**INFLUENCE OF FACILITATIVE LEADERSHIP OF LOCAL GOVERNMENT AUTHORITIES ON ROADS MAINTENANCE EFFECTIVENESS IN TANZANIA: MARA AND MWANZA REGIONS**

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# CERTIFICATION

The undersigned certifies that he has read and hereby recommends for acceptance by The Open University of Tanzania a Dissertation entitled; “Influence of Facilitative Leadership of Local Government Authorities on Roads Maintenance effectiveness in Tanzania: Case of Mara and Mwanza Regions” in fulfilment of the requirements for the Degree of Masters in Project management (MPM) at The Open University of Tanzania

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# DECLARATION

I, Deogratius Chacha Makori, do hereby declare to the Senate of The Open University of Tanzania that this research is my own original work and it has not been and will not be submitted to any other University for a similar award.

…………………………………

Signature

………………………………

Date

# DEDICATION

To my lovely father, Robert Makori Muresi of Ngoreme- Serengeti Mara Region and to my lovely wife, Florida Zakaria Muzee, my daughter Petty and my sons Freddy & FrancosMakori

I could never do it without you and GOD.

Thanks.

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# ABSTRACT

The purpose of the study was to examine the influence of the facilitative leadership of the District Executive Directors on the Road maintenance status among local government authorities. The specific objectives were perceived extent of effectiveness of roads maintenance in the study area, identification of administrative impediments retarding the effectiveness of roads maintenance, participation of LGAs towards environmental, social, health and safety issues during roads construction and mitigation measures against challenges encountered by LGAs in road construction projects. Data were collected from 120 respondents by using a standard structured questionnaire for Facilitative Leadership and Roads Maintenance Status. The Statistical Packages for Social Science Analysis (SPSS version 21) eg. Chi-Square and Binary Regression, and descriptive analysis were used for data analysis. Results indicate that there was a relationship between perceived general facilitative leadership style and roads maintenance status where by the nominated DEDs must attend facilitative leadership training courses and extend their involvement practice to include the public that could help in protection of roads for their prolonged lifespan. Note that two qualities of facilitative leadership style, which are involvement in planning roads maintenance activities and involvement in collective implementation of the road maintenance budget activities uniquely, explained roads maintenance status having controlled all other variables in the conceptual framework. Recommendations for the practice to improve roads maintenance status and for future research are provided.

Keywords: *Road Maintenance,**Facilitative Leadership, Maintenance, Effectiveness.*

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# CHAPTER ONE

# INTRODUCTION

## Background Information

This study investigated the influence of facilitative leadership of local government authorities on road maintenance status in the Local Government Authorities. Regular maintenance of roads assures the security of road users, long life the roads, appropriate use of funds, and both security and long life of vehicles. This is because roads are expected to deteriorate with time and use after their construction if they are not frequently maintained (World Bank, 1998). Road maintenance has a potential for economic improvement, and a combating strategy against road safety. For example, 30% of accidents are reported to occur on 2-lane roads and 25% on straight sections. From these accidents, more than 50% are reported on trunk roads (SUMATRA, 2017).

Road Infrastructure in Tanzania comprises a total network of 86,000km that includes 33,000km classified as National Roads (Trunk and Regional Roads) managed by TANROADS and 53,000km classified as Local Roads (District, Feeder and Urban Roads) managed by Local Government Authorities /Councils. The Local Roads Network comprises 29,300km of District Roads, 21,000km of Feeder Roads and 2,700km of Urban Roads (URT, 2009). The Local Roads are managed by the 132 Local Government Authorities (City, Municipality, Town and District Councils) acting as road authorities.

In Mara region there are about 4,241.16 km managed by Local Government Authorities. The Councils carry out planning, prioritization, project design, tendering and supervision of maintenance and development works implemented by contractors. The Councils also supports the villages\communities in maintaining and improving the Community Roads (defined as one road class in the Roads Act 2007). The Prime Minister’s Office Regional Administration and Local Government (PMO-RALG) has an oversight function of preparing policies and strategies in cooperation with key stakeholders in the sector, as well as being responsible for coordination and monitoring of the road activities in the councils and to provide/coordinate capacity building and advisory support for the councils.

PMO-RALG is assisted by the Regional Administrative Secretariats for coordination, monitoring and advisory support. The responsibilities of PMO-RALG are vested with the Transport Infrastructure Unit (TIU) within the Division of Sector Coordination (DSC). The TIU is responsible for managing the Road Funds for the Councils and the Local Government Transport Programme (LGTP) including the Village Travel and Transport Programme (VTTP). Note that 30% of the funds collected by the Road Fund are made available for Local Roads, out of which not less than 90% shall be used for maintenance and not more than 10% for development.

The Councils also rehabilitate roads using the Local Government Capital Development Grant (LGCDG) and their own tax revenues. Funds are also made available by development partners for through Local Government Transport Programme (LGTP), Agriculture Sector Development Programme (ASDP), Tanzania Social Action Fund (TASAF), Urban Development Environment Management Programme (UDEM) and the Strategic Cities Programme (URT, 2009).

The roads that frequently undergo maintenance can be known by inquiring the number of times the roads have been maintained or by observing the condition of the roads. The term road condition refers to the assessment on whether the roads are good, fair or poor. To reach such a judgement, there should be the objectives of performance indicators, which include physical condition in terms of level of service provided to road users, such as smoothness, structural distress such as cracking, structural adequacy such as the capacity to carry a specified number of loads, surface friction as related to safety. Other physical but qualitative condition objectives of performance indicators are measures related to culverts, signs, fences, curb and gutter (Haas, et al, 2009).

Although the road condition of trunk and regional roads have steadily improved due to various maintenance/rehabilitation and development activities, the condition of regional roads still remain unsatisfactory (URT, 2010). Road maintenance is also one of the key factors that determine the price of goods and services are potential for reducing poverty through supporting economic growth by directly and indirectly promoting trade and higher productivity in the economic sectors. When roads provide good access, they contribute to development of other sectors such as health, agriculture, and education.

In Tanzania, such assessment criteria have been detailed in their operational characteristics to incorporate the condition of the roads during and after construction. These are such as presence of water quality baseline data along the road project during the mobilization phase prior to the execution of the actual construction works; water sprinkling at the construction site to control dust, presence of borrow pits and quarry site access road, quarry site, diversion road along the major centres. Others are absence of noise and vibration at the major villages/street/centers along the road project during construction phase, absence of solid waste collection on the road, presence of speed calming measures, road signs, barricades and warning signals (SUMATRA, 2017).

**1.2 Research Problem Statement**

Despite the documented improvement of the trunk roads in Tanzania, road maintenance status of regional and the roads under local government authorities still remain unsatisfactory (URT, 2010) implying that the maintenance is not continually done. World Bank (1998) highlights that road maintenance culture is of great importance if the lifespan of the roads estimated are to be realised. Such maintenance status can also be assessed by inquiring frequency of maintenance or by observing roads condition using several indicators such as whether or not such indicators are in good condition.

Previous researchers have found the relationship between facilitative leadership and performance in works in several aspects such as ability of their organizations to achieve corporate goals and objectives (Mohammed, *et al.,* 2014), job involvement (Malik & Ansari, 2014), and virtual project team success (Chun, 2017), contractor’s performance (Njenga, 2014) and road infrastructure damage (Shehu, *et al.* 2015). However, little is known as to whether or not the facilitative leadership style of the District Executive Directors in terms of involvement of their subordinates in planning and implementation of roads budget could influence road maintenance status using the World Bank criteria.

The observed criteria for road maintenance status were clearing of pavement, mowing and maintenance of plants, clearing of ditches and culverts, repair of traffic signs and road markings, shoulder grading, pothole patching and crack sealing, repair of sealants and expansion joints of bridges, repair of cut and fill slopes, regraveling, resealing/surface dressing, overlaying, maintenance of traffic signs and road markings, removal of debris or obstacles from natural causes and repair of damage caused by traffic accidents.

Others are the soundness of the maintenance strategy type, level, and timing of intervention and the managerial and operational efficiency with which the strategy is executed. These depend, in turn, on such factors as government commitment, institutional structure, managerial ability, staff quality, accountability, and incentives. However, these determinants are too broad to generalize in the Tanzanian LGAs context without an empirical study. Therefore, the present study uses this World Bank’s framework to study the influence of facilitative leadership of local government authorities (LGAs) on roads maintenance.

## 1.3 Research Objectives

**1.3.1 Overall Objective**

The overall objective of this study was to examine the influence of facilitative leadership of local government authorities on roads maintenance effectiveness.

**1.3.2 Specific Objectives**

The overall objective of this study was achieved through the following specific objectives:

1. To assess the extent of effectiveness of roads maintenance in the study area
2. To identify administrative impediments retarding the effectiveness of roads maintenance among LGAs.
3. To demonstrate levels of participations of LGAs towards Environmental, Social, Health and Safety issues during roads construction.
4. To examine mitigation (measures) against challenges/ impediments encountered by LGAs/councils in road construction projects.

## 1.4 Research Questions

1. What is the extent of effectiveness of roads maintenance in the study area?
2. What are the administrative impediments retarding effectiveness of roads maintenance among LGAs?
3. What are the levels of participations of LGAs towards Environmental, Social, Health and Safety issues during roads construction?
4. What mitigation measures do LGAs take against the impediments encountered in road construction projects?

## 1.5 The Significance of the Study

This study is timely significant now for its potential role to inform the local authorities on how leadership can influence the betterment of the roads conditions through maintenance, which is the hub of development of National Economy. The study is also expected to add on the body literature as to how leadership style could be improved for the benefit of the society, specifically in improving both social, economic, and safety of the road users. This is because keeping roads in maintainable condition brings vast benefits to the road users and the economy at large through improved access to markets, hospital, schools, farms, mining and industrial area (URT, 2005).

## 1.6 Scope and Limitation of the Study

The study has focused on Local Government Authorities and officials; regarding roads’ implementation of the maintenance budget planning and the way these are related to leadership styles of the authorities in the district and feeder roads. Thus generalization of the findings of the proposed study needs to take into consideration of the same sources of information. In terms of limitations, the study used both self-report and other employees’ opinions to reach decision on the facilitative leadership style of the DEDs. Although the two instruments were averaged to keep human to the minimum, more needs to be done to improve the instruments on measuring facilitative leadership style among the DEDs before one generalizes these findings to all DEDs in the country.

# CHAPTER TWO

# LITERATURE REVIEW

## 2.1 Chapter Overview

This section reviews literature related to the sub themes of the proposed study. The chapter attempts to position the objectives of the study to the theories and gaps emerging out of the past research works. The section is presented under sub-sections such as definitions of the key concepts, theoretical and policy review, empirical review, gaps identified and the conceptual framework.

## 2.2 Definitions of Key Concepts

2.2.1 Facilitative Leadership

Facilitative leadership style refers to co-creative leadership model which holds that leaders should effectively involve all employees in the work they are engaged in (McNamara, 2014). The facilitative leader motivates their subordinates to do more than they would originally be expected to do. According to McNamara (2014) a facilitative leader is expected to **e**mpower employees to by involving them in planning the goals and specific activities to be carried out, involve the employees during the implementation of the plans, and prepare them to share responsibility for the results of their actions whether positive or negative. Together and achieve common goals through relationships, processes and outcomes.

Other qualities of facilitative leadership include; understanding, and communicating the leader’s thoughts, speaking up when challenges arise, making and timely implement appropriate decisions, allow employees to develop their leadership latent and achieve high quality results through the employee’s abilities.In this study, three specific characteristics of facilitative leadership, namely; perceived general facilitative leadership style, involvement of employees in panning anddevelopment of road maintenance activities, and involving employees in implementation of the roads’ maintenance budget activities were addressed.

Specifically, involvement of employees in planning anddevelopment of road maintenance activities and involving employees in implementation of theroads’ maintenance budget activities focused on whether or not employees were involved in planning and implement activities related to road maintenance such as; grass Cutting, ditch cleaning, and culvert cleaning; bituminous sealing of cracks; patching of potholes by filling with base material and patch with surface dressing, repair of pavement edges; resurfacing the pavement surface with a single bituminous surface dressing; new single surface treatment by scarifying the old surface; resurfacing and reshaping the surface with 30 mm asphalt concrete overlay; reconstruction of the whole pavement structure including new sandy sub base, gravel base and a double bituminous surface dressing; reshaping and levelling of the pavement surface; spot regravelling in affected areas; regravelling of the pavement surface by applying 150 mm gravel including scarifying and reshaping the road surface; and upgrading the pavement to sealed standard with new sub-base, base and surface dressing (McNaMara 2014).

### 2.2.2 Road Maintenance Effectiveness

Roads maintenance effectiveness has been used to refer to the status of the roads assessed in terms of whether the road is good, fair or poor (Haas, et al. 2009). The road is judged to be good when the paved road is considerably free from defects and requires little and usual maintenance. If the road is not paved it is said to be good when it only needs such a routine grading and spot repairs. The road is said to be fair when its defects are significant and requires resurfacing or strengthening. Poor status of the road refers to the condition whereby the paved road shows extensive faults and needs immediate rehabilitation or reconstruction, or major drainage works for unpaved road (World Bank, 1988).

In this study, road maintenance status was judged to be good if the roads metat least 50% of the assessment criteria such as clearing of pavement, mowing and maintenance of plants, clearing of ditches and culverts, repair of traffic signs and road markings, shoulder grading, pothole patching and crack sealing, repair of sealants and expansion joints of bridges, repair of cut and fill slopes, graveling and resealing/surface dressing, overlay, removal of debris or obstacles from natural causes, and repair of damage caused by traffic accidents. When the roads were reported to meet less than 50% of these criteria, maintenance status was judged poor, and thus, not effective.

## 2.3 The Concept of Leadership Style

According to Lewin, (1939), there are three main leadership styles. These are Autocratic leadership style, Democratic leadership style and Laizzes – Faire leadership style. Autocratic leadership style is sometimes known as dictatorial leadership, characterized by fear creation, threats and authority setting. The main concern of supervisors is usually production and leaders make decision and determine activities to be undertaken by employees, who are also expected to be obedient unquestionably. One of the shortcomings of this style is that with the cantankerous and aggressive leader, not only the leader will lose relationship component with employees, but also negative reaction usually characterised by restricting expected output might characterize production among employees.

Democratic Leadership style, also known as participative leadership style seeks to influence by considering subordinates’ feelings and encourage their participation in decision making, planning and implementation of the decisions (Lewin, Lippit& White, 1939). Facilitative leadership style is a form of democratic leadership style, whereby a leader communicates about the group’s deliberations and is a methodological agent of members of the group (Gasti, 1994). The concept of facilitation in this kind of democratic leadership involves keeping deliberations focused and on track (showing appropriate way and intervening when members lose the focus), encouraging the use of individuals’ potentials for the common goals of the group, and encouraging members to observe the norms and laws adopted by the group. In the third style, Laizzes – Faire leadership style, the leader is focusing on the outcome irrespective of the means they are achieved. The leader stays away from strict supervision of the subordinates, sets no goals, makes no decision and believes he is the “good fellow”.

## 2.4 Theoretical Review

Several theories and models have been explaining roads damage and condition. This proposal reviews few that are found relevant to the objectives of this study. Such theories are the ground penetrating radar theory (GPR; Jol, 2009) and the theory of road pricing (Haritos, 1974).According to the GPR, identifying underground utilities and predicting their depth are fundamental when construction or repair of roads. The theory proposes that underground utilities have to be detected using the GPR-Ground Penetrating Radar geophysical method to estimate depth and the travel time.

The radargram provides information which is used in conjunction with ground wave velocity, which depends on the dielectric constant of materials, where it is usually assumed to be constant for the area under investigation (Jol, 2009). Some researchers have suggested that wrong depth estimates can result in damage to public utilities, rupturing pipes, cutting lines; and thus, the use of the interval velocity of Dix (1955) can be applied in radargram to estimate the depth of underground utilities as alternative to the conventional technique of constant velocity applied to the same data set (Poluha, et al. 2017). The theory of road pricing (Haritos, 1974) holds that road maintenance should be done timely from the money charged from all road consumers through tax or end user consumptions.

Another important approach which informed this study was a safe system approach. This approach places the road user at the centre of the safety focus. The road user has both strengths and weaknesses that must be taken into consideration for the road safety. According to the approach, the road system should be designed to expect and accommodate human errors. While the theory argues that the roads designers should accept and share responsibility for the safety of the system, the road users need also to accept responsibility to abide by the rules of the game in the system (URT, 2017). It follows then that frequent revisiting the road systems for constant maintenance is inevitable if the road systems has to realise road accidents and injuries to the minimum. Figure 2.1 figuratively illustrates this approach.

Admittance to system

Understanding crashes and risks

Safer speeds (Lower speeds more forgiving of human error)

Human tolerance to physical force

Safer vehicles

Safer roads and roadsides (more forgiving of human error

Enforcement of road rules

Education and information supporting road users

Enforcement of road rules

Education and information supporting road users

Education and information supporting road users

Enforcement of road rules

Enforcement of road rules

Alert and compliant road users

**Figure 2.1: The Safe System Approach**

**Source:** (URT, 2017)

The review of the theories on roads condition regarding construction and maintenance has informed the present study that risk-based budget/cost estimates become an important issue. Most researchers assume the variability and probability distributions of budget/cost estimates as a force behind the improved roads condition. However, these budgets cannot be successfully driving the practice if good leadership practices on involvement of stakeholders including the employees in the planning and implementation of such budgets in for construction as well as maintenance of the roads do not follow the principles.

## 2.4 Policy Review

There are a number of key policies and strategies guiding the development in Tanzania to which local roads can contribute to their successful implementation of which include, the Tanzania Development Vision 2025, The Millennium Development Goals (MDGs), The Rural Development policy of 2003, The National Strategy for Growth and Reduction of Poverty (NSGRP) commonly referred to as MKUKUTA.

Despite their different goals and objectives, these policies have some messages in common such as investments in road infrastructure to promote rural development; to make economic growth more inclusive and bring the entire population to, at least, basic standards of health and education; to reduce transport cost; and reduction of poverty. All these are possible with the improved road condition as the roads are the hub of all these developments (URT, 2005). Subsections below discuss these policies in details.

### 2.4.1 The Tanzania Development Vision 2025

The Tanzania Development vision 2025, states that “Investments in road Infrastructure to promote rural development is part of the driving forces that needs to be promoted and utilized to achieve the attributes of 2025 for Tanzania (High quality likelihood; Peace, stability and unity; Good Governance; well-educated and learning society; and competitive economy capable of producing sustainable growth and shared benefits) and its corresponding targets’’ (URT, 2005). Note that a proper and adequate methodology of contract planning, procurement and management is crucial in determining the performance of the works to stake holder’s satisfaction. In consideration of the above Government strategies towards Infrastructure Development (road) must be achieved.

The research shall focus on various factors which build up the performance strength and pull down the same during contract planning, procurement and administration .Most of the network 56,625km out of 86,472km (about 66%) in Tanzania is managed by Local Government Authorities [LGA]. The Local roads network comprises 29,537km of District roads, 21,191km of feeder roads, and 5,897km of urban roads. In view of the above, the research shall embark on identifying impediments which hinder the performance of LGA undertaking road projects.

### 2.4.2 The Millennium Development Goals

One of the basic thrust of the Millennium Development Goals (MDGs) is to make economic growth more inclusive and bring the entire population to, at least, basic standards of health and education. Poor local roads and transport services are critical obstacles to the achievement of this goal.(URT, 2005).

### 2.4.3 The Rural Development Policy of 2003

The policy states that the insufficiency and poor condition of rural roads impedes the free flow of goods and services and smooth movement of people to and from the rural areas. The policy consider improved transport and roads as a necessity to reduce transport cost and travel time as to achieve its four objectives on economic growth i.e. access to social and economic services, risks and vulnerability and good governance.

### 2.4.4 The National Strategy for Growth and Reduction of Poverty of April 2005

This policy recognize the importance of improving the condition of rural roads to support the Government‘s effort to cause economic growth and poverty reduction. The MKUKUTA gives the particular emphasis to increasing accessibility to economic and social services in rural areas where both the deepest and most widespread poverty is found and also where considerable potential for development, primarily in agricultural point of view.

An adequate network of local roads in good condition will make substantial contribution to this effort as it will provide reliable and good access between the living areas of urban and rural communities and local and regional centre as well as within the areas where people live and work. The MKUKUTA has set specific target for improvement of rural roads (MKUKUTA, 2005)

2.4.5 Local Government Authorities key Policies and Strategies towards road Infrastructure

There are a number of key policies and strategies guiding the development in Tanzania to which LGAs/councils’ local roads can contribute to their successful implementation. The Tanzania Development Vision 2025 states that “investment in road infrastructure to promote rural development is part of the driving forces that needs to be promoted and utilized to achieve the attributes of 2025 for Tanzania (high quality livelihood; peace, stability, and unity; good governance; well-educated and learning society; and competitive economy capable of producing sustainable growth and shared benefits) and its corresponding targets” (URT, 2005).

The Millennium Development Goals (MDGs) have elaborated that one of the basic thrust of the Millennium Development Goals is to make economic growth more inclusive and bring the entire population to, at least, basic standards of health and education. Poor quality of local roads and transport services are critical obstacles to the achievement of this goal (URT, 2009). Also, the Rural Development Policy of 2003 states that the insufficient and poor condition of district roads managed by LGAs impedes the free flow of goods and services and smooth movement of people to and from the rural areas. The policy considers improved transport and roads as a necessity to reduce transport cost and travel time as to achieve its four objectives on economic growth, access to social and economic services, risks and vulnerability and good governance (RDP, 2003).

The National Strategy for Growth and Reduction of Poverty of April 2005 recognizes the importance of improving the condition of rural roads to support the Government‘s effort to cause economic growth and poverty reduction. The MKUKUTA gives particular emphasis to increasing accessibility to economic and social services in rural areas where both the deepest and most widespread poverty is found and also where there is considerable potential for development, primarily in agriculture (NSGRP, 2005).

In view of the above stated policies and strategies, LGAs/ councils are responsible to ensure that district and urban roads are properly constructed or improved to achieve the intended goals and reduce the widespread poverty in remote areas as well in urban centre. Obvious the central Government should make efforts to enhance this strategy by financing adequately these programmes in order to pull down poverty. It is predicted that, this research shall demonstrate and identify various impediments which influence the performance of LGAs/ councils towards road construction and establish mitigations.

### 2.4.6 Road Network, Management and Funding – LGAs/Councils

Road Infrastructure in Tanzania comprises a total network of 86,000km that includes 33,000km classified as National Roads (Trunk and Regional Roads) managed by TANROADS and 53,000km classified as Local Roads (District, Feeder and Urban Roads) managed by Local Government Authorities /Councils. The Local Roads Network comprises 29,300km of District Roads, 21,000km of Feeder Roads and 2,700km of Urban Roads (URT, 2009). The Local Roads are managed by the 132 Local Government Authorities (City, Municipality, Town and District Councils) acting as road authorities. In Mara region there are about 4,241.16 km managed by Local Government Authorities. The Councils carry out planning, prioritization, project design, tendering and supervision of maintenance and development works implemented by contractors.

The Councils also supports the villages\communities in maintaining and improving the Community Roads (defined as one road class in the Roads Act 2007). The Prime Minister’s Office Regional Administration and Local Government (PMO-RALG) has an oversight function of preparing policies and strategies in cooperation with key stakeholders in the sector, as well as being responsible for coordination and monitoring of the road activities in the councils and to provide/coordinate capacity building and advisory support for the councils. PMO-RALG is assisted by the Regional Administrative Secretariats for coordination, monitoring and advisory support.

The responsibilities of PMO-RALG are vested with the Transport Infrastructure Unit (TIU) within the Division of Sector Coordination (DSC). The TIU is responsible for managing the Road Funds for the Councils and the Local Government Transport Programme (LGTP) including the Village Travel and Transport Programme (VTTP). 30% of the funds collected by the Road Fund are made available for Local Roads, out of which not less than 90% shall be used for maintenance and not more than 10% for development. The Councils also rehabilitate roads using the Local Government Capital Development Grant (LGCDG) and their own tax revenues. Funds are also made available by development partners for through Local Government Transport Programme (LGTP), Agriculture Sector Development Programme (ASDP), Tanzania Social Action Fund (TASAF), Urban Development Environment Management Programme (UDEM) and the Strategic Cities Programme (URT, 2009)

### 2.4.7 Local Governmental Transport Programme

Over many years the Local roads have deteriorated due to meagre funds for maintenance and development. To alleviate problems of inadequate maintenance for many years, in 1998 the Road Tolls (Amendment) No. 2 Act, 1998 was enacted and the Roads Fund came into operation in 2000. This led to increased and reliable funding of maintenance and improved utilization of the funds. Although a significant improvement was obtained on Local roads, the funding level was not sufficient to sustain the condition and service level of the road networks. After continued effort by the Roads Fund Board and the Ministry of Works, Transport and Communication (MoWTC) and upon establishment of TARURA the funding level increased gradually.

### 2.4.8 Consultancy Service to the Councils

As outlined in the LGTP documents, PMO-RALG considers the use of local consultants as an important way of increasing the implementation capacity of the councils. However, the councils are reluctant to use consultants due to the time consuming process of procurement and the cost compared to low budgets for road works. PMO-RALG therefore started a procurement process to establish a framework contract with 3-5 local consultants. Under this framework contract with agreed unit rates for various services it will be very easy for the councils to access consultancy services. The services to be provided will mainly be inventory and condition surveys, project preparation (design, contract documents, tender evaluation) and supervision of road works ( PMO-RALG Sub- sector paper, October 2009).

### 2.4.9 District Roads Management System

In order to improve data management, and subsequent selection and prioritisation of road works into annual work plans and its reporting, PMO-RALG has introduced DROMAS. The system includes modules for planning and reporting including a sub-module for Annual District Roads Inventory and Condition Surveys (ADRICS). The modules will make it easier for the Councils to prepare their Annual Work Plan and prepare Reports to PMO-RALG (URT, 2009).It was report in the 6th Joint Infrastructure Sector Review meeting that, by the end of 2017, some of engineers and technicians from all 132 Councils and 26 Regions received a ten day intensive training in the Planning and Reporting Module.

The last module to be introduced was the Head Quarter Module. It will be used to monitor the Annual Work Plan (AWP) and QPR data. It will be possible to identify if any district makes any changes in their road network as well as to monitor changes in the average maintainable condition index of the districts. The system will monitor the disbursement of the funds from the Road Fund and other sources. The system generates quarterly and annual reports for the Road Fund Board (URT, 2009).

#### 2.4.9.1 LGAs/Councils Procurement Practice

The Government has clearly articulated its objectives of improving delivery of services to its citizens through strong, democratically elected LGAs, with clear accountability to both the Central Government and the communities that they serve. To this end the Government has embarked on the process of transferring responsibilities and resources to the LGAs to use to meet locally defined needs within National policies. As the result substantially more, and larger, spending decisions are being made by LGAs now than ever before and this trend will continue (President’s office- Procurement Manual Vol. III, 2004).

In order to ensure that the principles of accountability, effectiveness and efficiency are applied to these spending decisions it is essential that they are made within an appropriate legal and institutional framework that embodies local and international best practice in procurement. In the district level, all procurement duties are organised, controlled and managed by District Council Tender Board. The chairperson of the DCTB is appointed by District Executive Director as well as members of the Procurement management Unit are appointed also by the District Executive Director. The functions and responsibilities of the DCTB and PMU are explicitly explained in the Procurement Manual for LGAs Volume I- III issued by President’s Office – Regional Administration and Local Government, 2004. In view of that, the research shall demonstrate and identify weakness and strength during planning and procurement processes in LGAs/Councils as well as contract administration.

## 2.5 Empirical Literature Review

### 2.5.1 Leadership Styles and Work Performance

Mohammed, et al. (2014) investigated the relationship between leadership style and employee performance in organizations in Nigeria. Using questionnaire and interview to gather data, they found a significant relationship between leadership style and performance in an organization, whereby leaders and leadership styles affected the ability of their organizations to achieve corporate goals and objectives. Malikand (2014) examined the relationship between Leadership Styles and Job Involvement using a Multifactor Leadership Questionnaire 5X-Short form (MLQ 5X-Short) among 74 participants. Their results indicated that leadership style was associated with job involvement whereby they found a moderate negative but significant correlation, (r = -.395, p<0.01) between Laissez Faire Leadership style job involvement. They further found a moderate negative but significant correlation, (r = -.47, p<0.01) between Management-by-exception-passive and Job Involvement among employees.

Chun (2017) examined whether three leadership styles (transformational, transactional, and laissez-faire) could be associated with perceived virtual project team success among 100 executives in the multinational companies in Malaysia. The results found that a significant and positive relationship between transformational leadership style and virtual project team success (r = 0.517, N = 100, p = 0.00 < 0.05), a significant and positive relationship between transactional leadership style and virtual project team success (r = 0.614, N = 100, p = 0.00 < 0.05), and a significant and positive relationship between laissez-faire leadership style and virtual project team success (r = 0.650, N = 100, p = 0.00 < 0.05).

Njenga (2014) conducted a survey study among 42 respondents to examine factors influencing effective and efficient delivery of road construction projects in Kenya. The results indicated that project management influence road contractor’s performance and that there exist relationship between how the projects are managed and contractor’s performance. Adding to the list, Shehu, et al. (2015) put forward some factors inﬂuencing road infrastructure damage in Malaysia. They group these factors as poor structure, climatic or geological effects and loading.

### 2.5.2 Road Maintenance Budget and Roads Maintenance Status

URT (2013) proposes that one of the leadership roles from the lower levels to higher authorities is to ensure the best of the roads condition by continually allocate and utilize the road maintenance budget timely. ‘A shortfall in allocation means that insufficient maintenance is conducted on the network with the result that various activities are deferred. Usually, this means the postponement of periodic maintenance. In the short term, the road user or policymaker might not perceive the difference but in the longer term, it will contribute towards higher expenditures as the type of needed repairs will escalate from minor into major maintenance activities’ (pg. 40).Njenga (2014) also found that one of the principle reasons for the construction industry's poor performance and unsatisfactory roads condition has been attributed to the inappropriateness of the chosen procurement and thus, lack maintenance practices.

## 2.6 Research Gaps Identified

Although the reviewed studies have done much in examining the relationship between leadership style and performance in works in several aspects, little was found regarding the relationship of the District Executive Directors, involvement and implementation of their subordinates in road maintenance budget planning; and the observed roads maintenance status.

## 2.7 Conceptual Framework

The reviewed literature has informed on the role of leadership style and funding of the roads on the roads maintenance status. This study was guided by the blueprint in Figure 2.8 to study and achieve its specific objectives. It was assumed that facilitative leadership style and specifically, general perceived facilitative leadership style qualities, involvement of employees in the planning anddevelopment of road maintenance activities, and involvement in the implementation of the roads’ maintenance budget activities would have the relationship with roads maintenance status. However, it was also thought that such a relationship might be affected by other characteristics such as sex, age, level of education, and working experience. The arrows indicate the assumed relationship.



**Figure 2.2: The Conceptual Frame Work for the Proposed Study**

# CHAPTER THREE

# RESEARCH METHODOLOGY

## 3.1 Chapter Overview

This section describes how the proposed study was conducted to achieve its objectives. It is presented in such subheadings like research area, design, sampling procedure and sample size, as well as data sets and analysis process.

## 3.2 Research Area

The study was conducted in Mara and Mwanza regions. Specifically, the district councils targeted were Bunda District, Serengeti District, Musoma District, and Butiama District in Mara region. Others were Nyamagana, Ilemela, Sengerema and Mwanza city in Mwanza Region. The areas were selected at the researcher’s convenience so that research would be conducted without compromising with job requirements.

## 3.3 Research Design

The research approach was mainly quantitative, under which cross sectional survey design was employed in data collection. In addition the study was correlation in its analysis due to the nature of data required to achieve the information in the specific objectives. All respondents were exposed to the standardized instruments measuring key variables in the research objectives. In addition, the respondents were asked to respond to the intervening variables such as sex, age, level of education and working experience in the leadership position. Data from each instrument were coded and entered into the Statistical Package for Social Sciences (SPSS) version 21 for both descriptive and inferential analyses.

## 3.3 Sampling Process and Sample Size

Given the small number of target population, that is district council’s authorities, namely DED, District technical team and road contractors; all the officials available on the days of research were included. Road observation for roads maintenance statuswas carried out on the roads under constructions in the visited districts and the main roads networks under the districts’ authorities. About 20 participants from each district, making a total of 120 participants were included.

### 3.3.1 Characteristics of the Participants

Participants were of diverse nature as shown in Table 3.1.

**Table 3.1: Characteristics of Participants**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Variables** | **Levels** | **Proportion** | |  |  |
| **Freq.** | **%** |  |  |
| Sex | Males | 60 | 50 |  |  |
| Females | 60 | 50 |  |  |
| Education | < = Diploma | 52 | 43.3 |  |  |
| Bachelor Degree + | 68 | 56.7 |  |  |
|  |  | Min. | Max. | Mean | SD |
| Age |  | 27 | 54 | 37.37 | 7.248 |
| Working experience |  | 3 | 30 | 9.27 | 6.410 |

**Source:** researcher, 2020

## 3.4 Data Sources and Collection Instruments

### 3.4.1 Sources of Data

Survey data regarding the leadership style of the LGAs authorities were collected from LGAs employees such as the DED and District technical team. Data for roads maintenance status were obtained from the roads observation done and judged by the available district technical team.

### 3.4.2 Data Collection Instruments

Perceived General Facilitative leadership qualities were measured by using a leadership scale developed by Nilwala, *et al.,* (2017). The instrument is a three factor scale consists of self-response 10 items measured at a four response options from Strongly Disagree to Strongly Agree. The three factors in the instruments are such as idealized influence, intellectual stimulation, and inspirational motivation. The idealized influence factor is made up of the items such as:

‘*I express with few simple words what we could and should do*’ and ‘*I help others develop themselves.*’ The intellectual stimulation factor is made up of the items such as ‘*I am satisfied when others meet agreed upon standards,’ ‘I am content to let others continue working in the same ways always,’ ‘Others have complete faith in me,’ ‘I provide appealing images about what we can do*,’ and ‘*I provide others with new ways of looking at puzzling things.*’ The inspirational motivation factor is made up of the items such as ‘*I provide rewards when others reach their goal,’ ‘As long as things are working, I do not try to change anything*,’ and ‘*whatever others want to do is OK with me.*’ The scale is found at Appendix 1.

**3.4.2.1 Involvement Level Protocol**

Involvement level of the LGAs employees in the development of road maintenance activities planning was measured by using the Involvement Level Protocol (ILP). The protocol involves a list of 12 planning tasks in which the DEDs were expected to involve LGAs employees in planning and budgeting. Participants were required to respond to the protocol by putting a tick under appropriate level of agreement from strongly agree to strongly disagree against each activity. The protocol appears in Appendix 1.

**3.4.2.2 Roads Maintenance Status Observation schedule**

Assessment of the roads maintenance status was done using an observation schedule composed of 14 assessment criteria. The technical team assessed the status of roads in their district and judged basing on the assessment criteria. The observation schedule if found in Appendix 1.

**3.4.2.3 The Level of Participation of the LGAs in the Environmental, Social, Health and Safety Issues during Road Construction and Maintenance**

This was assessed using the Environmental**,** Social, Health and Safety Assessment scale developed by the researcher. The scale was adopted from the Environmental**,** Social, Health and Safety requirements standards as indicated in the Environmental and Social management policy (TANROADS, 2018). The scale is found in Appendix 1.

## 3.5 Data Sets and Analysis Process

### 3.5.1 Examining of the Relationship between Perceived General Facilitative Leadership Style and the Observed Roads Maintenance Effectiveness

Under this task, two main data sets were expected:

1. Data on Perceived general facilitative leadership style of the DED obtained from two scales; namely Facilitative Leadership Scale for the DED and Facilitative Leadership Scale for employees (see appendix 1). To minimise the bias, total score for the DED scale was averaged with total score for employees.
2. Data on the maintenance effectiveness of the roads obtained from the Observation schedule for Assessment of the Roads Maintenance Status Protocol (See appendix 2).

Having entered raw data in the SPSS (Statistical Packages for Social sciences) version 21, all negatively worded items were reversed so that the higher score in the scales meant both high qualities in facilitative leadership style and good status in the road maintenance status. In all scales in the study, data were arranged in a descending order so that the median score (50% of the scores) meant a cut-off point of performance. For Perceived general facilitative leadership style performance of at least 50% meant practicing general facilitative leadership style while performance below 50% meant practising non-facilitative leadership styles. Similarly, performance of at least 50% meant in the maintenance status of the roads meant that the status of roads was good while below 50% meant that roads maintenance status was poor. Such a categorisation lead to the use of a chi-square for independence as an analytical statistic for exploring the association between the two sets of data.

### 3.5.2 Examining the Relationship between Involvement in Planning Roads Maintenance Activities and the Observed Roads Maintenance Effectiveness

Under this task, two main data sets were expected:

1. Data onInvolvement in planning roads maintenance activitiesobtained from the Involvement Level of the LGAs Officials in the planning road Maintenance Activities scale (See appendix 1).
2. Data on the maintenance status of the roads obtained from the Observation schedule for Assessment of the Roads Maintenance Status Protocol (See appendix 2).

Similar procedure as in 3.5.1 resulted in the use of Chi-square as a statistical tool for analysing the association between the two sets of data for this task.

### 3.5.3 Examining the Relationship between Perceived General Facilitative Leadership Style and the Observed Roads Maintenance Effectiveness

Under this task, two main data sets were expected:

1. Data on Involvement Level of the LGAs employees in the implementation of Road Maintenance Activities obtained from the Involvement Level of the LGAs employees in the implementation of Road Maintenance Activities scale (See appendix 1).
2. Data on the maintenance effectiveness of the roads obtained from the Observation schedule for Assessment of the Roads Maintenance Status Protocol (See appendix 2).

**Table 3.2: The Main Tasks, Data Set Expected, and Analytical Statistic Employed**

|  |  |  |  |
| --- | --- | --- | --- |
| **Specific Objective** | **Data set expected** | **Analytical Statistics** | **Justification** |
| Assessment of the extent of effectiveness of roads maintenance in the study area | Comments on Roads maintenance Status (whether very poor, poor, good or very good) | Descriptively (frequency and percentage) | Single variable described |
| Examining the relationship between leadership style and the observed roads maintenance effectiveness | Total score of style of the DED in the Leadership scale versus the total score in the observation schedule of roads maintenance status under the DED’s areas. | Chi-square | Analyzes association/difference between two pairs of categorical data |
| Examining the relationship between the involvement level of the LGAs officials in the development of road maintenance activities plans and the observed roads maintenance status | Total score in the involvement scale versus total scores in the observation schedule of roads maintenance status under the DED’s areas. | Chi-square | Analyzes association/difference between two pairs of categorical data |
| Examining the relationship between implementation of the road maintenance budget activities plan and the observed roads maintenance status | 1. Total score in the implementation level scale of the road maintenance versus total scores in in the observation schedule of roads maintenance status under the DED’s areas | Chi-square | Analyzes association/ difference between two pairs of categorical data |
| Explain the maintenance status of the roads when all other variables in the conceptual framework were controlled for | 1. All data for Independent variables in conceptual framework versus data on of roads maintenance status | Binary Logistic Analysis | Analyzes correlation to explain/predict categorical dependent variable from both continuous and categorical independent variables |

Similar procedure as in 3.2 led to the use of Chi-square statistical tool for the analysis of the association between the two sets of data for this task.The data sets and analysis for this study are as summarized in Table 3.2. Chi-square analysis was supplemented by binary logistic analysis to explain the maintenance status of the roads when all other variables in the conceptual framework were controlled for.

# 3.5.4 Reliability and Validity of the Instruments

Validity is an important key to effective research, and if a piece of research is invalid then it is worthless (Cohen et al., 2007; Field, 2009; Pallant, 2011). Pallant (2011) and Field (2009) define validity as the degree to which an instrument measures what it is supposed to measure. According to Cohen et al. (2007), in quantitative research, validity may be improved through careful sampling, appropriate instrumentation and appropriate statistical treatments of the data. Thus, most researchers strive to minimize invalidity and maximize validity. On the other side, Reliability means the ability of the measure (instrument) to produce the same results under the same conditions (Field, 2009). This means whether an instrument can be interpreted consistently across different situations. In this study, validity and reliability of the research instruments were checked after conducting a pilot study.

The Reliability of the instruments was checked by calculating the Cronbach’s alpha coefficients, which is an index showing internal consistency of the instruments. The items in the Road Maintenance Activities scale reached an internal consistency of Cronbach’s alpha coefficient of α = .91. The Cronbach’s alpha coefficients for Observation schedule for Roads Maintenance Status Protocol reached α = .92. On the other hand, the validity indices

**Table 3.3: The Validity Indices for the Key Variables**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Beta | Sig. value | Tolerance | VIF |
| Roads Maintenance Activities scale | .052 | .186 | .979 | 1.022 |
| Roads Maintenance Status Protocol | .274 | .000 | .938 | 1.066 |

# CHAPTER FOUR

# RESEARCH FINDINGS AND DISCUSSIONS

**4.1 Chapter Overview**

This study focused on examining the influence of facilitative leadership of local government authorities on roads maintenance status in their districts. Specific determinant variables were perceived leadership style, involvement level of the LGAs officials in planning maintenance activities and implementation of the planned activities. The dependent variable was the road maintenance status. This chapter presents the results starting with the performance in each of the key independent and dependent variable and then indicates the associations among the variables as response to the research questions.

* 1. **Sample Description**

Participants in this study were of diverse nature as shown in Table 4.1.

**Table 4.1: Characteristics of Participants (n = 120)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Variables** | **Levels** | **Proportion** | |  |  |
| **Freq.** | **%** |  |  |
| Sex | Males | 60 | 50 |  |  |
| Females | 60 | 50 |  |  |
| Education | < = Diploma | 52 | 43.3 |  |  |
| Bachelor Degree + | 68 | 56.7 |  |  |
|  |  | Min. | Max. | Mean | SD |
| Age |  | 27 | 54 | 37.37 | 7.248 |
| Working experience |  | 3 | 30 | 9.27 | 6.410 |

Table 4.2 indicates a fair distribution of the sample among the gender. It further shows inclusion of workers with diverse experiences. These might increase the reliability of the obtained responses.

* 1. **Effectiveness of Roads Maintenance**

**Table 4.2: Effectiveness of Roads Maintenance (n = 120)**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Assessed component** | **SD** | | **D** | | **A** | | **SA** | |
| Freq. | % | Freq. | % | Freq. | % | Freq. | % |
| Clearing of pavement | 20 | 16.7 | 15 | 12.5 | 26 | 21.7 | 59 | 49.2 |
| Mowing and maintenance of plants | 30 | 25.0 | 29 | 24.2 | 38 | 31.7 | 23 | 19.2 |
| Clearing of ditches and culverts | 65 | 54.2 | 12 | 10.0 | 16 | 13.3 | 26 | 21.7 |
| Repair of traffic signs and road markings | 38 | 31.7 | 17 | 14.2 | 19 | 15.8 | 45 | 37.5 |
| Shoulder grading | 34 | 28.3 | 13 | 10.8 | 37 | 30.8 | 36 | 30.0 |
| Pothole patching and crack sealing | 33 | 27.5 | 19 | 15.8 | 25 | 20.8 | 42 | 35.0 |
| Repair of sealants and expansion joints of bridges | 65 | 54.2 | 12 | 10.0 | 16 | 13.3 | 26 | 21.7 |
| Repair of cut and fill slopes | 38 | 31.7 | 17 | 14.2 | 19 | 15.8 | 45 | 37.5 |
| Regraveling | 20 | 16.7 | 27 | 22.5 | 27 | 22.5 | 44 | 36.7 |
| Resealing/surface dressing | 41 | 34.2 | 5 | 4.2 | 18 | 15.0 | 56 | 46.7 |
| Overlay | 17 | 14.2 | 27 | 22.5 | 34 | 28.3 | 42 | 35.0 |
| Maintenance of traffic signs and road markings | 21 | 17.5 | 8 | 6.7 | 29 | 24.2 | 62 | 51.7 |
| Removal of debris or obstacles from natural causes | 20 | 16.7 | 15 | 12.5 | 26 | 21.7 | 59 | 49.2 |
| Repair of damage caused by traffic accidents | 30 | 25.0 | 29 | 24.2 | 38 | 31.7 | 23 | 19.2 |
| **Total Binned results for the scale** | | | | | | | | |
|  | **High Involvement** | | **Low Involvement** | |  | | | |
| **F** | **%** | **F** | **%** |
| 64 | 53.3 | 55 | 45.8 |

**Source:** researcher data, 2020

As indicated in Table 4.2, participants’ responses were fairly mixed towards both positive and negative sides of the scale. This is an indicative that LGAs employees fairly assessed and reported that the status of roads was mixed to include both poor and good. Generally, having totalized and binned the total responses in the scale, 60 (50%) of participants were found to have reported that the roads had poor status, while 59 (49.2%) reported that the roads had good status, with one missing response. The most areas of concern where maintenance status was reported as being very poor are clearing of ditches and culverts 65 (54.2%) and repair of sealants and expansion joints of bridges 65 (54.2%). On the other hand, the areas of maintenance more appraised as very good were Maintenance of traffic signs and road markings 62 (51.7%), removal of debris or obstacles from natural causes 59 (49.2%) and clearing of pavement 59 (49.2%).

**4.4 Administrative Impediments of the Effectiveness of Roads Maintenance**

### 4.4.1 Perceived General Leadership Style of the District Executive Directors (DEDs)

Table 4.3 indicates that participants’ responses were skewed to positive side, which is an indicative that most LGAs employees perceived that their directors exercised non-facilitative leadership styles. The evaluations by employees were then averaged with the DED’s self-evaluations, to minimise the biases. In spite of little improvements, the binned results still indicated that 64 (53.3%) participants perceived their DEDs as practising non-facilitative (Laiz-Affair) leadership styles as opposed 55 (45.8%) participants who said that their DEDs were practising facilitative leadership style.

**Table 4.3: General Facilitative Leadership Style of the District Executive**

**Directors as Perceived by Employees (n = 120)**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Statement** | **SD** | | **D** | | **A** | | **SA** | |
| Freq. | % | Freq. | % | Freq. | % | Freq. | % |
| The DED expresses with few simple words what we could and should do | 59 | 49.2 | 27 | 22.5 | 10 | 8.3 | 24 | 20.0 |
| The DED helps others develop themselves | 81 | 67.5 | 13 | 10.8 | 12 | 10.0 | 14 | 11.7 |
| The DED is satisfied when others meet agreed upon standards | 59 | 49.2 | 53 | 44.2 | 7 | 5.8 | 1 | .8 |
| The DED is content to let others continue working in the same ways always | 106 | 88.3 | 4 | 3.3 | 6 | 5.0 | 4 | 3.3 |
| I have complete faith in the DED | 47 | 39.2 | 49 | 40.8 | 20 | 16.7 | 3 | 2.5 |
| The DED provides appealing images about what we can do | 73 | 60.8 | 15 | 12.5 | 25 | 20.8 | 7 | 5.8 |
| The DED provides others with new ways of looking at puzzling things | 60 | 50.0 | 29 | 24.2 | 11 | 9.2 | 20 | 16.7 |
| The DED provides rewards when others reach their goal | 76 | 63.3 | 26 | 21.7 | 10 | 8.3 | 7 | 5.8 |
| As long as things are working, the DED does not try to change anything | 103 | 85.8 | 5 | 4.2 | 6 | 5.0 | 6 | 5.0 |
| Whatever others want to do is OK with the DED | 95 | 79.2 | 11 | 9.2 | 3 | 2.5 | 11 | 9.2 |
| **Total Binned results for the scale** | | | | | | | | |
|  | **High Involvement** | | **Low Involvement** | |  | | | |
| **F** | **%** | **F** | **%** |
| 64 | 53.3 | 55 | 45.8 |

**Source**: researcher, 2020

### 4.4.2 Participation Level of the LGAs Employees in the Development of the Roads Maintenance Activities

**Table 4.4: Participation level of the LGAs Employees in Planning Road Maintenance Activities (n = 120)**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Statement** | **SD** | | **D** | | **A** | | **SA** | |
| Freq. | % | Freq. | % | Freq. | % | Freq. | % |
| Grass Cutting, ditch cleaning, culvert cleaning, slopes | 40 | 33.3 | 41 | 34.2 | 22 | 18.3 | 17 | 14.2 |
| Bituminous sealing of cracks wider than 3 mm | 52 | 43.3 | 8 | 6.7 | 32 | 26.7 | 28 | 23.3 |
| Patching of potholes by filling with base material and patch with surface dressing | 72 | 60.0 | 24 | 20.0 | 8 | 6.7 | 16 | 13.3 |
| Repair of pavement edges | 85 | 70.8 | 26 | 21.7 | 8 | 6.7 | 1 | .8 |
| Resurfacing the pavement surface with a single bituminous surface dressing | 77 | 64.2 | 36 | 30.0 | 7 | 5.8 | - | - |
| New single surface treatment by scarifying the old surface | 81 | 67.5 | 34 | 28.3 | 4 | 3.3 | 1 | .8 |
| Resurfacing and reshaping the surface with 30 mm asphalt concrete overlay | 69 | 57.5 | 33 | 27.5 | 16 | 13.3 | 1 | .8 |
| Reconstruction of the whole pavement structure including new sandy sub base, gravel base and a double bituminous surface dressing | 51 | 42.5 | 18 | 15.0 | 31 | 25.8 | 18 | 15.0 |
| Reshaping and leveling of the pavement surface | 30 | 25.0 | 12 | 10.0 | 21 | 17.5 | 57 | 47.5 |
| Spot gravelling in affected areas | 69 | 57.5 | 34 | 28.3 | 16 | 13.3 | 1 | .8 |
| Gravelling of the pavement surface by applying 150 mm gravel including scarifying and reshaping the road surface | 15 | 12.5 | 21 | 17.5 | 47 | 39.2 | 36 | 30.0 |
| Upgrade the pavement to sealed standard with new sub-base, base and surface dressing | 69 | 57.5 | 34 | 28.3 | 16 | 13.3 | 1 | .8 |
| **Total Binned results for the scale** | | | | | | | | |
|  | **High Involvement** | | **Low Involvement** | |  | | | |
| **F** | **%** | **F** | **%** |
| 59 | 49.2 | 59 | 49.2 |

**Source:** researcher, 2020

Table 4.4 indicates that participants’ responses were fairly distributed to all the options with exception of some items. Generally, after binning the totalized responses 59 (49.2%) of participants reported high involvement just like 59 (49.2%) who reported low involvement in the planning anddevelopment of road maintenance activities, with one missing response.

**4.4.3 Participation in Collective Implementation of the Road Maintenance Budget Activities**

Table 4.5 indicates that participants’ responses were fairly mixed directed to both positive and negative sides of the scale, implying that LGAs employees fairly reported both high involvement and low involvement in the implementation of the roads’ maintenance budget activities. Overall, low involvement was reported by 63 (52.9%) of participants, while 56 (46.7%) reported high involvement in the implementation of the roads’ maintenance budget activities.

**Table 4.5: Participation Level of the LGAs Employees in Implementation of the Road Maintenance Budget Activities (n = 120)**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Statement** | **SD** | | **D** | | **A** | | | **SA** | |
| Freq. | % | Freq. | % | Freq. | % | | Freq. | % |
| Grass Cutting, ditch cleaning, culvert cleaning, slopes | 69 | 57.5 | 33 | 27.5 | 17 | 14.2 | | 1 | .8 |
| Bituminous sealing of cracks wider than 3 mm | 31 | 25.8 | 20 | 16.7 | 26 | 21.7 | | 43 | 35.8 |
| Patching of potholes by filling with base material and patch with surface dressing | 51 | 42.5 | 18 | 15.0 | 31 | 25.8 | | 19 | 15.8 |
| Repair of pavement edges | 51 | 42.5 | 18 | 15.0 | 31 | 25.8 | | 19 | 15.8 |
| Resurfacing the pavement surface with a single bituminous surface dressing | 51 | 42.5 | 18 | 15.0 | 31 | 25.8 | | 19 | 15.8 |
| New single surface treatment by scarifying the old surface | 77 | 64.2 | 36 | 30.0 | 7 | 5.8 | | - | - |
| Resurfacing and reshaping the surface with 30 mm asphalt concrete overlay | 81 | 67.5 | 34 | 28.3 | 4 | 3.3 | | 1 | .8 |
| Reconstruction of the whole pavement structure including new sandy sub - base, gravel base and a double bituminous surface dressing | 70 | 58.3 | 33 | 27.5 | 16 | 13.3 | | 1 | .8 |
| Reshaping and leveling of the pavement surface | 20 | 16.7 | 27 | 22.5 | 27 | 22.5 | | 44 | 36.7 |
| Spot regravelling in affected areas | 41 | 34.2 | 5 | 4.2 | 18 | 15.0 | | 56 | 46.7 |
| Regravelling of the pavement surface by applying 150 mm gravel including scarifying and reshaping the road surface | 17 | 14.2 | 27 | 22.5 | 34 | 28.3 | | 42 | 35.0 |
| Upgrade the pavement to sealed standard with new sub-base, base and surface dressing | 21 | 17.5 | 8 | 6.7 | 29 | 24.2 | | 62 | 51.7 |
| **Total Binned results** | **High Involvement** | | **Low Involvement** | |  |  | |  |  |
| **F** | **%** | **F** | **%** |  | |  |  |  |
| 56 | 46.7 | 63 | 52.9 |  | |  |  |  |

**Source:** researcher, 2020

**4.4.4** Explaining Roads Maintenance Status from the **Administrative Impediments of Roads Maintenance**

This section indicates how the logistic regression analysis was carried out to explain roads maintenance status from the key independent variables when all other variables in the conceptual framework were kept under control. Binary logistic regression analysis was performed to assess the influence of age, sex, education, working experience, involvement in planning, and involvement in the collective implementation of the of the road maintenance budget activities on the likelihood that respondents would report poor road status.

The model as a whole was statistically signiﬁcant, χ2 (7, N = 120) = 23.67, p < .001, indicating that the model was capable of distinguishing respondents who reported poor road status from those who reported good road status. Specifically, the model predicting maintenance status of the roads explained between 18.5% (Cox and Snell R square) and 24.6% (Nagelkerke R squared) of the variance in maintenance status, and as able to categorise62.9% of poor status of the roads. Table 4.6 indicates the contribution of each variable in explaining roads’ maintenance status.

**Table 4.6: Likelihood of Road Maintenance Status from Facilitative Leadership Variables (n = 120)**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Involvement in Pre-processing tasks** | | | | | | | | |
|  | **B** | **S.E.** | **Wald** | **df** | **Sig.** | **Odd Ratios** | **95% C.I. for Odd Ratios** | |
| **Lower** | **Upper** |
| Age | -.034 | .051 | .439 | 1 | .508 | .967 | .874 | 1.069 |
| Sex | .401 | .421 | .908 | 1 | .341 | 1.493 | .655 | 3.403 |
| Education | .295 | .436 | .457 | 1 | .499 | 1.343 | .572 | 3.153 |
| Working experience | .039 | .057 | .472 | 1 | .492 | 1.040 | .930 | 1.163 |
| Leadership style | .171 | .432 | .158 | 1 | .691 | 1.187 | .509 | 2.767 |
| Involvement in planning | -2.210 | .786 | 7.910 | 1 | .005 | .110 | .024 | .512 |
| Involvement in Implementation | 2.725 | .794 | 11.781 | 1 | .001 | 15.259 | 3.219 | 72.330 |
| Constant | .250 | 1.609 | .024 | 1 | .876 | 1.284 |  |  |

a. Variable(s) entered on step 1: Age, Sex, Education, Work exp, TLstyl2, TInvoPlan2, T InvoImplement2

Table 4.6 indicates that only two determinant variables, (involvement in collective implementation of road maintenance activities and involvement planning roads maintenance activities) uniquely explained roads maintenance status. The strongest predictor was involvement in collective implementation of road maintenance activities, which recorded an odd ratio 15.259. This meant that LGAs employees, who reported non-involvement in collective implementation of roads maintenance activities, were 15.26 times more likely to report poor status of roads in their districts than their counterpart employees who reported involvement in the implementation of roads maintenance activities.

This was followed by involvement in planning roads maintenance activities, which recorded the odd ratio of .110, implying that LGAs employees who reported involvement in planning roads maintenance activities were 0.110 less likely to report poor maintenance status of roads in their districts. Other variables in the model which are age, sex, education, working experience and leadership style did not uniquely explain roads maintenance status

**4.5 Level of participation of LGAs in the Environmental, Social, Health and Safety Issues during Roads Construction (n=120)**

Table 4.8 presents the results on the LGAs’ participation in the Environmental, Social, Health and Safety issues during roads construction.

**Table 4.8: Participation of LGAs in addressing Environmental, Social, Health and Safety Issues during Roads Construction (n=120)**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Statement** | **SD** | | **D** | | **A** | | **SA** | | |
| F | % | F | % | F | % | F | % |
| The DED ensures that contractors avoid any destruction of protected areas, wetlands and forests during road construction and maintenance | 70 | 58.3 | 33 | 27.5 | 16 | 13.3 | 1 | .8 | |
| The DED requires contractors to control emissions of pollutants and manage wastes, including spoil | 20 | 16.7 | 27 | 22.5 | 27 | 22.5 | 46 | 38.4 | |
| The DED ensures that contractors fully considers purchasing new equipment for road works with energy efficiency before they start their work | 41 | 34.2 | 5 | 4.2 | 18 | 15.0 | 56 | 46.7 | |
| The DED ensures that property losses are compensated before road construction begins when involuntary resettlement is unavoidable | 17 | 14.2 | 27 | 22.5 | 34 | 28.3 | 42 | 35.0 | |
| The DED ensures that a fair and equitable set of compensation options are negotiated with project affected persons | 21 | 17.5 | 8 | 6.7 | 29 | 24.2 | 62 | 51.7 | |
| The district health committee helps the DED to ensure the reduction and intervention of the risk of HIV transmission associated with roads projects | 70 | 58.3 | 33 | 27.5 | 16 | 13.3 | 1 | .8 | |
| The DED ensures that the contractors prepare the details of the location and design of diversion roads prior to the commencement of road construction works | 20 | 16.7 | 27 | 22.5 | 27 | 22.5 | 46 | 38.4 | |
| The DED ensures that the contractors prepare temporary structures, barricades, temporary signs, flagmen, signals to accommodate traffic flow during roads construction and maintenance | 41 | 34.2 | 5 | 4.2 | 18 | 15.0 | 56 | 46.7 | |
| The DED requires the contractors to adopt safety policies and to provide safe tools, materials and equipment to their workers | 17 | 14.2 | 27 | 22.5 | 34 | 28.3 | 42 | 35.0 | |
| The DED ensures zero tolerance towards sexual abuse and sexual harassment of community members and workers by its suppliers and services providers | 21 | 17.5 | 8 | 6.7 | 29 | 24.2 | 62 | 51.7 | |

**Source:** researcher data, 2020.

Data in Table 4.8 indicates mixed results. Putting together ‘strongly agree’ and ‘agree’ responses in one hand and ‘strongly disagree’ and ‘disagree’ responses on the other, most respondents (about 85.8%) indicated their disagreement on how Local Government Authorities dealt with some environmental issues, specifically in ensuring that contractors avoid destruction of protected areas, wetlands and forests during road construction and maintenance. Another area of concern was how the LGAs dealt with health issues, specifically; most respondents (85.8%) reported that LGAs were not ensuring reduction and intervention of the risk of HIV transmission associated with roads projects. Respondents further reported that LGAs fairly participated in environmental, social, health and safety issues during roads construction as indicated in Table 4.8.

**4.6 Mitigation Measures Against the Impediments of Road Construction Projects**

To identify the measures, respondents ranked their responses to the pre-proposed measures from 5 (Always taken measure) to 1 (Never taken measure). Table 4.8 presents the results.

**Table 4.9 Measures Taken to Improve Road Construction Projects (n=120)**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Measures** | **Rankings** | | | | | | | | | |
| **5** | | **4** | | **3** | | **2** | | **1** | |
| F | % | F | % | F | % | F | % | F | % |
| Continuous monitoring of construction activities | 6 | 5.0 | 64 | 53.3 | 27 | 22.5 | 10 | 8.3 | 12 | 10.0 |
| Increasing road budget | - | - | 42 | 35.0 | 34 | 28.3 | 27 | 22.5 | 17 | 14.2 |
| Use of consultancy services | - | - | 62 | 51.7 | 29 | 24.2 | 8 | 6.7 | 20 | 16.7 |
| Taking responsibility to locally define needs within National policies and resources | - | - | 59 | 49.2 | 26 | 21.7 | 15 | 12.5 | 20 | 16.7 |
| Organising, controlling and managing according to the existing regulations | 5 | 4.2 | 27 | 22.5 | 41 | 34.2 | 26 | 21.7 | 20 | 16.7 |
| Regular training on leadership skills | 4 | 3.3 | 57 | 47.5 | 30 | 25.0 | 13 | 10.8 | 15 | 12.5 |

**Source:** researcher, 2020

Information in Table 4.9 indicates that; 64 (53.3%) respondents ranked 4 (usually taken measure) on ‘*Continuous monitoring of construction activities*.’ This was followed by ‘*Use of consultancy services,*’ which was ranked 4 by 62 (51.7%) respondents. The lowly ranked measure was ‘*Organising, controlling and managing according to the existing regulations’,* which was ranked 4 by 27 (22.5%) respondents.

**4.7****Discussion of the Findings**

This Section focuses on the discussion of the findings as analysed and presented in chapter four of this study. The discussion mainly relates the results obtained in this study to those of other studies, gravitating around the specific objectives of the present study. The chapter is organized in three sections, which are the relationship between facilitative leadership style and roads maintenance status, potential application of facilitative leadership style on performance of road sector in Tanzania and theoretical implications of the findings.

## 

## 4.7.1 The Relationship between Facilitative Leadership Style and Roads Maintenance Status

In this study the relationship between facilitative leadership style and roads maintenance status has been assessed. The main question addressed was whether or not facilitative leadership style by the District Executive Director (DED) would influence road maintenance status in the local government authorities in the districts and Municipality. Results have indicated that two components of facilitative leadership style of the DED, which are involvement in the planning anddevelopment of road maintenance activities and involvement in the implementation of the roads’ maintenance budget activities explained road maintenance status in the districts. These results are similar to other past results (Malik & Ansari, 2014; Mohammed, Yusuf, *et al.,* 2014; Njenga, 2014; Chun, 2017) all of whom report the relationship between leadership styles and performance of the projects in the organizations.

According these results roads maintenance status was reported good by the employees who also reported involvement in both planning and implementation of the roads maintenance activities in their districts. This implies that roads maintenance status and, thus, roads’ sustainability might require leaders who seek to involve their employees in both planning and implementing specific activities such as grass Cutting, ditch cleaning, and culvert cleaning; bituminous sealing of cracks; patching of potholes by filling with base material and patch with surface dressing, repair of pavement edges; resurfacing the pavement surface with a single bituminous surface dressing; new single surface treatment by scarifying the old surface; resurfacing and reshaping the surface with 30 mm asphalt concrete overlay; reconstruction of the whole pavement structure including new sandy sub base, gravel base and a double bituminous surface dressing; reshaping and levelling of the pavement surface; spot gravelling in affected areas; gravelling of the pavement surface by applying 150 mm gravel including scarifying and reshaping the road surface; and upgrading the pavement to sealed standard with new sub-base, base and surface dressing.

**4.****7.2 The Role of Roads Maintenance Status**

This study has found that about 50 % of opinions on roads maintenance status indicate poor status especially from the districts whose leaders have also been judged as non-facilitative leaders. It should be noted that roads maintenance requirements come with the need to salvage roads that have deteriorated severely and to protect newer roads from a similar deterioration (World Bank, 1988). While it is important to consistently do the maintenance, leadership in the districts must apply their facilitative leadership skills to protect the new roads.

Shehu, *et al*. (2015) reported that vehicle overloading and climatic effects were the major factors, whereas increased traffic volumes contributed to surface wear, other types of physical damage and ultimately accidents. It is a responsibility of the facilitative DED to involve all the roads stakeholders to including public and political attention to better appreciate the signiﬁcant contribution played by overloading and climatic effects as one way of protection. This should not leave aside the accountability role by all entities and activities that maintain public assets including roads.

In addition to this, maintenance task has large financial, technical, and institutional requirements that might be minimised if roads were to be frequently managed. When roads are not frequently attended to avoid deterioration, much financial requirements are posed to the tax payers in demand of construction of new roads. Technically, although standard engineering practices indicate different effects in different environments, some general guidance indicate that as long as the roads are reasonably maintained the total life cycle transport costs on paved and unpaved roads are nearly the same over a wide range of traffic volumes (typically 150-400 vehicles a day) World Bank, 1988).

Therefore, in the situations where costs to construct the paved roads are unavailable, leaders might insist on construction and use of unpaved roads provided continuous maintenance if consistently done. Failure to allocate budget for maintenance of roads probably because they are at the present seem to be in good status has adverse effects on the near future. This is because the more the use the more certainty of multiplication of the future cost to both the road agency and the road user. For example, if the budget cuts are large to extent of preventing the resurfacing or strengthening of the paved roads the roads will soon fail structurally and require much more costly restoration (World Bank, 1988).

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# CHAPTER FIVE

# SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

## 5.1 Summary of the Study Findings

This was a study about the influence of facilitative leadership of local government authorities on road maintenance status in the Local Government Authorities. The independent variables investigated were perceived general facilitative leadership style, involvement in planning roads maintenance activities, and involvement in collective implementation of the road maintenance budget activities. It was also assumed that age, sex, education level of employees and working experience would play role as intervening variables in the relationship between these independent variables and the dependent variable which was roads maintenance status.

Data were collected using one general Questionnaire for Facilitative Leadership and Roads Maintenance Status (QFLRMS). The questionnaire was comprised of four instruments, each of which measured relevant key variable in the study. The instruments were Facilitative Leadership Scale for DED, Facilitative Leadership Scale for Employees, Involvement Level of the LGAs Officials in the Development of Road Maintenance Activities Planning Scale, Involvement Level of the LGAs Officials in the implementation of Road Maintenance Activities Scale and the Observation schedule for Assessment of the Roads Maintenance Status.

The instruments were administered to 120 LGAs employees in the districts randomly selected (found present in offices). The study was guided by the main questions. These were: first, what is the relationship between perceived leadership style of the District Executive Directors and roads maintenance status? Second, what is the relationship between involvement level of the LGAs officials in the development of roads maintenance activities plans and road maintenance status? And third, what is the relationship between collective implementation of the road maintenance budget activities and roads maintenance status?

### 5.1.1 Research Findings

* + - 1. **Effectiveness of Roads Maintenance**

Mixed responses were found whereby both poor and good status of roads was reported. Generally, 50% of participants reported poor status of roads while 49.2% reported good status of roads with one missing response. The most areas of concern where maintenance status was reported as being very poor are clearing of ditches and culverts (54%) and repair of sealants and expansion joints of bridges (54%). On the other hand, the areas of maintenance more appraised as very good were Maintenance of traffic signs and road markings (51.7%), removal of debris or obstacles from natural causes (49.2%) and clearing of pavement (49.2%).

**5.1.1.2 Administrative Impediments of Effectiveness of Roads Maintenance**

### 5.1.1.2.1 Perceived General Leadership Style of the District Executive Directors

Table 4.2.1 it was found that 53.3%of employees perceived their DEDs as practising non-facilitative (Laiz-Affair) leadership styles as opposed 45.8% participants who said that their DEDs were practising facilitative leadership style.

### 5.1.1.2.2 Participation Level of the LGAs Employees in the Development of the Roads Maintenance Activities

It was found that 49.2% of participants reported high involvement just like 59 (49.2%) who reported low involvement in the planning anddevelopment of road maintenance activities, with one missing response.

**5.1.1.2.3Participation in Collective Implementation of the Road Maintenance Budget Activities**

Mixed results were found whereby employees reported both involvement and non-involvement in the implementation of the roads’ maintenance budget activities. Overall, non-involvement was reported by 52.9% of participants, while 46.7% reported involvement in the implementation of the roads’ maintenance budget activities.

**5.1.1.2.4** Explaining Roads Maintenance Status from the**Administrative Impediments of Roads Maintenance**

It was found that only two determinant variables, (involvement in collective implementation of road maintenance activities and involvement planning roads maintenance activities) uniquely explained roads maintenance status. The strongest predictor was involvement in collective implementation of road maintenance activities, whereby employees who reported non-involvement in collective implementation of roads maintenance activities, were about 15 times more likely to report poor status of roads in their districts than their counterpart employees who reported involvement in the implementation of roads maintenance activities. This was followed by involvement in planning roads maintenance activities, whereby employees who reported involvement in planning roads maintenance activities were about half times less likely to report poor maintenance status of roads in their districts. Other variables in the model which are age, sex, education, working experience and leadership style did not uniquely explain roads maintenance status.

**5.1.1.3 Level of Participation of LGAs in the Environmental, Social, Health and Safety Issues during roads construction**

It was reported by85.8% of respondents that Local Government Authorities were not fairly dealing with some environmental issues, specifically in ensuring that contractors avoid destruction of protected areas, wetlands and forests during road construction and maintenance. It was further reported by 85.8% of respondents that LGAs were not ensuring reduction and intervention of the risk of HIV transmission associated with roads projects. On the other hand it was reported that LGAs fairly participated in environmental, social, health and safety issues during roads construction.

* + - 1. **Mitigation Measures Against the Impediments of Road Construction**

**Projects**

It was found that 53.3% respondents ranked 4 (usually taken measure) on ‘*Continuous monitoring of construction activities*.’ This was followed by ‘*Use of consultancy services,*’ which was ranked 4 by 62 (51.7%) respondents. The lowly ranked measure was ‘*Organising, controlling and managing according to the existing regulations’,* which was ranked 4 by only 22.5% of respondents.

## 5.2 Implications of the Findings

## 5.2.1 Implications for Industry and Road Sector in Tanzania

The fact that perceived general facilitative leadership style of the DED did not explain the maintenance of the roads imply that it is not just possessing the qualities but actually put them into practice by involving others to participate in the real activities. For this to happen, the leaders in road sector needs to trust others on their ability to lead themselves and thus, put their potential abilities in action for the benefits of the road sector. This is because among other responsibilities, leadership is associated with problem solving activities related to the road sector.

Rabie (2013) argues that given environmental instability and interdependence, three main complex challenges face leaders in their daily execution of responsibility. The challenges are crucial as they can potentially hinder direction, alignment and commitment, which are the key characteristics of leadership. These are diversity, geographical dispersion and attitudes towards the traditional and newer notions of leadership.

According to Drath(2001) the increasing diverse nature of societies of the world needs more cooperation for successful businesses among the cultures of different nature. It follows then that even employees at the district level come from different cultures, educational background, working experience, fields, and even skills necessary to tackle problems of different nature. Leaders need to know that this diverse nature requires them to unite people in order to collectively pursue organizational goals by harnessing every valuable thought from these individually different categories of employees. If the DEDs apply this kind of corporation and involve all employees in planning and implementation stages of the roads maintenance, they might feel their experiences honoured, and thus, bring them for the benefits of the district and the nation at large.

Geographical dispersion is increasing among people despite the innovated communication methods brought into existence every day. Leaders, thus, need to be very strong in communication with their employees, so that receiving and sending information becomes the order of the day. It is through communication whereby trust is developed, leaders are able to correct issues before they deteriorate understand when to empower employees who needs assistance in their journey towards achieving the goals of the organization. For example, if communications were timely done by the DED regarding the roads status, the DED would be able to realize the areas requiring immediate maintenance before they became poor, and thus, not only increasing the lifelong of the roads but also minimising unnecessary costs incurred by constructing new roads. These qualities can be achieved by leaders who deliberately decide to learn how facilitative leadership style works as opposed to autocratic or Laize-Affairs styles. It is the facilitative leadership style which is comprised of three quality of trust, communication empowerment and involvement of employees and uses their strengths to achieve the organizational goals and objectives.

## 5.2.2 Implications for Policy Makers in the Road Sector in Tanzania

As opposed to the perceived general facilitative leadership style, involvement in planning and implementation of road activities explained roads maintenance status. Practical implications for this finding is twofold discussed here. First, it should be imperious noting that when the employees are involved in both planning and implementation of the road projects, they feel the sense of ownership so that they might be able protects the quality of the roads than when they are not involved. Second, the DED might be much successful in making roads sustainable if the level of involvement transcends the limit of employees to engulf the common citizens. This may start by allowing them to make the roads a focus of their need before the roads are constructed or maintained. Leaders might communicate to the people regarding people’s ownership by creating awareness on how much of their taxes are spent in the construction of the roads in question. This feeling of ownership might motivate people to take part in protection of the roads from malicious individuals who would destroy the roads.

## 5.2.3 Academic and theoretical Implications of the Findings

The safe system approach informed and guided the understanding of the blueprint for this study. According to this approach, the road user has both strengths and weaknesses that must be taken into consideration for the road safety. To do this, the road system should be designed to expect and accommodate human errors. While the theory argues that the roads designers should accept and share responsibility for the safety of the system, the road users need also to accept responsibility to abide by the rules of the game in the system (URT, 2017).

One way in which the system designers may accept responsibility is to diligently work in collective designing the stable means to consistently maintain the roads so that they keep avoiding the possibility to accommodate road users’ accidents. This can be done successfully by the leaders who seek to utilize collectively the skills and diverse points of views from both employees and the public. The findings thus adds to the theoretical understanding that facilitative leadership is the key to maintenance leading to the safer roads and roadsides, which are more forgiving of human error.

## 5.3 Conclusions

This study sought to examine the influence of the facilitative leadership of the District Executive Directors on the effectiveness of road maintenance among local government authorities. This was achieved through four specific objectives such as assess the extent of effectiveness of roads maintenance in the study area; identify administrative impediments retarding the effectiveness of roads maintenance among LGAs; demonstrate levels of participations of LGAs towards Environmental, Social, Health and Safety issues during roads construction; and examine mitigation against the impediments encountered by LGAs in road construction projects.

Basing on the findings therefore, four conclusions can be made. First, with regard to the assessment of the extent of effectiveness of roads maintenance, the roads maintenance status is partly effective and partly non effective in the areas of study. Second, there is still a half way journey towards expected effectiveness of the roads maintenance given existence of administrative impediments such as perceived leadership style of the leaders, low levels of participation of employees in planning and implementation of the roads maintenance activities. Third, despite the impediments, there is still a room to achieve the effectiveness of roads maintenance status since facilitative leadership style not only exists among DEDs in Tanzania but also can partly explain roads maintenance status.

In addition, measures such as continuous monitoring of construction activities, use of consultancy services; andorganising, controlling and managing according to the existing regulations are the weapons to start with in strengthening the efforts towards achieving the goal. Lastly, DEDs and their leading styles might be a very key role to the lifelong say of the roads in Tanzania, if they expand their involvement to engulf not only employees but also the public in their districts as well.

## 

## 5.4 Recommendations

As far as the findings of this study are concerned, two types of recommendations are provided. The first type is a set of recommendations for roads stakeholders, and the second type is a set of recommendations for further research.

* + 1. **Recommendations for the Practice Roads Stakeholders**

Due to the fact that there were significant relationships between facilitative leadership styleof the DED and roads maintenance status, the following recommendations are provided to the stakeholders:

1. Immediately after nomination of the DEDs, the nominating authorities should consider subjecting the DEDs to the leadership training courses, whereby they will gain among others, facilitative leadership style understanding.
2. The DEDs needs to extend their involvement practice to include the public that could help in protection of the roads for their prolonged lifespan.
3. TANROADS needs to focus on control of overloaded heavy vehicles in the districts’ roads to help minimise damage to the country’s road infrastructure. However, because the need to transport such heavy duty loads might be unavoidable due to their importance for the daily wellbeing of people in the districts, the levy charged on the extra weight should be directly directed to the consistent roads maintenance activities.

**5.4.2 Recommendations for Further Research**

On the basis of the findings and experience of the present study, it is recommended that:

1. Future research in this area in Tanzania may investigate on how to improve the instruments on measuring DEDs leadership style. The measures used in this work have mainly harnessed information from both self-responses and employees opinions. Though human bias was minimised by averaging the two sides, much efforts remain wanting in improving the instruments for achieving psychometrically reliable and valid instrument to measure the same.
2. Future research in this area in Tanzania may investigate causal relationship existing if any between roads maintenance status and traffic accidents.

# REFERENCES

Chun, C. W. (2017). Effect of leadership styles on the success of virtual project teams among multinational companies in Malaysia. A research project submitted in partial fulfilment of the requirement for the degree of Master of Business Administration. Universities Tunku Abdul Rahman, Alor Setar, Malasyia.

Cohen, L., Manion, L., & Morrison, K. (2007). *Research methods in education,* (6thed.). New York: Routledge.

Cosmas, V. J. (2010). The influence of personality traits on career choice among secondary school students in Tanzania.Unpublished MA (Ed) Dissertation, University of Dar es Salaam, Dar es Salaam, Tanzania.

Creswell, J. W. (2009). *Research design: Qualitative, quantitative, and mixed methods approach, (3rded.)*. London: SAGE Publication Inc.

Drath, W. (2001). *The Deep Blue Sea: Rethinking the Sources of Leadership. San Francisco*: Jossey-Bass Inc.

Field, A. (2009). *Discovering statistics using SPSS,* (3rded.). London: Sage Publications Ltd.

Haas, R., Felio, G., Lounis, Z. & Schulich, L.C.F. (2009). Measurable Performance Indicators for Roads: Canadian and International Practice. Paper Presented at the “Best Practices in Urban Transportation Planning: Measuring Change” Session at the 2009 Annual Conference of the Transportation Association of Canada Vancouver, British Columbia.

Haritos, J. (1974). The theory of road pricing. *Transportation Journal,* 13(3), 53 – 64

Jol, H. M. (2009). Ground Penetrating Radar Theory and Applications. Elsevier Science, Amsterdam. 255pp.

Lewin. K.,Lippit. R. & White, R. K. (1939). Patterns of aggressive behavior in artificially created social change. *Journal of Social Psychology,* 10, 271-299.

Malik, S., & Ansari, A.H., (2014). The Relationship between Leadership Styles and Job Involvement: An Empirical Study of Indian Employees. Published in Conference proceedings at International Conference on “Global Performance Challenges: Building and Sustaining Competitiveness, Amity University, Gurgaon.

Mohammed, U. D., Yusuf, M.O., Sanni, I. M., Ifeyinwa, T. D., Bature, N. U., & Kazeem, A. O. (2014). The relationship between leadership styles and employees’ performance in organizations: A study of selected business organizations in Federal capital Territory, Abuja Nigeria. *European Journal of Business and Management,* 6 (22), 1 – 11.

Nilwala, N., Gunawardana, K. R. L. and Fernando, S. (2017). Scale for measuring transformational leadership in public sector organizations in Sri Lanka: with special reference to Ministries of Western Provincial Council. *International Journal of Management and Sustainability,* 6(4), 63-74

Njenga, B. K. (2014). Factors influencing effective and efficient delivery of road construction projects in Kenya: A case of Nairobi County.*M.A. Degree Awarded for Project Planning and Management at University of Nairobi, Kenya*.90pp.

Omari,I.M. (2011). *Concepts and methods in educational research: A practical guide based on experience*. Dar es Salaam: Oxford University Press LTD.

Pallant, J. (2011). *SPSS survival manual: A step by step guide to data analysis using SPSS* (4thed.). McGraw Hill: Open University Press.

Poluha, B., Porsani, J.L., Almeida, E. R., Neiris dos Santos, V.R. & Allen, S. J. (2017). Depth estimates of buried utility systems using the GPR method: Studies at the IAG/USP Geophysics test site. [Site](https://www.scirp.org/(S(351jmbntvnsjt1aadkposzje))/journal/paperinformation.aspx?paperid=76624). *International of Geosciences,* 8(5), 726-742.

Rochelle, R. R. (2013). Structure or Process? Facilitative Leadership in the context of Knowledge Work – A Practitioners Perspective. *Unpublished master* Thesis, University of Stellenbosch, Stellenbosch, SA.

Shehu, Z., endut, I., Holt G.D & Elman, N. (2015). Factors influencing road infrastructure damage in Malaysia. Infrastructure Asset Management, Paper No. 1400010.

URT, (2013). Tanzania Transport Sector Review. Transport and ICT Department. URT.

URT, (2017).*Improvement of Road Safety in Tanzania Mainland*. SUMATRA Report. URT.

World Bank, (1988*). Road Deterioration in Developing Countries: Causes and Remedies.* Washington, D.C: WB.

# APPENDICES

**Appendix 1: Questionnaire for Facilitative Leadership and Roads Condition**

* 1. Your Age....................................in years
  2. Your Sex: Male Female (Put a tick)
  3. The highest education level you reached.......................................
  4. Your working experience in years.................................................
  5. (a) Facilitative Leadership Scale(for the DED)

Indicate your level of agreement (SA=Strongly Agree, A=Agree, D=Disagree, SD = Strongly Disagree) with the statements in the Table below related your leadership experience by putting a tick (✓) under the relevant response against each statement.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Statement** | **SA** | **A** | **D** | **SD** |
| 1 | I express with few simple words what we could and should do |  |  |  |  |
| 2 | I help others develop themselves |  |  |  |  |
| 3 | I am satisfied when others meet agreed upon standards |  |  |  |  |
| 4 | I am content to let others continue working in the same ways always |  |  |  |  |
| 5 | Others have complete faith in me |  |  |  |  |
| 6 | I provide appealing images about what we can do |  |  |  |  |
| 7 | I provide others with new ways of looking at puzzling things |  |  |  |  |
| 8 | I provide rewards when others reach their goal |  |  |  |  |
| 9 | As long as things are working, I do not try to change anything |  |  |  |  |
| 10 | Whatever others want to do is OK with me |  |  |  |  |

1. **(b) Facilitative Leadership Scale (for the Employees)**

Indicate your level of agreement (SA=Strongly Agree, A=Agree, D=Disagree, SD = Strongly Disagree) with the statements in the Table below related your **DED**’s leadership experience by putting a tick (✓) under the relevant response against each statement.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Statement** | **SA** | **A** | **D** | **SD** |
| 1 | The DED expresses with few simple words what we could and should do |  |  |  |  |
| 2 | The DED helps others develop themselves |  |  |  |  |
| 3 | The DED is satisfied when others meet agreed upon standards |  |  |  |  |
| 4 | The DED is content to let others continue working in the same ways always |  |  |  |  |
| 5 | I have complete faith in the DED |  |  |  |  |
| 6 | The DED provides appealing images about what we can do |  |  |  |  |
| 7 | The DED provides others with new ways of looking at puzzling things |  |  |  |  |
| 8 | The DED provides rewards when others reach their goal |  |  |  |  |
| 9 | As long as things are working, the DED does not try to change anything |  |  |  |  |
| 10 | Whatever others want to do is OK with the DED |  |  |  |  |

1. **Involvement Level of the LGAs Officials in the Development of Road Maintenance Activities Planning**

Indicate your level of involvement in the planning (1 = Never, 2 = Rarely, 3 = Sometimes, 4 = Usually, 5 = Always) of the road maintenance related activities described in the statements in the Table below by putting a tick (✓) under the relevant response against each statement.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Statement** | **1** | **2** | **3** | **4** | **5** |
| 1 | Grass Cutting, ditch cleaning, culvert cleaning, slopes |  |  |  |  |  |
| 2 | Bituminous sealing of cracks wider than 3 mm. |  |  |  |  |  |
| 3 | Patching of potholes by filling with base material and patch with surface dressing |  |  |  |  |  |
| 4 | Repair of pavement edges |  |  |  |  |  |
| 5 | Resurfacing the pavement surface with a single bituminous surface dressing |  |  |  |  |  |
| 6 | New single surface treatment by scarifying the old surface |  |  |  |  |  |
| 7 | Resurfacing and reshaping the surface with 30 mm asphalt concrete overlay |  |  |  |  |  |
| 8 | Reconstruction of the whole pavement structure including new sandy subbase, gravel base and a double bituminous surface dressing |  |  |  |  |  |
| 9 | Reshaping and leveling of the pavement surface |  |  |  |  |  |
| 10 | Spot regravelling in affected areas |  |  |  |  |  |
| 11 | Regravelling of the pavement surface by applying 150 mm gravel including scarifying and reshaping the road surface |  |  |  |  |  |
| 12 | Upgrade the pavement to sealed standard with new sub-base, base and surface dressing |  |  |  |  |  |

1. **Involvement Level of the LGAs Officials in the implementation of Road Maintenance Activities**

Indicate your level of involvement in the implementation (1 = Never, 2 = Rarely, 3 = Sometimes, 4 = Usually, 5 = Always) of the road maintenance related activities described in the statements in the Table below by putting a tick (✓) under the relevant response against each statement.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Statement** | **1** | **2** | **3** | **4** | **5** |
| 1 | Grass Cutting, ditch cleaning, culvert cleaning, slopes |  |  |  |  |  |
| 2 | Bituminous sealing of cracks wider than 3 mm. |  |  |  |  |  |
| 3 | Patching of potholes by filling with base material and patch with surface dressing |  |  |  |  |  |
| 4 | Repair of pavement edges |  |  |  |  |  |
| 5 | Resurfacing the pavement surface with a single bituminous surface dressing |  |  |  |  |  |
| 6 | New single surface treatment by scarifying the old surface |  |  |  |  |  |
| 7 | Resurfacing and reshaping the surface with 30 mm asphalt concrete overlay |  |  |  |  |  |
| 8 | Reconstruction of the whole pavement structure including new sandy subbase, gravel base and a double bituminous surface dressing |  |  |  |  |  |
| 9 | Reshaping and leveling of the pavement surface |  |  |  |  |  |
| 10 | Spot regravelling in affected areas |  |  |  |  |  |
| 11 | Regravelling of the pavement surface by applying 150 mm gravel including scarifying and reshaping the road surface |  |  |  |  |  |
| 12 | Upgrade the pavement to sealed standard with new sub-base, base and surface dressing |  |  |  |  |  |

1. Indicate your level of agreement (SA=Strongly Agree, A=Agree, D=Disagree, SD = Strongly Disagree) with the statements in the Table below related to the LGAs’ Participation in addressing Environmental, Social, Health and Safety issues during roads constructionputting a tick (✓) under the relevant response against each statement.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Statement** | 1 | 2 | 3 | 4 |
| The DED ensures that contractors avoid any destruction of protected areas, wetlands and forests during road construction and maintenance |  |  |  |  |
| The DED requires contractors to control emissions of pollutants and manage wastes, including spoil |  |  |  |  |
| The DED ensures that contractors fully considers purchasing new equipment for road works with energy efficiency before they start their work |  |  |  |  |
| The DED ensures that property losses are compensated before road construction begins when involuntary resettlement is unavoidable |  |  |  |  |
| The DED ensures that a fair and equitable set of compensation options are negotiated with project affected persons |  |  |  |  |
| The district health committee helps the DED to ensure the reduction and intervention of the risk of HIV transmission associated with roads projects |  |  |  |  |
| The DED ensures that the contractors prepare the details of the location and design of diversion roads prior to the commencement of road construction works |  |  |  |  |
| The DED ensures that the contractors prepare temporary structures, barricades, temporary signs, flagmen, signals to accommodate traffic flow during roads construction and maintenance |  |  |  |  |
| The DED requires the contractors to adopt safety policies and to provide safe tools, materials and equipment to their workers |  |  |  |  |
| The DED ensures zero tolerance towards sexual abuse and sexual harassment of community members and workers by its suppliers and services providers |  |  |  |  |

**Observation schedule for Assessment of the Roads Maintenance Status**

District Name …………………………………………………………………….

Road Name ………………………………………………………………………

Road Number ……………………………………………………………………

Assessed by ………………………………………………………………………

Please put a tick under the relevant number against the assessment criterion (statement) to indicate the level of your assessment (1 = very poor, 2 = Poor, 3 = Satisfactory, 4 = Good, 5 = Very good), in the table below:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Assessment criterion** | **1** | **2** | **3** | **4** | **5** |
| 1 | Clearing of pavement |  |  |  |  |  |
| 2 | Mowing and maintenance of plants |  |  |  |  |  |
| 3 | Clearing of ditches and culverts |  |  |  |  |  |
| 4 | Repair of traffic signs and road markings |  |  |  |  |  |
| 5 | Shoulder grading |  |  |  |  |  |
| 6 | Pothole patching and crack sealing |  |  |  |  |  |
| 7 | Repair of sealants and expansion joints of bridges |  |  |  |  |  |
| 8 | Repair of cut and fill slopes |  |  |  |  |  |
| 9 | Regraveling |  |  |  |  |  |
| 10 | Resealing/surface dressing |  |  |  |  |  |
| 11 | Overlay |  |  |  |  |  |
| 12 | Maintenance of traffic signs and road markings |  |  |  |  |  |
| 13 | Removal of debris or obstacles from natural causes |  |  |  |  |  |
| 14 | Repair of damage caused by traffic accidents |  |  |  |  |  |

Please put a tick under the relevant response against each statement that matches your level of agreement on how LGAs deal with the issues stated in the table below. The levels of agreement start from strongly disagree (SD) to strongly agree (SA).

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Responses** | | | |
| **Statement** | **SD** | **D** | **A** | **SA** |
| The DED ensures that contractors avoid any destruction of protected areas, wetlands and forests during road construction and maintenance |  |  |  |  |
| The DED requires contractors to control emissions of pollutants and manage wastes, including spoil |  |  |  |  |
| The DED ensures that contractors fully considers purchasing new equipment for road works with energy efficiency before they start their work |  |  |  |  |
| The DED ensures that property losses are compensated before road construction begins when involuntary resettlement is unavoidable |  |  |  |  |
| The DED ensures that a fair and equitable set of compensation options are negotiated with project affected persons |  |  |  |  |
| The district health committee helps the DED to ensure the reduction and intervention of the risk of HIV transmission associated with roads projects |  |  |  |  |
| The DED ensures that the contractors prepare the details of the location and design of diversion roads prior to the commencement of road construction works |  |  |  |  |
| The DED ensures that the contractors prepare temporary structures, barricades, temporary signs, flagmen, signals to accommodate traffic flow during roads construction and maintenance |  |  |  |  |
| The DED requires the contractors to adopt safety policies and to provide safe tools, materials and equipment to their workers |  |  |  |  |
| The DED ensures zero tolerance towards sexual abuse and sexual harassment of community members and workers by its suppliers and services providers |  |  |  |  |

Rank the following measures taken by your LGAs (DED) against the administrative impediments of roads construction by putting a tick under the relevant number against each measure. The numbers mean 5= Always taken; 4 = Usually taken; 3 = Sometimes taken; 2 = Rarely taken; 1 = Never taken.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Measures** | **Rankings** | | | | |
| **5** | **4** | **3** | **2** | **1** |
| Continuous monitoring of construction activities |  |  |  |  |  |
| Increasing road budget |  |  |  |  |  |
| Use of consultancy services |  |  |  |  |  |
| Taking responsibility to locally define needs within National policies and resources |  |  |  |  |  |
| Organising, controlling and managing according to the existing regulations |  |  |  |  |  |
| Regular training on leadership skills |  |  |  |  |  |

**Appendix 2: SPSS Output for Frequency Tables for DED’s Facilitative Leadership as perceived by Employees**

|  |  |  |
| --- | --- | --- |
| **Notes** | | |
| Output Created | | 11-MAR-2020 16:09:13 |
| Comments | |  |
| Input | Data | C:\Users\dell\Desktop\All Desktop Files December, 6 2019\MakoriData.sav |
| Active Dataset | DataSet1 |
| Filter | <none> |
| Weight | <none> |
| Split File | <none> |
| N of Rows in Working Data File | 120 |
| Missing Value Handling | Definition of Missing | User-defined missing values are treated as missing. |
| Cases Used | Statistics are based on all cases with valid data. |
| Syntax | | FREQUENCIES VARIABLES=LSO1 LSO2 LSO3 LSO4 LSO5 LSO6 LSO7 LSO8  /ORDER=ANALYSIS. |
| Resources | Processor Time | 00:00:00.00 |
| Elapsed Time | 00:00:00.02 |

**Frequency**

|  |  |  |
| --- | --- | --- |
| **Notes** | | |
| Output Created | | 11-MAR-2020 16:12:47 |
| Comments | |  |
| Input | Data | C:\Users\dell\Desktop\All Desktop Files December, 6 2019\MakoriData.sav |
| Active Dataset | DataSet1 |
| Filter | <none> |
| Weight | <none> |
| Split File | <none> |
| N of Rows in Working Data File | 120 |
| Missing Value Handling | Definition of Missing | User-defined missing values are treated as missing. |
| Cases Used | Statistics are based on all cases with valid data. |
| Syntax | | FREQUENCIES VARIABLES=LSO1 LSO2 LSO3 LSO4 LSO5 LSO6 LSO7 LSO8 LSO9 LSO10  /ORDER=ANALYSIS. |
| Resources | Processor Time | 00:00:00.02 |
| Elapsed Time | 00:00:00.05 |

[DataSet1] C:\Users\dell\Desktop\All Desktop Files December, 6 2019\MakoriData.sav

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Statistics** | | | | | | | | | | | | |
|  | | | The DED expresses with few simple words what we could and should do | | The DED helps others develop themselves | | The DED is satisfied when others meet agreed upon standards | | The DED is content to let others continue working in the same ways always | | I have complete faith in the DED | |
| N | Valid | | 120 | | 120 | | 120 | | 120 | | 120 | |
| Missing | | 0 | | 0 | | 0 | | 0 | | 0 | |
| **Statistics** | | | | | | | | | | | | | |
|  | | | | The DED provides appealing images about what we can do | | The DED provides others with new ways of looking at puzzling things | | The DED provides rewards when others reach their goal | | As long as things are working, the DED does not try to change anything | | Whatever others want to do is OK with the DED | |
| N | | Valid | | 120 | | 120 | | 120 | | 120 | | 120 | |
| Missing | | 0 | | 0 | | 0 | | 0 | | 0 | |

**Frequency Table**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **The DED expresses with few simple words what we could and should do** | | | | | |
|  | | Frequency | Percent | Valid Percent | Cumulative Percent |
| Valid | Strongly Disagree | 59 | 49.2 | 49.2 | 49.2 |
| Disagree | 27 | 22.5 | 22.5 | 71.7 |
| Agree | 10 | 8.3 | 8.3 | 80.0 |
| Strongly Agree | 24 | 20.0 | 20.0 | 100.0 |
| Total | 120 | 100.0 | 100.0 |  |
| **The DED helps others develop themselves** | | | | | |
|  | | Frequency | Percent | Valid Percent | Cumulative Percent |
| Valid | Strongly Disagree | 81 | 67.5 | 67.5 | 67.5 |
| Disagree | 13 | 10.8 | 10.8 | 78.3 |
| Agree | 12 | 10.0 | 10.0 | 88.3 |
| Strongly Agree | 14 | 11.7 | 11.7 | 100.0 |
| Total | 120 | 100.0 | 100.0 |  |
| **The DED is satisfied when others meet agreed upon standards** | | | | | |
|  | | Frequency | Percent | Valid Percent | Cumulative Percent |
| Valid | Strongly Disagree | 59 | 49.2 | 49.2 | 49.2 |
| Disagree | 53 | 44.2 | 44.2 | 93.3 |
| Agree | 7 | 5.8 | 5.8 | 99.2 |
| Strongly Agree | 1 | .8 | .8 | 100.0 |
| Total | 120 | 100.0 | 100.0 |  |
| **The DED is content to let others continue working in the same ways always** | | | | | |
|  | | Frequency | Percent | Valid Percent | Cumulative Percent |
| Valid | Strongly Disagree | 106 | 88.3 | 88.3 | 88.3 |
| Disagree | 4 | 3.3 | 3.3 | 91.7 |
| Agree | 6 | 5.0 | 5.0 | 96.7 |
| Strongly Agree | 4 | 3.3 | 3.3 | 100.0 |
| Total | 120 | 100.0 | 100.0 |  |
| **I have complete faith in the DED** | | | | | |
|  | | Frequency | Percent | Valid Percent | Cumulative Percent |
| Valid | Strongly Disagree | 47 | 39.2 | 39.2 | 39.2 |
| Disagree | 49 | 40.8 | 40.8 | 80.0 |
| Agree | 20 | 16.7 | 16.7 | 96.7 |
| Strongly Agree | 3 | 2.5 | 2.5 | 99.2 |
| 5 | 1 | .8 | .8 | 100.0 |
| Total | 120 | 100.0 | 100.0 |  |
| **The DED provides appealing images about what we can do** | | | | | |
|  | | Frequency | Percent | Valid Percent | Cumulative Percent |
| Valid | Strongly Disagree | 73 | 60.8 | 60.8 | 60.8 |
| Disagree | 15 | 12.5 | 12.5 | 73.3 |
| Agree | 25 | 20.8 | 20.8 | 94.2 |
| Strongly Agree | 7 | 5.8 | 5.8 | 100.0 |
| Total | 120 | 100.0 | 100.0 |  |
| **The DED provides others with new ways of looking at puzzling things** | | | | | |
|  | | Frequency | Percent | Valid Percent | Cumulative Percent |
| Valid | Strongly Disagree | 60 | 50.0 | 50.0 | 50.0 |
| Disagree | 29 | 24.2 | 24.2 | 74.2 |
| Agree | 11 | 9.2 | 9.2 | 83.3 |
| Strongly Agree | 20 | 16.7 | 16.7 | 100.0 |
| Total | 120 | 100.0 | 100.0 |  |
| **The DED provides rewards when others reach their goal** | | | | | |
|  | | Frequency | Percent | Valid Percent | Cumulative Percent |
| Valid | Strongly Disagree | 76 | 63.3 | 63.3 | 63.3 |
| Disagree | 26 | 21.7 | 21.7 | 85.0 |
| Agree | 10 | 8.3 | 8.3 | 93.3 |
| Strongly Agree | 7 | 5.8 | 5.8 | 99.2 |
| 5 | 1 | .8 | .8 | 100.0 |
| Total | 120 | 100.0 | 100.0 |  |
| **As long as things are working, the DED does not try to change anything** | | | | | |
|  | | Frequency | Percent | Valid Percent | Cumulative Percent |
| Valid | Strongly Disagree | 103 | 85.8 | 85.8 | 85.8 |
| Disagree | 5 | 4.2 | 4.2 | 90.0 |
| Agree | 6 | 5.0 | 5.0 | 95.0 |
| Strongly Agree | 6 | 5.0 | 5.0 | 100.0 |
| Total | 120 | 100.0 | 100.0 |  |
| **Whatever others want to do is OK with the DED** | | | | | |
|  | | Frequency | Percent | Valid Percent | Cumulative Percent |
| Valid | Strongly Disagree | 95 | 79.2 | 79.2 | 79.2 |
| Disagree | 11 | 9.2 | 9.2 | 88.3 |
| Agree | 3 | 2.5 | 2.5 | 90.8 |
| Strongly Agree | 11 | 9.2 | 9.2 | 100.0 |
| Total | 120 | 100.0 | 100.0 |  |

**Appendix 4: Exploratory Factor Analysis for identification of Leadership Impediments Retarding Effectiveness of Road Maintenance**

FACTOR

/VARIABLES LSO1 LSO2 LSO3 LSO4 LSO5 LSO6 LSO7 LSO8 LSO9 LSO10

/MISSING PAIRWISE

/ANALYSIS LSO1 LSO2 LSO3 LSO4 LSO5 LSO6 LSO7 LSO8 LSO9 LSO10

/PRINT INITIAL CORRELATION KMO EXTRACTION ROTATION

/FORMAT BLANK(.40)

/PLOT EIGEN

/CRITERIA MINEIGEN(1) ITERATE(25)

/EXTRACTION PC

/CRITERIA ITERATE(25) DELTA(0)

/ROTATION OBLIMIN

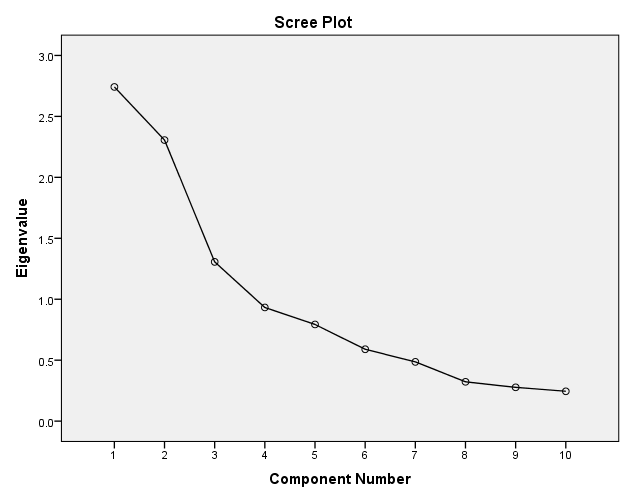
/METHOD=CORRELATION.

**Factor Analysis**

|  |  |  |
| --- | --- | --- |
| **Notes** | | |
| Output Created | | 20-APR-2020 17:00:14 |
| Comments | |  |
| Input | Data | C:\Users\dell\Desktop\All Desktop Files December, 6 2019\MakoriData.sav |
| Active Dataset | DataSet1 |
| Filter | <none> |
| Weight | <none> |
| Split File | <none> |
| N of Rows in Working Data File | 120 |
| Missing Value Handling | Definition of Missing | MISSING=EXCLUDE: User-defined missing values are treated as missing. |
| Cases Used | PAIRWISE: Correlation coefficients for each pair of variables are based on all the cases with valid data for that pair. The factor analysis is based on these correlations. |
| Syntax | | FACTOR  /VARIABLES LSO1 LSO2 LSO3 LSO4 LSO5 LSO6 LSO7 LSO8 LSO9 LSO10  /MISSING PAIRWISE  /ANALYSIS LSO1 LSO2 LSO3 LSO4 LSO5 LSO6 LSO7 LSO8 LSO9 LSO10  /PRINT INITIAL CORRELATION KMO EXTRACTION ROTATION  /FORMAT BLANK(.40)  /PLOT EIGEN  /CRITERIA MINEIGEN(1) ITERATE(25)  /EXTRACTION PC  /CRITERIA ITERATE(25) DELTA(0)  /ROTATION OBLIMIN  /METHOD=CORRELATION. |
| Resources | Processor Time | 00:00:00.39 |
| Elapsed Time | 00:00:00.44 |
| Maximum Memory Required | 13480 (13.164K) bytes |

[DataSet1] C:\Users\dell\Desktop\All Desktop Files December, 6 2019\MakoriData.sav

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **KMO and Bartlett's Test** | | | | | | | | | | |
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. | | | | | | .672 | | | | |
| Bartlett's Test of Sphericity | | | Approx. Chi-Square | | | 374.562 | | | | |
| df | | | 45 | | | | |
| Sig. | | | .000 | | | | |
| **Communalities** | | | | | | | | | | |
|  | | | | | | | Initial | | Extraction | |
| The DED expresses with few simple words what we could and should do | | | | | | | 1.000 | | .775 | |
| The DED helps others develop themselves | | | | | | | 1.000 | | .551 | |
| The DED is satisfied when others meet agreed upon standards | | | | | | | 1.000 | | .445 | |
| The DED is content to let others continue working in the same ways always | | | | | | | 1.000 | | .713 | |
| I have complete faith in the DED | | | | | | | 1.000 | | .386 | |
| The DED provides appealing images about what we can do | | | | | | | 1.000 | | .750 | |
| The DED provides others with new ways of looking at puzzling things | | | | | | | 1.000 | | .756 | |
| The DED provides rewards when others reach their goal | | | | | | | 1.000 | | .590 | |
| As long as things are working, the DED does not try to change anything | | | | | | | 1.000 | | .725 | |
| Whatever others want to do is OK with the DED | | | | | | | 1.000 | | .663 | |
| Extraction Method: Principal Component Analysis. | | | | | | | | | | |
| **Total Variance Explained** | | | | | | | | | |  |
| Component | Initial Eigenvalues | | | | Extraction Sums of Squared Loadings | | | | | Rotation Sums of Squared Loadings |
| Total | % of Variance | | Cumulative % | Total | | | % of Variance | Cumulative % | Total |
| 1 | 2.742 | 27.418 | | 27.418 | 2.742 | | | 27.418 | 27.418 | 2.623 |
| 2 | 2.306 | 23.060 | | 50.478 | 2.306 | | | 23.060 | 50.478 | 2.314 |
| 3 | 1.306 | 13.064 | | 63.543 | 1.306 | | | 13.064 | 63.543 | 1.559 |
| 4 | .932 | 9.323 | | 72.866 |  | | |  |  |  |
| 5 | .793 | 7.932 | | 80.798 |  | | |  |  |  |
| 6 | .590 | 5.896 | | 86.694 |  | | |  |  |  |
| 7 | .486 | 4.861 | | 91.554 |  | | |  |  |  |
| 8 | .323 | 3.225 | | 94.780 |  | | |  |  |  |
| 9 | .277 | 2.771 | | 97.551 |  | | |  |  |  |
| 10 | .245 | 2.449 | | 100.000 |  | | |  |  |  |
| Extraction Method: Principal Component Analysis. | | | | | | | | | | | |
| a. When components are correlated, sums of squared loadings cannot be added to obtain a total variance. | | | | | | | | | | | |



|  |  |  |  |
| --- | --- | --- | --- |
| **Component Matrixa** | | | |
|  | Component | | |
| 1 | 2 | 3 |
| The DED expresses with few simple words what we could and should do |  |  | .795 |
| The DED helps others develop themselves | -.411 |  | .618 |
| The DED is satisfied when others meet agreed upon standards |  | .557 |  |
| The DED is content to let others continue working in the same ways always | .753 |  |  |
| I have complete faith in the DED |  | .565 |  |
| The DED provides appealing images about what we can do | -.600 | .617 |  |
| The DED provides others with new ways of looking at puzzling things |  | .751 |  |
| The DED provides rewards when others reach their goal | .441 | .628 |  |
| As long as things are working, the DED does not try to change anything | .810 |  |  |
| Whatever others want to do is OK with the DED | .727 |  |  |

|  |
| --- |
| Extraction Method: Principal Component Analysis.a |
| a. 3 components extracted. |

|  |  |  |  |
| --- | --- | --- | --- |
| **Pattern Matrixa** | | | |
|  | Component | | |
| 1 | 2 | 3 |
| The DED expresses with few simple words what we could and should do |  |  | .877 |
| The DED helps others develop themselves |  |  | .702 |
| The DED is satisfied when others meet agreed upon standards |  | .654 |  |
| The DED is content to let others continue working in the same ways always | .837 |  |  |
| I have complete faith in the DED |  | .509 |  |
| The DED provides appealing images about what we can do |  | .794 |  |
| The DED provides others with new ways of looking at puzzling things |  | .869 |  |
| The DED provides rewards when others reach their goal | .653 |  |  |
| As long as things are working, the DED does not try to change anything | .827 |  |  |
| Whatever others want to do is OK with the DED | .802 |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| Extraction Method: Principal Component Analysis.  Rotation Method: Oblimin with Kaiser Normalization.a | | | |
| a. Rotation converged in 5 iterations. | | | |
| **Structure Matrix** | | | |
|  | Component | | |
| 1 | 2 | 3 |
| The DED expresses with few simple words what we could and should do |  |  | .869 |
| The DED helps others develop themselves |  |  | .718 |
| The DED is satisfied when others meet agreed upon standards |  | .631 |  |
| The DED is content to let others continue working in the same ways always | .843 |  |  |
| I have complete faith in the DED |  | .544 |  |
| The DED provides appealing images about what we can do |  | .805 |  |
| The DED provides others with new ways of looking at puzzling things |  | .868 |  |
| The DED provides rewards when others reach their goal | .665 |  |  |
| As long as things are working, the DED does not try to change anything | .837 |  |  |
| Whatever others want to do is OK with the DED | .782 |  |  |

|  |
| --- |
| Extraction Method: Principal Component Analysis.  Rotation Method: Oblimin with Kaiser Normalization. |

|  |  |  |  |
| --- | --- | --- | --- |
| **Component Correlation Matrix** | | | |
| Component | 1 | 2 | 3 |
| 1 | 1.000 | .020 | -.115 |
| 2 | .020 | 1.000 | .112 |
| 3 | -.115 | .112 | 1.000 |

|  |
| --- |
| Extraction Method: Principal Component Analysis.  Rotation Method: Oblimin with Kaiser Normalization. |

GET

FILE='C:\Users\dell\Desktop\All Desktop Files December, 6 2019\MakoriData.sav'.

DATASET NAME DataSet1 WINDOW=FRONT.

DATASET ACTIVATE DataSet1.

SAVE OUTFILE='C:\Users\dell\Desktop\All Desktop Files December, 6 2019\MakoriData.sav'

/COMPRESSED.

DATASET ACTIVATE DataSet1.

SAVE OUTFILE='C:\Users\dell\Desktop\All Desktop Files December, 6 2019\MakoriData.sav'

/COMPRESSED.

FREQUENCIES VARIABLES=ESHissue1 ESHissue2 ESHissue3 ESHissue4 ESHissue5 ESHissue6 ESHissue7 ESHissue8 ESHissue9 ESHissue10

/ORDER=ANALYSIS.

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **The DED assures that contractors avoid any destruction of protected areas, wetlands and forests during road construction and maintenance** | | | | | | | | | | | |
|  | | | | Frequency | | | Percent | | Valid Percent | | Cumulative Percent |
| Valid | | Strongly Disagree | | 70 | | | 58.3 | | 58.3 | | 58.3 |
| Disagree | | 33 | | | 27.5 | | 27.5 | | 85.8 |
| Agree | | 16 | | | 13.3 | | 13.3 | | 99.2 |
| Strongly Agree | | 1 | | | .8 | | .8 | | 100.0 |
| Total | | 120 | | | 100.0 | | 100.0 | |  |
| **The DED requires contractors to control emissions of pollutants and manage wastes, including spoil** | | | | | | | | | | | |
|  | | | | Frequency | | | Percent | | Valid Percent | | Cumulative Percent |
| Valid | | Strongly Disagree | | 20 | | | 16.7 | | 16.7 | | 16.7 |
| Disagree | | 27 | | | 22.5 | | 22.5 | | 39.2 |
| Agree | | 27 | | | 22.5 | | 22.5 | | 61.7 |
| Strongly Agree | | 44 | | | 36.7 | | 36.7 | | 98.3 |
| 5 | | 2 | | | 1.7 | | 1.7 | | 100.0 |
| Total | | 120 | | | 100.0 | | 100.0 | |  |
| **The DED ensures that contractors fully considers purchasing new equipment for road works with energy efficiency before they start their work** | | | | | | | | | | | |
|  | | | | Frequency | | | Percent | | Valid Percent | | Cumulative Percent |
| Valid | | Strongly Disagree | | 41 | | | 34.2 | | 34.2 | | 34.2 |
| Disagree | | 5 | | | 4.2 | | 4.2 | | 38.3 |
| Agree | | 18 | | | 15.0 | | 15.0 | | 53.3 |
| Strongly Agree | | 56 | | | 46.7 | | 46.7 | | 100.0 |
| Total | | 120 | | | 100.0 | | 100.0 | |  |
| **The DED ensures that property losses are compensated before road construction begins when involuntary resettlement is unavoidable** | | | | | | | | | | | |
|  | | | | Frequency | | | Percent | | Valid Percent | | Cumulative Percent |
| Valid | | Strongly Disagree | | 17 | | | 14.2 | | 14.2 | | 14.2 |
| Disagree | | 27 | | | 22.5 | | 22.5 | | 36.7 |
| Agree | | 34 | | | 28.3 | | 28.3 | | 65.0 |
| Strongly Agree | | 42 | | | 35.0 | | 35.0 | | 100.0 |
| Total | | 120 | | | 100.0 | | 100.0 | |  |
| **The DED ensures that a fair and equitable set of compensation options are negotiated with project affected persons** | | | | | | | | | | | |
|  | | | | Frequency | | | Percent | | Valid Percent | | Cumulative Percent |
| Valid | | Strongly Disagree | | 21 | | | 17.5 | | 17.5 | | 17.5 |
| Disagree | | 8 | | | 6.7 | | 6.7 | | 24.2 |
| Agree | | 29 | | | 24.2 | | 24.2 | | 48.3 |
| Strongly Agree | | 62 | | | 51.7 | | 51.7 | | 100.0 |
| Total | | 120 | | | 100.0 | | 100.0 | |  |
| **The district health committee helps the DED to ensure the reduction and intervention of the risk of HIV transmission associated with roads projects** | | | | | | | | | | | | |
|  | | | | | Frequency | Percent | | Valid Percent | | Cumulative Percent | | |
| Valid | Strongly Disagree | | | | 70 | 58.3 | | 58.3 | | 58.3 | | |
| Disagree | | | | 33 | 27.5 | | 27.5 | | 85.8 | | |
| Agree | | | | 16 | 13.3 | | 13.3 | | 99.2 | | |
| Strongly Agree | | | | 1 | .8 | | .8 | | 100.0 | | |
| Total | | | | 120 | 100.0 | | 100.0 | |  | | |
| **The DED ensures that the contractors prepare the details of the location and design of diversion roads prior to the commencement of road construction works** | | | | | | | | | | | | |
|  | | | Frequency | | | Percent | | Valid Percent | | Cumulative Percent | | |
| Valid | Strongly Disagree | | 20 | | | 16.7 | | 16.7 | | 16.7 | | |
| Disagree | | 27 | | | 22.5 | | 22.5 | | 39.2 | | |
| Agree | | 27 | | | 22.5 | | 22.5 | | 61.7 | | |
| Strongly Agree | | 44 | | | 36.7 | | 36.7 | | 98.3 | | |
| 5 | | 2 | | | 1.7 | | 1.7 | | 100.0 | | |
| Total | | 120 | | | 100.0 | | 100.0 | |  | | |
| **The DED ensures that the contractors prepare temporary structures, barricades, temporary signs, flagmen, signals to accommodate traffic flow during roads construction and maintenance** | | | | | | | | | | | | |
|  | | | Frequency | | | Percent | | Valid Percent | | Cumulative Percent | | |
| Valid | Strongly Disagree | | 41 | | | 34.2 | | 34.2 | | 34.2 | | |
| Disagree | | 5 | | | 4.2 | | 4.2 | | 38.3 | | |
| Agree | | 18 | | | 15.0 | | 15.0 | | 53.3 | | |
| Strongly Agree | | 56 | | | 46.7 | | 46.7 | | 100.0 | | |
| Total | | 120 | | | 100.0 | | 100.0 | |  | | |
| **The DED requires the contractors to adopt safety policies and to provide safe tools, materials and equipment to their workers** | | | | | | | | | | | | |
|  | | | Frequency | | | Percent | | Valid Percent | | Cumulative Percent | | |
| Valid | Strongly Disagree | | 17 | | | 14.2 | | 14.2 | | 14.2 | | |
| Disagree | | 27 | | | 22.5 | | 22.5 | | 36.7 | | |
| Agree | | 34 | | | 28.3 | | 28.3 | | 65.0 | | |
| Strongly Agree | | 42 | | | 35.0 | | 35.0 | | 100.0 | | |
| Total | | 120 | | | 100.0 | | 100.0 | |  | | |
| **The DED ensures zero tolerance towards sexual abuse and sexual harassment of community members and workers by its suppliers and services providers** | | | | | | | | | | | | |
|  | | | Frequency | | | Percent | | Valid Percent | | Cumulative Percent | | |
| Valid | Strongly Disagree | | 21 | | | 17.5 | | 17.5 | | 17.5 | | |
| Disagree | | 8 | | | 6.7 | | 6.7 | | 24.2 | | |
| Agree | | 29 | | | 24.2 | | 24.2 | | 48.3 | | |
| Strongly Agree | | 62 | | | 51.7 | | 51.7 | | 100.0 | | |
| Total | | 120 | | | 100.0 | | 100.0 | |  | | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Pattern Matrixa** | | | |
|  | Component | | |
| 1 | 2 | 3 |
| The DED expresses with few simple words what we could and should do |  |  | .877 |
| The DED helps others develop themselves |  |  | .702 |
| The DED is satisfied when others meet agreed upon standards |  | .654 |  |
| The DED is content to let others continue working in the same ways always | .837 |  |  |
| I have complete faith in the DED |  | .509 |  |
| The DED provides appealing images about what we can do |  | .794 |  |
| The DED provides others with new ways of looking at puzzling things |  | .869 |  |
| The DED provides rewards when others reach their goal | .653 |  |  |
| As long as things are working, the DED does not try to change anything | .827 |  |  |
| Whatever others want to do is OK with the DED | .802 |  |  |
| Extraction Method: Principal Component Analysis.  Rotation Method: Oblimin with Kaiser Normalization. | | | |
| a. Rotation converged in 5 iterations. | | | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Structure Matrix** | | | |
|  | Component | | |
| 1 | 2 | 3 |
| The DED expresses with few simple words what we could and should do |  |  | .869 |
| The DED helps others develop themselves |  |  | .718 |
| The DED is satisfied when others meet agreed upon standards |  | .631 |  |
| The DED is content to let others continue working in the same ways always | .843 |  |  |
| I have complete faith in the DED |  | .544 |  |
| The DED provides appealing images about what we can do |  | .805 |  |
| The DED provides others with new ways of looking at puzzling things |  | .868 |  |
| The DED provides rewards when others reach their goal | .665 |  |  |
| As long as things are working, the DED does not try to change anything | .837 |  |  |
| Whatever others want to do is OK with the DED | .782 |  |  |
| Extraction Method: Principal Component Analysis.  Rotation Method: Oblimin with Kaiser Normalization. | | | |

**Measures against impediments**

DATASET ACTIVATE DataSet1.

SAVE OUTFILE='C:\Users\dell\Desktop\All Desktop Files December, 6 2019\MakoriData.sav'

/COMPRESSED.

FREQUENCIES VARIABLES=Measure1 Measure2 Measure3 Measure4 Measure5 Measure6

/ORDER=ANALYSIS.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Continuous monitoring of construction activities** | | | | | | | | | | |
|  | | | | Frequency | | Percent | | Valid Percent | | Cumulative Percent |
| Valid | | Never taken | | 12 | | 10.0 | | 10.1 | | 10.1 |
| Rarely taken | | 10 | | 8.3 | | 8.4 | | 18.5 |
| Sometimes taken | | 27 | | 22.5 | | 22.7 | | 41.2 |
| Usually taken | | 64 | | 53.3 | | 53.8 | | 95.0 |
| Alway taken | | 6 | | 5.0 | | 5.0 | | 100.0 |
| Total | | 119 | | 99.2 | | 100.0 | |  |
| Missing | | System | | 1 | | .8 | |  | |  |
| Total | | | | 120 | | 100.0 | |  | |  |
| **Increasing road budget** | | | | | | | | | | |
|  | | | Frequency | | Percent | | Valid Percent | | Cumulative Percent | |
| Valid | Never taken | | 17 | | 14.2 | | 14.2 | | 14.2 | |
| Rarely taken | | 27 | | 22.5 | | 22.5 | | 36.7 | |
| Sometimes taken | | 34 | | 28.3 | | 28.3 | | 65.0 | |
| Usually taken | | 42 | | 35.0 | | 35.0 | | 100.0 | |
| Total | | 120 | | 100.0 | | 100.0 | |  | |
| **Use of consultancy services** | | | | | | | | | | |
|  | | | Frequency | | Percent | | Valid Percent | | Cumulative Percent | |
| Valid | .00 | | 1 | | .8 | | .8 | | .8 | |
| Never taken | | 20 | | 16.7 | | 16.7 | | 17.5 | |
| Rarely taken | | 8 | | 6.7 | | 6.7 | | 24.2 | |
| Sometimes taken | | 29 | | 24.2 | | 24.2 | | 48.3 | |
| Usually taken | | 62 | | 51.7 | | 51.7 | | 100.0 | |
| Total | | 120 | | 100.0 | | 100.0 | |  | |
| **Taking responsibility to locally define needs within National policies and resources** | | | | | | | | | | |
|  | | | Frequency | | Percent | | Valid Percent | | Cumulative Percent | |
| Valid | Never taken | | 20 | | 16.7 | | 16.7 | | 16.7 | |
| Rarely taken | | 15 | | 12.5 | | 12.5 | | 29.2 | |
| Sometimes taken | | 26 | | 21.7 | | 21.7 | | 50.8 | |
| Usually taken | | 59 | | 49.2 | | 49.2 | | 100.0 | |
| Total | | 120 | | 100.0 | | 100.0 | |  | |
| **Organising, controlling and managing according to the existing regulations** | | | | | | | | | | |
|  | | | | Frequency | | Percent | | Valid Percent | | Cumulative Percent |
| Valid | | Never taken | | 20 | | 16.7 | | 16.8 | | 16.8 |
| Rarely taken | | 26 | | 21.7 | | 21.8 | | 38.7 |
| Sometimes taken | | 41 | | 34.2 | | 34.5 | | 73.1 |
| Usually taken | | 27 | | 22.5 | | 22.7 | | 95.8 |
| Alway taken | | 5 | | 4.2 | | 4.2 | | 100.0 |
| Total | | 119 | | 99.2 | | 100.0 | |  |
| Missing | | System | | 1 | | .8 | |  | |  |
| Total | | | | 120 | | 100.0 | |  | |  |
| **Regular training on leadership skills** | | | | | | | | | | |
|  | | | | Frequency | | Percent | | Valid Percent | | Cumulative Percent |
| Valid | | Never taken | | 15 | | 12.5 | | 12.6 | | 12.6 |
| Rarely taken | | 13 | | 10.8 | | 10.9 | | 23.5 |
| Sometimes taken | | 30 | | 25.0 | | 25.2 | | 48.7 |
| Usually taken | | 57 | | 47.5 | | 47.9 | | 96.6 |
| Alway taken | | 4 | | 3.3 | | 3.4 | | 100.0 |
| Total | | 119 | | 99.2 | | 100.0 | |  |
| Missing | | System | | 1 | | .8 | |  | |  |
| Total | | | | 120 | | 100.0 | |  | |  |

