.7%) of the respondents were neither in agreed nor in disagreed, 33 (21.3%) of the respondents agreed that there were no rules and regulations regarding the good use of infrastructure of roads and drainages. The findings reveal that the majority of the respondents were aware of the existing of the rules and regulations but one should wonder why the urban residents would go on with domestic activities that would lead to the un-sustainability of the infrastructures of roads and drainages.

##### **Table 4.24: Existence of Rules and Regulations as Guide to Usage of Infrastructures**

|  |  |  |
| --- | --- | --- |
| **Ratings** | **Frequency** | **Percentage** |
| Strongly Disagree | 18 | 12 |
| Disagree  | 65 | 43.3 |
| Neutral  | 34 | 22.7 |
| Agree  | 22 | 14.7 |
| Strongly Agree  | 11 | 07.3 |
|  Total  | 150 | 100 |

**Source:** Field Data (2015).

A number of different factors can be attributed to that, but one must not ignore the weakness by road authorities in the implementations of its rules and regulations governing the good usage of the infrastructures. A study need to be initiated and done to establish how many people over the past years have been penalized as a result of them encroaching the road, permitting drains, gutter directing watercourse on the roads that the punishments would make other urban residents to stop such misconducts.

**4.3.4.4 Government Sole Responsibility over Implementation of Rules and Regulations**

The study was further interested to gather information from respondents with regards to who is compelled with the responsibility of ensuring the implementation of rules and regulations of the good use of infrastructure of roads and drainages. The objective was to assess if the respondents as tax payers and crucial stakeholders regard themselves also having a strong role to play in collaboration with the government with regards to the implementation of rules and regulations. Table 4.25 below depicts the findings of the study.

##### **Table 4.25: Government Responsibilities over the Implementation of Rules and Regulations**

|  |  |  |
| --- | --- | --- |
| **Ratings** | **Frequency** | **Percentage** |
| Strongly Disagree | 27 | 18 |
| Disagree  | 60 | 40 |
| Neutral  | 30 | 20 |
| Agree  | 24 | 16 |
| Strongly Agree  | 09 | 06 |
|  Total  | 150 | 100 |

**Source:** Field Data (2015).

Table 4.25 indicates that 87 (58%) of the respondents denied that it is only the sole responsibility of the government to ensure good use of infrastructures of roads and drainages. 30 (20%) of the respondents did not deny or support the statement while 33 (22%) of the respondents thought that it is the sole responsibility of the government to make sure it implements the rules and regulations regarding the preservation of infrastructures of roads and drainages. The results indicate that the urban respondents understand that it is not the only responsibility of the government to ensure the sustainability of infrastructure of roads and drainages. They understand that they have a role to play.

**4.3.4.5Mean and Standard Deviation data of General Understanding of Urban Citizens and the Sustainability of Infrastructures of Roads and Drainages**

The mean and standard deviation data of the general understanding of urban citizens and sustainability of infrastructures of roads and drainages are calculated as indicated below. Again, the general purpose here is not to provide any meaningful and sustainability of infrastructures of roads and drainages recalculated as indicated below. Again, the general purpose here is not to provide any meaningful information rather to provide the dispersion of data from its central tendency.

##### **Table 4.26: Mean and Standard Deviation of General Understanding of Urban Citizens and Sustainability of Infrastructures of Roads and Drainages**

|  |  |  |  |
| --- | --- | --- | --- |
| **Statement** | **Obs** | **Mean** | **Std. Dev.** |
| As long as citizens pay tax, it is not their responsibility to ensure the good use of infrastructure of roads and drainage | 150 | 3.25 | 1.42 |
| An improvement of economy of an individual is not related with the well maintained infrastructure of roads and drainages | 150 | 2.88 | 1.40 |
| There exist no Government established rules and regulations regarding good practice usage of infrastructure of roads and drainages | 150 | 2.63 | 1.11 |
| It's the Government sole responsibility to implement the rules and regulations regarding the preservation of infrastructure of drainages and roads | 150 | 2.52 | 1.14 |
| Sustainability of roads and drainages infrastructure is greatly influenced by the level of general knowledge of the people | 150 | 3.55 | 1.34 |

**Source:** Field Data (2015).

Table 4.26 shows the mean and standard deviation of the independent variable of urban community’s general understanding against the dependent variable of sustainability of infrastructure of roads and drainages. The results show that, all standard deviations of the variables are less than (<) 3 which signify the minimum dispersion of the opinions amongst the respondents. The mean result of the statement “as long as citizens pay tax, it is not their responsibility to ensure the good use of infrastructure of roads and drainages” is 3.25. The mean result is greater than (>) 3; which signify that the respondents were of the opinions that as soon as the tax payer pays tax. This means it is not his responsibility to ensure how properly the infrastructures of roads and drainages are being used for them to realize the tax value and to ensure the infrastructure sustainability.

The result indicates how negatively the sustainability of the infrastructures of roads and drainages can be impacted because of such perception. The finding is reflected by Doloi (2012) in his study on stakeholders’ influence on social performance of infrastructure projects carried out in Australia. In the study it was pointed out that, among others, the development of the infrastructure projects were highly complex, failure or success of it depends on the perception of communities. Lack of follow up by the citizens after they pay taxes signifies the poor perceptions they have towards the ownership of the infrastructures, the result show that urban community view the infrastructure as though they belong to the government and not them.

The mean result of the statement “an improvement of economy of an individual is not related with the well maintained infrastructure of roads and drainages” is 2.88, which is less than (<) 3. This signifies that, respondents were of the opinion that the improvement of the economy of an individual is not related with the maintenance of the infrastructure of roads and drainages. This means, as individuals’ economy improve there is still a possibility of it to negatively impact the sustainability of infrastructures of roads and drainages.

The mean result of the statement “there exist no government established rules and regulations regarding good practice usage of infrastructure of roads and drainages” is 2.63. The mean result of the variable is less than (<) 3. This means that the respondents were of the thought that there exist established rules and regulations by the government that address good practice and yet negatively usage of infrastructures of roads and drainages. This further implies that the majority of urban citizens agree about their existence and it does not have any positive impact to the sustainability of infrastructure of roads and roads. The finding is echoed in the study by Ibem (2010) on Challenges of disaster vulnerability reduction in Lagos Megacity Area in Nigeria. The study aimed at establishing factors that were responsible for inability of authorities in rapidly growing megacities in developing countries to integrate disaster risk vulnerability reduction with development plans. The result found out that among other reasons, undetermined institutions and weak governance were the sign of existence of the government established rules and regulations but weak in its implementations.

The mean result of the statement “it’s the government sole responsibility to implement the rules and regulations regarding the preservation of infrastructure of drainages and roads’’ is 2.52. The mean result is less than (<) 3 which suggest that the respondents did not agree that it is the sole responsibility of the government to implement the rules and regulations regarding the preservation of infrastructures of roads and drainages. The interpretation of the result of the respondents above seem to concur with the definition of stakeholders which suggest that each interested part or beneficially of the project in one way or the other can influence the sustainability of the project. This suggests that, it is not only the responsibility of the Government to foresee the implementation of rules and regulations regarding sustainability of the infrastructure of roads and drainages but also the urban community has to adhere to it in order to make the sustainability successful.

The mean result of the statement “sustainability of roads and drainages infrastructure is greatly influenced by the level of general knowledge of the people” is 3.55, which are greater than (>) 3. This result implies that the respondents were of the thought that the level of general knowledge of people could greatly influence impact the sustainability of infrastructure of roads and drainages. The result is echoed by the result of the study by Doloi (2012) on stakeholders’ influence on social performance of infrastructure projects carried out in Australia. It aimed at developing a framework for accurate understanding and assessment of social performance and value creation of public infrastructure projects. The result suggested that the success or failure of them depend on perception of communities have rather than the technical characteristics such as type and size of the physical facility alone.

###

### 4.4 Overall Mean and Standard deviations for the Specific Objectives of the Study

##### **Table 4.27: Overall Mean and the Standard Deviations Scores of Specific Objectives**

|  |  |  |  |
| --- | --- | --- | --- |
| **Specific Objectives** | **Obs** | **Mean** | **Std. Dev.** |
| (i)Integrity amongst urban citizens and Sustainability of Infrastructure of Roads and Drainages. | 150 | 3.31 | 1.17 |
| (ii) Education amongst urban community citizens and the sustainability of infrastructures of roads and drainages  | 150 | 3.39 | 1.21 |
|  (iii) Economic level amongst community Citizens and Sustainability of Infrastructures of Roads and Drainages | 150 | 2.25 | 1.18 |
|  (iv) To asses awareness of Urban Community citizens on Government’s laws, by laws, rules and regulations that relate to Sustainability of Infrastructure of Roads and Drainages  | 150 | 2.97 | 1.28 |

**Source:** Field Data (2015).

Table 4.27 shows that, The mean result of the specific objective “To ascertain the extent to which level of Education amongst urban community citizens influence the sustainability of infrastructures of roads and drainages’’ is 3.39. Since the mean result is greater than (>) 3; means that, the respondents were in support of the objective that education level among the urban community was an influence to the sustainability of the infrastructure of roads and drainages. The importance of education is supported by Ibem (2010) on challenges of disaster vulnerability reduction in Lagos Megacity Area, Nigeria and the report on the sustainable Dar es Salaam Project (SDP) report by Repoa (2003) on the impact analysis of sustainable Dar es Salaam Project on Sustainable Livehoods of Urban Poor also supports it. In these two studies, education was highlighted as a crucial factor towards achievement of anything, the studies highlights how important it is for people to be educated enough and be able to have analytical views and capability to differentiate and have better views of handling social and economic issues.

The mean result of the specific objective “To establish the extent to which integrity of urban citizens influence the Sustainability of Infrastructure of Roads and Drainages” is 3.31. Since the mean result is greater than (>) 3, then it implies that the respondents were of the support that integrity is one of the elements influencing the sustainability of infrastructure of roads and drainages. The mean result of the respondents is well supported in the literature reviews by Mangzvo (2010), Stanley *et al (2008)* and Tahwid (2004) who studied on the illegal dumping of solid wastes in the alleys in the central business District of Gweru in Zimbabwe, assessment of households waste disposal practices in Sabon Gari Zaria andthe study on the causes and effects of water logging in Dhaka City, Bangladesh respectively. The writers talked about lack of moral responsibility, change of culture, and carelessness as areas which highlights the need to improve in order to achieve anything be it the in environment protection and sustainability of infrastructures.

**CHAPTER FIVE**

### 5.0 SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

### 5.1. Introduction

This study aimed at examining the urban community’s domestic activities impact to sustainability of infrastructures of roads and drainages in Tanzania. It aimed specifically to look at the extent at which urban community citizens’ level of integrity, education, level of economy and general understanding and awareness of the laws, bylaws and regulations governing the infrastructures of roads and drainages influence the sustainability of the same in the urban area. It examines how each level of these affect the contribution of urban individual citizen while carrying his or her activities as an important stakeholder of the infrastructures of roads and drainages help to enhance the sustainability.

### 5.2 Summary

Looking at some of the responses to test the level of awareness of the respondents behind their actions and considering them as beneficiary of the infrastructure, the findings indicate that half of respondents were not aware of the prohibited actions and related fines and penalties if one does not adhere. This is greatly indicated where only 67 (44.4%) of the 150 respondents interviewed were aware of the existing institutions in urban area that individuals could report over the misusages of the infrastructure. This indicates that 85 (56.6%) of the respondents disagreed or did not know the existence of road authorities prescribed under part II section 3 of the subsidiary legislation under the management of roads which is responsible for control and management of roads.

The level of the awareness was tested further in another way by examining if the respondents ever knew the existence of rules and regulations regarding the good practice and usage of infrastructures of roads and drainages. By 83 (55.3%) of the respondents revealing that they disagreed that they agreed of the claim and 67 (44.7%) of the respondents did not know, this indicates the low level of awareness.

The study took into considerations that the urban residents are tax payers whose money also finance the infrastructures. 87 (58%) of respondents interviewed revealed that it is the sole role ofthe government to ensure the implementation of regulations and rules of the good use of the infrastructures. This indicates the poor level of awareness of general understanding they have on how the government functions and finances its activities. One would argue that, because of that poor understanding, it is the reason why they pay no interest over the good use of the infrastructures.

Respondents interviewed denied that the poverty of individuals does not accelerate the mismanagement of the infrastructures of roads and drainages. This is an indication that the urban citizens lack the focus and awareness of maximizing its beneficial them if the infrastructures are kept and properly maintained. The experts when interviewed over the effect of poverty of urban citizens over accelerating the mismanagement of the infrastructures of roads and drainages they commented that, because of poorness, the urban citizens concentrates on securing the living and thus not focusing on good use of infrastructures of roads and drainages. Urban Road Authorities need to be sound enough by way of implementation of the rules and regulations that govern the maintenance of the infrastructures. The presence indication show that the rules and regulations are not well known enough to the urban residents, even urban people do not know which institutions are responsible for such governance because of poor implementations.

### 5.3 Conclusions

Despite that the Road Act 2007 (No.13 of 2007) reads with the road management regulations of 2009 providing how the urban citizens should use the infrastructures of roads and drainages in urban area, urban people seem to continue to misuse the infrastructures discriminatorily as if the rules and regulations were in non-existence. The act and regulations prescribe the kind of actions that are prohibited to be carried out alongside the infrastructures and the associated penalties (fines and imprisonment) one would face in case is found acting against the prohibited actions.

### 5.4 Recommendations

There are no standard methods to assess the level of awareness of community of their domestic activities impact to sustainability of infrastructures of roads and drainages. The future of sustainable infrastructure of roads and drainages would depend on a combined and quality of a number of things.

1. Government and authorities empowered to observe the rules and regulations need to play its key role to the course, as it is to the urban citizens who shouldered with the responsibility of adhering to it.
2. There is a need to improve the corroboration between road authorities and media by together coming out and having sessions on how urban people have to conduct and be responsible towards the maintenance of the infrastructures of roads and drainage in order to achieve the desired sustainability.
3. The authorities responsible for implementation of road maintenance regulations and acts should come out and be alive and let remind the urban citizens that they are alive and ready to ensure that people adhere to the existing laws and regulations.
4. The willingness of using the infrastructure of roads and drainages properly can be kept as high as possible if people improve the culture of wanting to maintain what they already have, and particularly those items that costs the country a lot of money.
5. There should be deliberate efforts to curb corruption. Rampant corruption existing in the society currently affects the moral and attitudes towards the good management of the public infrastructures as people regard them as if they are owned by different people other than them.

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### APPENDICES

Iam a student and a researcherfrom the Open University of Tanzania. I am researchingon the awareness of urban community to their domestic activities impact to sustainability of infrastructures of drainage and road. You have been selected as a respondent. Kindly assist me by providing relevant information relevant to the study. I assure you that the information you provide will be used for academic purposes only.

**Questionnaire**

**Part A: Kind of business you are involved in**

Please tick the appropriate box

1. I am employed …………… Business…………….

**Part B: Personal Particulars**

1. Gender Male……………… Female…………….

2. Your age in years ……………..

3. Your level of Education ……………….

**Part C: The Importance of Supporting Project Sustainability as an Urban Community Citizen**

Indicate by ticking the appropriate box against each statement to indicate the extent to which you agree on it. The ratings are;

1. Strongly disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly Disagree

**Section A: Degree of Integrity and Sustainability**

1. There exist institutions within urban community responsible to monitor, receive report, and charge those who misuse the infrastructure of roads and drainages.

4

3

1

2

5

1. Urban communities’ cultures embrace the required level of integrity as part of pre-requisite to support the sustainability of infrastructure of roads and drainages.

2

5

3

4

1

1. Whilst performing duties, Urban Community exercise moral responsibility of good use of infrastructure of roads and drainages

4

1

2

5

3

1. There is a need for a change to the existing culture among urban communities in order to support the sustainability of infrastructure of roads and drainages

3

2

4

5

1

1. Sustainability of roads and drainages depend greatly on the degree of integrity among urban community.

2

1

5

4

3

**Section B: Education level and sustainability**

1. Media campaigns of Radio and Televisions strongly hold sessions to promote the importance of sustainability infrastructure of roads and drainages.

2

5

4

3

1

1. Given the cost of infrastructure of drainage and roads to the country, the primary school syllabus clearly addresses its importance to the leavers

2

3

1

5

4

1. If well equipped with primary school leavers are able to impact the good practice of use of infrastructure of roads and drainages.

2

1

5

4

3

1. There is special education provided for all citizens on the importance of infrastructure of roads and drainages.

5

1

2

3

4

1. Sustainability of roads and drainages depend greatly on the level of education that the urban community possess.

5

1

2

3

4

**Section C: Poverty level and sustainability**

1. Level of poverty of individual in urban area do influences the bad use of road and drainage infrastructure.

5

4

3

2

1

1. It is the poor people that are linked with the destruction of infrastructures of drainages and roads.

5

3

4

1

2

1. Poverty conditions of urban community accelerate mismanagement of infrastructure of roads & drainages.

5

3

4

1

2

1. Only rich people pay tax for the government to finance the infrastructure of roads and drainages in the country.

2

5

3

4

1

1. Sustainability of roads and infrastructure is greatly influenced by level of poverty, the deeper the level of poverty the hire rate of un-sustainability.

3

2

4

5

1

**Section D: General Knowledge and Sustainability**

1. As long as citizens pay tax, it is no longer their responsibility to ensure the good use of infrastructures of drainages and roads.

1

2

5

3

4

1. An improvement of economy of an individual is not related with the well maintained infrastructures of roads & drainages

5

4

3

2

1

1. There exist no government established rules and regulations regarding good practice usage of infrastructure of roads and drainages.

4

3

2

1

5

1. It is the Government sole responsibility to implement the rules and regulations regarding the preservation of infrastructure of drainages and roads.

5

4

3

2

1

1. Sustainability of roads and drainages infrastructure in greatly influenced by the level of general knowledge of the urban people.

2

1

5

4

3

**Thank you for participating**