IMPLEMENTATION STRATEGIES ADOPTED BY PUBLIC ROADS AGENCIES FOR ENHANCING DURABILITY OF ROAD NETWORKS IN KENYA

BY

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NOVEMBER, 2013

DECLARATION

I declare that this research project is my original work and has never been submitted anywhere for any academic award

Signed_____ Date_____

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D61/63422/2010

The research project has been submitted for examination with my approval as the university supervisor

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DEDICATION

This research paper is dedicated to my wife Martha and my two sons Mike and Brian. Thank you for the love, support and always been there throughout this journey. All glory and honours to the Lord who was my guide and provider.

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ABSTRACT

The concept of strategy implementation has attracted much less attention in strategic and organization research, than strategy formulation and strategic planning. According to Alexander (2008), strategy implementation is less glamorous than strategy formulation. This is because people overlook it because of a belief that anyone can do it. People are not exactly sure what it includes and where it begins and ends. The objective of the study was to find out the extent of adoption of implementation strategies by public road agencies to enhance durability of road network in Kenya, to assess the impact of adoption of implementation strategies that enhances durability of road network in Kenya and to identify the main challenges that hinder adoption of implementation strategies by public road agencies to enhance durability of road network in Kenya. The literature review was based on authoritative, recent and original sources such as journals, books, thesis and dissertation. Cross sectional survey design was used to structure the research and population of the study was all the six public road agencies in Kenya. Each public road agency was given one questionnaire and the respondents were the senior managers involved in construction and maintenance of roads. All the six questionnaires sent were returned completed representing a 100% response rate. The data was analysed by employing descriptive statistics such as measures of central tendency, measure of frequency and Pearson correlation squares. Excel spread sheet and SPSS package was used to aid in analysis. The information was presented and discussed as per the objectives and research questions of the study. Findings of the study indicated that a majority of public road agencies have adopted the following implementation strategies to a great extent: Routine maintenance of roads network on yearly basis, outsourcing maintenance works to road construction companies and developments of an annual work plan on maintenance of roads. It is worth to note that the axle load control implementation strategies, road reserve protection implementation strategies and traffic volume control implementation strategies are all adopted to a moderate or low extent and this could perhaps explain why the road condition deteriorate faster after they are constructed. The finding further shows that the average adoption of road maintenance implementation strategies is moderate , while axle road control implementation strategies was adopted to a low extent. Equally the road reserve protection implementation strategies and traffic control implementation strategies were all adopted to a low extent. The finding further indicated that there is reduction in the number of potholes and cracks in road surface when these implementation strategies are adopted. Other impacts were reduction in the level of pavement deterioration, reduced drainage blockage and reduced level of rutting in road surface. However all these impacts depended on the implementation strategies adopted. The results also show that there is a strong positive correlation between adoption of implementation strategies and durability of road networks with adoption of road maintenance implementation strategies being the most significant factor influencing durability of road networks followed by road reserve protection strategies then axle load control and finally traffic control strategies. The main challenges identified as hindering adoption of implementation strategies by public road agencies to enhance durability of road network are: Inadequate resources, Resources not released on time, Political interference on road related decisions and encroachment on road reserves.

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ABBREVIATIONS AND ACRONYMS

KeNHA	:	Kenya National Highways Authority
KeRRA	:	Kenya Rural Roads Authority
KURA	:	Kenya Urban Roads Authority
KRB	:	Kenya Roads Board
MOR	:	Ministry of Roads
KWS	:	Kenya Wildlife Service
AFMIS	:	Kenya Armed Forces Medical Insurance Scheme
RMI	:	Road Maintenance intiative
MTEF	:	Medium Term Expenditure Framework
MTP	:	Medium Term Plan
RMLF	:	Road maintenance Levy Fund
CEO	:	Chief Executive Officer
MBA	:	Master of Business Administration
UN	:	United Nations
KMs	:	Kilometers

CHAPTER ONE: INTRODUCTION

1.1 Background of the study

Strategy implementation is an important component of strategic planning process and involves use of firm's resources and motivation of staff in order to achieve organisations objectives (Pride & Ferell, 2003). However this concept has attracted much less attention in strategic and organization research, than strategy formulation and strategic planning. According to Alexander (2008), strategy implementation is less glamorous than strategy formulation. This is because people overlook it because of a belief that anyone can do it. People are not exactly sure what it includes and where it begins and ends. The environmental conditions facing many firms have also changed rapidly and today's global competitive environment is complex, dynamic and largely unpredictable. To deal with this unprecedented level of change a lot of thinking has gone into the issue of how strategies are best formulated and implemented (Olson etal, 2005).

The study is based on resource based view and dynamic capability theory in formulating competitive strategies. Today's business environment is dynamic, complex and continually changing and in order to gain and retain sustainable competitive advantage many firms have considered a range of efficiency or improvement related initiatives. Resource based view as a basis of competitive advantage of a firm lies primarily in the application of the bundle of valuable interchangeable intangible and tangible resources at the firms disposal which are heterogeneous in nature and not perfectly mobile. They are neither perfectly imitable nor substitutable without great effort (Barney, 1991). Dynamic capability on the other hand emerged as a complement to the resource based view in an attempt to explain competitive advantage in a rapidly changing environment. It is a special type of resource specifically an organizationally embedded non transferrable firm specific resource whose purpose is to improve the productivity of other resources possessed by the firm (Makadok, 2001). It is the ability of a firm to utilise its resources effectively so as to achieve congruence with the changing business environment. Organisations may possess resources to implement strategies but must display dynamic capabilities otherwise the strategy will fail.

The road sector in Kenya is made up of a number of players mostly in public organisation through the Ministry of Roads, Local government authorities and International development partners. The government of Kenya has invested heavily in road infrastructure developments that are key to supporting the economic growth. However maintaining a safe, comfortable and durable road network especially to the newly constructed roads has been a major challenge for the government and has over the time necessitated development of strategies that enhance the durability and greater lifespan of road network in Kenya.

1.1.1 Strategy Implementation

Strategy implementation is the process of allocating resources to support organisations chosen strategies. The process includes various management activities that are necessary to put strategy in motion and institute strategic controls that monitor progress and ultimately achieve organisational goals. Strategy formulation and implementation is an on-going never ending integrated process requiring continuous reassessment and reformation and which involves a complex pattern of actions and reactions (Johnson & Scholes, 2002). Pearce and Robinson (2007) states that to effectively direct and control the use of the firms resources, mechanisms such as organization structure, information systems, leadership styles, assignment of key manager, budgeting, reward and control systems are essential strategy implementation ingredients. The human element of strategic implementation plays a key role in successful implementation and involves both managers and employees of the organization (David, 2003). Both parties should directly participate in implementation decision and communication that plays a key role in ensuring that this implementation process is smooth.

A successful implemented strategy will yield various benefits to an organization such as proper utilization of resources and thus enhance organizational growth development, increased organization impact due to improved organizational performance and sustain its competitiveness. The organization will also be able to have a clear focus and direction in its growth path and in the process attract competent and resourceful human resource base. The execution of a strategy depends on individual members of organization especially

key managers. Motivating and rewarding good performance for individual and units are key success factors in effective strategy implementation. The reward system aligns activities and objectives of individuals and units with the objective and needs of the firm's strategy (Shirley, 1993).

Becker (1993) emphasized that strategy implementation could be more difficult than thinking up a good strategy. Crawford, Blackstone and Cox (1988) explained that the real value of a decision surfaced only after the implementation of a decision. In other word, it will not be enough to select a good decision and effective results will not be attained unless the decision is adequately implemented. Successful strategic planning implementation requires a large commitment from top management and they must lead, support, follow up and live the result of the strategic planning implementation process or else it will fail. Implementing strategy has always been a challenge for organizations across the industry. Ability to implement strategy is the deciding factor between success and failure of a company's strategy. Implementation manifests the strategic intent of a company through various tactical and competitive actions to achieve the desired results which otherwise may remain a distant dreams.

1.1.2 The Road Sector in Kenya

Kenya has an extensive road network of approximately 177,800 KMs of which 63,300 KMs are classified. The table below summarises the classification of road networks.

Table 1.1 Road Network in Kenya

Type	**Classified**		**Unclassified**		**Total**
	Main Roads Classified as A,B and C	Rural Roads classified as D, E and Other special Purpose Road	Rural	Others	
Paved	7,100	2,000	0	2,500	11,600
Unpaved	7,200	47,000	100,000	12,000	166,200
Total	14,300	49,000	100,000	14,500	177,200

Source: *Ministry of Roads, 2010.*

The table above shows that only 6% of our Kenyan roads are paved and the rest are unpaved. It also indicates that the classified roads are 35% while 65% are unclassified. Roads are also classified according to the needs the road serves. Class A roads are referred to as International trunk roads, Class B as national trunk roads, Class C as primary roads, Class D as secondary roads while Class E as Minor Roads. Other functional classification are class T, W, L, G, V and R which are referred to as special purpose roads.

According to Road Initiative Manual, the durability of any road network depends to an extent on the design and maintenance of that particular road and also the traffic level in that particular road. Various roads will therefore have different lifespan but the Public road agencies in Kenya are implementing various strategies inorder to enhance the longevity of road network. The Various measures adopted by these institutions to assess the durability of road network are the frequency and number of potholes occurring to a road, the frequency and number of cracks occurring to a road, the size and frequency of loose pavement edges, the frequency of drainage blockage, the level of road deflection, the level of rutting, the level of road ravelling, the level of road roughness, the frequency and the number of accidents occurring in a road, the existence of roads signs, road furnitures and road safety signs, the size of vegetation in the road among others. Rutting is pavement depression along the wheel path wile ravelling is progressive disintegeration of a tarmac layer from the surface downward as a result of dislodgement of aggregate particles. Road deflection is the bearing capacity of roads or rail while road roughness is a condition parameter used to measure deviations from the intended longitudinal profile of a road surface, with characteristics dimension that affect vehicle dynamics, ride quality & dynamic pavement loading.

1.1.3 Public Road Agencies in Kenya

The main players in road sector are public road agencies mandated by law to manage and maintain road networks in Kenya. They are Ministry of Roads, Kenya National Highways Authority (KeNHA), Kenya Rural Roads Authority (KeRRA), Kenya Urban Roads Authority (KURA), Kenya Wildlife Service (KWS) and Kenya Roads Board (KRB). The Ministry of Roads is responsible for Policy formulation, coordination and setting of roads

standards, KRB is responsible for funding road maintenance works through road maintenance levy fund (RMLF) , KeNHA is responsible for the management, development, rehabilitation and maintenance of national roads classified as classes A, B, and C Roads, KeRRA is responsible for the management, development, rehabilitation and maintenance of rural roads classified as classes D, E, and unclassified rural roads, KURA is responsible for management, development, rehabilitation and maintenance of all public roads in cities and municipalities except where those roads are national roads while KWS is responsible for roads in national Parks and national reserves (Kenya Roads Act First schedule, 2007).

The main objective of setting up these organisations was to have an effective road network management that requires, firstly ownership by road users and winning their active support in roads management. Secondly a clear mandate and legal identity for each organization involved in the sector. Thirdly, secure, adequate and stable flow of funds to the roads sector and finally, the need for business-like approach to roads management. The Kenya medium term plan (MTP) identified a number of strategies that improves the durability and greater lifespan of road network in Kenya and which requires continuous implementation by road agencies.

1.2 Research Problem

Strategy formulation and implementation is the most substantive decision making process, covering four stages namely formulating priority strategies, negotiating and agreeing action plan, designing and implementing demonstration projects and integrating projects and plans into strategic approaches (UN – Habitat, 2001). Strategy can only impact on the bottom line if it is successfully implemented. Strategic plan and its implementation are the heart and soul of any business organization and operation. Noble (1999) states that well formulated strategies only produce superior performance for the firm when they are successfully implemented. Mintzeberg and Quinn (1999) stated that ninety percent of well formulated strategies fail at implementation stage while David (2003) claims that only ten percent of formulated strategies are successfully implemented.

Public road agencies are practising strategic planning process whereby they have clearly identified their mission and objective, their priorities and targets for implementation and the action to be taken to achieve them. They have also adopted various strategies that improve durability of road networks in Kenya. However implementing these strategies is becoming a more challenging, complex and difficult undertaking caused by the unique environment in which they operates. There is therefore need for better strategic planning and more so better strategy implementation practices that capture the industry dynamics.

Recent studies done in the area of strategy implementation include Aboud (2007) who focused on the challenges facing the implementation of strategy for revitalizing agriculture, Muthuiya (2004) did study on strategy implementations in non-profit organization in Kenya, Koskei (2003) studied strategy implementation and its challenges in public corporations, a case of Telkom Kenya and Ayabei (2010) did study on Challenges to strategy implementation at Teachers Service Commission. Other studies on strategy implementation are by Kimeli (2008), Aosa (1992), Kiprotich (2008), Kithinji (2005), Mwikali (2007), Gakenia (2008), Awino (2001), Manyarkiy (2006) and Mobisa (2007). None of these studies has exclusively addressed the issue of implementation of strategies by Public road agencies for enhancing durability of road network in Kenya. Given the importance of road infrastructure in attainment of Kenya Vision 2030 which aims at making Kenya a newly industrialized country, there is need to undertake a diagnostic study to document how strategy implementation is done by public road agencies to enhance the durability of road networks and whether such implementation have any effect on durability of road network. This study was therefore seeking to address the following questions: To what extent have public road agencies adopted implementation strategies that enhance durability of road network in Kenya? What is the impact of adoption of implementation strategies that enhance durability of road network in Kenya? What are the main challenges that hinder adoption of implementation strategies by public road agencies to enhance durability of road network in Kenya?

1.3 Research objectives

The study was seeking to achieve the following objectives;

i) To find out the extent of adoption of implementation strategies by public road agencies that enhances durability of road network in Kenya.
ii) To assess the impact of adoption of implementation strategies that enhances the durability of road network in Kenya?
iii) To identify the main challenges that hinder the adoption of implementation strategies by public road agencies that enhances durability of road network in Kenya.

1.4 Value of the study

As well highlighted above, an efficient road infrastructure system is a prerequisite for economic and social development. Road transport is the predominant mode of transport in Kenya which caters for over eighty percent of total national mobility needs both in urban and rural area hence an important sector of the Kenyan economy. This study will be useful to policy makers in road sectors in formulating best strategies that enhance the durability of road network in Kenya.

The study will assist management of public road agencies to address key factors that leads to slow strategy implementation and thus have an insight on how to tackle the challenges for future successful implementation of strategy. It will help the organisation to institute good policies that ensure smoother implementation of strategy in road sector. Development partners especially those that co-fund various road projects will find this study important in carrying out their project monitoring and evaluation.

It will also provide information to futures scholars and researchers who might need to research on strategy implementation in other government agencies and their effects. The study contributed to the theory of strategy implementation by providing evidence on some of the challenges of strategy implementation in road sector. The study has also shown that adoption of implementation strategies that enhance durability of road networks in Kenya require huge resources that are scarce. The resources may therefore not be perfectly mobile from one sector of economy to the other as the government try to balance the financing of all activities.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter summarises the theoretical underpinning of the study, the concept of strategy, strategy implementation, factors that influences strategy implementation and challenges to strategy implementation.

2.2 Theoretical Perspectives of the study.

The concept of dynamic capability has emerged as a complement to the resource based view in an attempt to explain competitive advantage in a rapidly changing environment. According to Lockett, Thompson and Morgenstern (2009), the resource based view is grounded on two fundamental assumptions in analysing sources of competitive advantage and business strategy. First, firms within an industry or a strategic group may be heterogeneous with respect to the strategic resources they control. Second, since these resources may not be perfectly mobile across firms, heterogeneity can be long lasting. In the resource base models, competitive advantage is said to reside in the inherent heterogeneity of the immobile strategic resources which business controls. Strategy is viewed as a firms conscious move to capitalise on its idiosyncratic endowment of strategic resources (Lavie, 2006).

Dynamic capability is a special type of resource specifically an organizationally embedded non transferrable firm specific resource whose purpose is to improve the productivity of other resources possessed by the firm (Makadok, 2001). It enable an organisation to purposefully create, extend, or modify its resource base (Helfat et al, 2007). The basic assumption of the dynamic capabilities framework is that core competencies should be used to modify short term competitive positions that can be used to build long term competitive advantage.

According to Pearce and Robinson (2007) implementation involves the process of operationalizing, institutionalization and controlling of the strategy. This involves translating strategic thought into strategic action. Operationalization involves identification of measurable, mutually determined annual objectives. It also involves development of specific functional strategies and communication of concise policies to

guide decision. Institutionalization involves making the strategy permeate the very day to day life of the organization. Strategy can be said to be successful if it is correctly implemented and the objectives and goals of the organization are realized

2.3 The Concept of Strategy

The concept of strategy has been much used in various dimensions and has found application in various fields of study and life. It is a multi-dimensional concept and has long been used implicitly in different ways and there is no agreed all-embracing definition of strategy. Aosa (1998) defines strategy as solving a strategic problem, which is a mismatch between internal characteristics of an organization and its external environment. There is a need to have a fit between the two environments. Aosa's definition is similar to that advanced by Porter which states that, organisations are environment dependent. The success of every organization is determined by its responsiveness to the environment (Porter, 1990). For an organization to retain competitive advantage it needs to examine its environment and respond accordingly. Another argument is that strategy is the game plan management has for positioning the company in its closed market arena, competing successfully, pleasing customers and achieving good business performance. (Thompson & Strickland, 1998).

The study of strategic management was developed in 1950's due to the detailed planning of the business circumstances and has since increasingly become important due to globalization of business, technological changes and turbulent environment. The boundaries of countries are no longer defining the limits of business transaction while technology is continuously changing in the business environment and organizations need to embrace it so as to remain competitive in the market. The external environment is turbulent and ever changing and organization requires adoption of strategic management process in order to remain competitive. In summary, strategy enables organization a match between their external environment and internal capabilities. It enables organization to respond to the opportunities and threats as presented by the external environment (Ansoff and McDonnel,1990).

2.4 Strategy Implementation

This is the action stage of the strategic management process. Strategy implementation implies putting the organizations chosen strategy into action so as to achieve strategic goals and objectives. Kotler (2004) stresses the importance of implementation by noting that a great strategy can be sabotaged by poor implementation. According to Ghosan (2002), strategy is five percent thinking and ninety five percent execution. At times implementation could be more difficult than its formulation. The ability to align strategy with collective behaviour and the competitive context ultimately determines how well an organization performs. A strategy may be good, but if its implementation is poor, the strategic objective for which it was intended may not be achieved. A well developed strategy will have to be executed well if the firm is to achieve success in its operations.

Strategy implementation involves allocation of sufficient resources which include financial, personnel, time and computer system support where necessary. Second, establishing a chain of command or some alternative structure such as cross functional teams to undertake specific responsibilities. Third, assigning responsibility of specific tasks or processes to specific individuals or groups. Where a task is assigned to a group, a leader who can be held accountable must be established. Finally it involves managing the process which includes monitoring results, comparing and benchmarking with the best practices, evaluating the efficiency and effectiveness of the process and controlling for variances (Deloitte and Touche, 2003).

According to David and Hughes (1997), strategy can be implemented using a five stage model; namely determining how the change is required in an organization inorder to implement the strategy under consideration, analyzing the formal and informal structures of the organization, analyzing the culture of the organization, selecting an appropriate approach to implementing the strategy and implementing the strategy and evaluating results. The five steps are further classified into the mutually determined annual objectives, development of specific functional strategies and development and communication of concise policies to guide decisions.

For effective strategy implementation, proper integration of implementation with other strategic management components is a must (Hambrick and Canella, 2009). Mckinsey and company have developed a model known as “the seven elements of strategic fit” or the 7-S’s which are; strategy (the coherent set of actions selected as a course of action), structure (the division of tasks as shown on the organizations chart), systems (the process and flows that show how an organization get things done); style (how management behaves), staff (the people in the organization), shared values (values shared by all in the organization) and skills (capability processed by the organization). The fundamental concept of this model is that all seven of these variables must fit with one another in order for strategy to be successfully implemented. Shared values therefore are central because they are central theme around which a firm rallies.

Thompson et al (2007) details eight managerial components of strategy execution. The components, include, building the organization with competencies, capabilities and resources strength to execute strategy successfully, marshalling sufficient money and people behind the drive for strategy execution, adopting best practice and pushing for continuous improvement in how value chain activities are performed, installing information and operating systems that enable company personnel to carry out their strategic roles, proficiently, tying rewards directly to achievements of strategic and financial targets and to good strategy execution, installing a corporate culture that promotes good strategy execution and exercising strong leadership to drive execution forward, keep improving on the details of execution and achieve operating excellence as rapidly as feasible. How well the managers perform these tasks will have a decisive impact on whether the outcome is a spectacular success or a colossal failure or in between the two.

Formulating appropriate strategy is not enough. For effective strategy implementation, the strategy must be supported by decisions regarding the appropriate organization structure, reward system, organizational culture, resources, leadership, communication and, support systems just as the strategy of the organization must be matched to the external environment and must fit these multiple factors responsible for its implementation (David, 2003).

Organisation structure influences strategy implementation by attempting to balance internal efficiency and overall effectiveness within a broader environment (Ansoff and McDonnell, 1990). Newman (1989) advocates that the way an organization is organized can expedite strategic action or may be a serious road block there to. Owen (1982) stated that strategy and structure needs to be matched and be supportive of each other in order to achieve the objective of an organisation. The structure helps an organization to identify its activities and the way in which it will coordinate them to achieve the firms strategic objective. Communication within the organisation is important in effecting change, influencing action and in realizing effective internal functioning as it integrates the managerial functions.

Jack and Suzy (2010) argued that strategy is about resource allocation and for it to be implemented resources have to be committed. According to Capon (2008) organization need to identify and evaluate resource strengths and weakness to allow clear understanding of what it is possible to achieve in terms of products, markets and growth given resource availability constraint existing in the organization. Resource planning should indicate how resources should be deployed to effectively implement strategies. The chosen strategy should be implemented with the resources available which comprises of the physical, financial, technological and human resources (David, 2003).

A critical ingredient in strategy implementation is the skills and abilities of the organization leaders (Kimathi , 2006), Leadership style is a critical element in strategy implementation given that a CEO is both symbolic and substantive in its implementation. He is closely identified and ultimately accountable for strategy success. There is need to have a leader in an organization to facilitate the implementation process by motivating the workers to work towards achieving the objectives of the strategy. In a competitively chaotic environment, one essential contribution of a strategic leader is to provide and share a clear vision, direction and purpose for the organization (Thompson, 1997). The strategic leaders must direct the organization by ensuring that long term objectives and strategies have been determined and understood and supported by managers within the organizations who will be responsible for implementing them.

If an organization is to implement its strategies effectively, it must develop a strong and coherent culture which is compatible with the strategy being implemented. John & Robinson (2002) defines culture as the set of important assumptions that members of an organization share. The leaders should know well that values and beliefs shared throughout the organization will shape how work in the organization is done. Culture serves as a sense making and control mechanism that guides and shapes the attitudes and behaviour of employees. It sets the tone for the company and establishes rules on how people should behave (John & Robinson, 2002).

Team work plays an important role within the process of strategy implementation. Kaplan and Norton (2001) indicate that every organization needs to make strategy everyone's job in order to successfully implement it. All employees should understand the strategy and conduct their day to day business in a way that contributes to the success of that strategy. Successful organizations should also link incentive compensation to strategy implementation. A team based rather than an individual based system for rewarding performance is better if team work is embraced (Kaplan and Norton, 2001).

2.5 Challenges of Strategy Implementation

Some of the studies done point to a number of factors that lead to failure in strategy implementation. This includes weak management, lack of commitment to the strategy by top management, poor coordination and sharing of resources and responsibilities, inadequate capability of the implementers, competing activities and uncontrollable environmental factors (Thomas & Strickland and Gamble, 2007), (Giles, 2007) and (Weihnrich and Koontz and, 2001). According to Hambrick (2009), some of the challenges include the necessity for longer timeframe than initially allocated for the implementation, poor or vague strategy, conflicts with organizational power structure, poor or inadequate sharing of information, lack of understanding in the organizational structure including information sharing and coordination method, unclear responsibility and accountability in the execution process and inability to manage change that results from the implementation.

Inadequate resources are one of the major causes of failure of strategies at the implementation phase. According to Kubinski (2002) lack of resources is generally a bigger threat to capital intensive strategies. It is generally a good idea to include financial evaluation of a draft strategic plan before it is adopted to ensure that the strategy does not inadequately destroy shareholders wealth. Strategy guides an organization on how to align properly the firm's resources in order to exploit opportunities and minimize threats.

Another reason why strategies often fail is because the market conditions they were intended to exploit change before the strategy takes hold. Larry Downes (The industry standard, 2001) finds that technology challenges the old rules and assumptions "and creates daunting" external obstacles to execution. Changes in market conditions can also be accelerated by the vagueness of the assignment to be conducted which includes lack of understanding on how the strategy should be implemented, customers and staff not fully appreciating the strategy and unclear individual responsibilities in the change process,

Hyatt (2001) noted that strategy implementation always involves more people than strategy formulation. Implementation demands ownership at all levels of management hence effective execution involves managers across all hierarchical levels. Committing to and owning the process is central to effective execution. Sometimes strategies fail because they are simply ill conceived and there is insufficient buy in to or understanding of the strategy among those who need to implement it. According to Giles (2007) strategy implementation fails when implementers do not own the strategy. Lack of buy-in from stakeholders is a major challenge in implementation of a strategy.

People processes are very important in implementation of a strategy. Strategies should be created based on the people's judgment since the task to implement lies with them. According to Thomson, Strickland and Gamble (2007), supportive motivational practices and reward system are powerful management tools for an organization to gain employee commitment. With the right strategies and people, the challenge turns to creating realistic plans with specific action plans and accountability. This breaks down long term goals into short term targets that make it easier for decisions to be made and into actions that are clear and possible to implement.

Resistance to change is a multifaceted phenomenon which introduces delays, additional costs and instabilities into the process of strategy implementation. This could be either systemic of behavioural. Systemic resistance is organisational and includes Organization design, organizational culture, resource limitations, fixed investments, Inter-organizational agreements. Behavioral resistance on the other hand could be either at individual or collective level. At individual level it could include, employees or managers in other departments while at collective level it could be by managers who share common tasks or coalitions and power centers within the organization.

Communication down the organization or across different functions becomes a challenge in strategy implementaion. Effective communication of the strategy and its underlying rationale is critically important particularly when reaching out beyond the group directly involved in the development of the strategic plan. Linking strategic objectives with the day- to-day objectives at different organization levels and locations becomes a challenging task. The larger the number of people involved, the greater the challenge to execute strategy effectively (McCracken, 2002). Lack of information can hamper the implementation of a strategy. In some instances, strategies are formulated at the top level and the middle and operational level are supposed to take it and implement it. In some instances, they do not understand the concepts and the thinking behind the strategies. What results is that they become very dependent on the management and have to be guided on the smallest decisions.

The challenging aspect when implementing strategy is the top management commitment to the strategic direction itself. In some cases top managers may demonstrate unwillingness to give energy and loyalty to the implementation process (Marginson, 2002). This demonstrable lack of commitment becomes, at the same, time a negative signal for all the affected organizational members. Poor leadership also constitutes a major source of failure for strategies. Ghieck (1980) states that a manager needs to have the right characteristics to successfully implement a strategy

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter describe the methodology that was used for the study and the reasons for their selection. In summary it describes the research design, target population, sample and sampling technique, data collection methods and data analysis techniques.

3.2 Research Design

This study was conducted through a cross sectional survey and was quantitative. Cross sectional survey is a type of descriptive research design involving the collection of information from any given sample of population elements once (Malhotra & Birks, 2006). Mugenda and Mugenda (2003) noted that a survey attempts to collect data from members of a population and describes phenomena by asking individuals about their perception, attitudes, behaviour or values. A descriptive study aims at determining the what, when and how of a phenomenon to give facts of a situation from target respondents.

Survey research was preferred because it appeals for generalization within a particular parameter. The data obtained can be standardized to allow easy comparison. Moreover, it explores the existing status of two or more variables at a given point in time. This design enhanced a systematic description that was accurate, valid and reliable as possible.

3.3 Population of the study

The target population for this study was all the public road agencies that deal with the management, development, rehabilitation and maintenance of public road networks in Kenya. According to the Kenya Road Act First Schedule (2007), there are 6 (Six) Public road agencies in the country (Appendix 1). A census study was used given that the population of six was considered to be small.

3.3 Data collection

This study used primary data which was collected using structured questionnaire. The questionnaire was designed based on the three objectives of the study and largely used a 5-point likert scale comprising of four main sections. Section A focused on the general information for respondents and organisation profile, Section B dealt with the extent of adoption of strategy implementation practices, Section C assessed the impact of implementation of strategies that enhances durability of road network in Kenya and Section D established the main challenges that hinder the implementation of strategies for improving durability of road network in Kenya.

The target respondents was drawn from the road agencies senior manager specifically those who deals with road construction and maintenance. One questionnaire was given to each organisation hence making a total target of 6 (Six) respondents. The questionnaires was administered on the basis of drop and pick later or picked immediately depending on the availability of the targeted respondents.

3.4 Data analysis

The data was summarized, coded and tabulated. Descriptive statistics such as means, standard deviation, percentages and frequency distribution were used to analyze the data. Further Pearson correlation coefficient was used to determine the relationship between strategy implementation practices and durability of road network. Data presentation was done by use of tables. Explanations on each table were given based on each objective of the study. Descriptive statistics helped to simplify large amount of data in a sensible way. Each descriptive statistic reduces lots of data into a simple summary. Excel spread sheet and SPSS package was used to aid in analysis. The information is presented and discussed as per the objectives and research questions of the study.

CHAPTER FOUR: DATA ANALYSIS AND INTERPRETATION

4.1 Introduction

This chapter offers detailed report on the findings of the study based on the three research objectives which were; to find out the extent of adoption of implementation strategies by public road agencies that enhance durability of road network in Kenya, to assess the impact of adoption of implementation strategies by public road agencies that enhance durability of road network in Kenya and to identify the main challenges that hinder adoption of implementation strategies by public road agencies to enhance durability of road network.

This chapter is divided into four sections. Section 4.2 relates to demographic information of the respondents, section 4.3 is about extent of adoption of strategy implementation practices by public road agencies, section 4.4 relates to the impact of implementation of strategies that enhances the durability of road network in Kenya and section 4.5 gives the challenges that hinder implementation of strategies for enhancing durability of road network in Kenya by public road agencies.

4.2 Demographic information of the Respondent

This section discusses the demographic information of the respondents in relation to the position of the respondent and number of years worked for Public Road Agencies.

4.2.1 Position of the Respondent

Table 4.1 below presents a summary of the positions held by various respondents further shedding light on their critical role in strategy implementation.

Table 4.1: Showing the position of the respondent

Position of Respondent	Frequency	%
General Manager - Maintenance	2	33.33
General Manager Design & Construction	1	16.67
General Manager Planning & Environment	1	16.67
Chief Engineer Roads	1	16.67
Manager Road Maintenance	1	16.67

Source: *Research Data*

The study sought to find out the designation of the respondents in their organisations. According to the finding 33.33% of the respondents were General Manager Maintenance, 16.67% were General Manager Design and Construction, 16.67% were General Manager Planning and Environment, 16.67% were Chief Engineer Roads and 16.67% were Manager Road Maintenance. As earlier noted the target respondents comprised exclusively road agencies staffs who are involved in construction and maintenance of roads network in Kenya.

4.2.2 Duration respondent had worked in the Organisation

Table 4.2 below shows the period of working or length of employment of various respondents in their specific organisations

Table 4.2: Showing duration respondent had worked in the Organisation

Years	Frequency	%
1 - 5 Years	0	0
5 - 10 Years	1	16.67
10 - 15 Years	3	50
15 - 20 Years	1	16.67
Over 20 Years	1	16.67

Source: *Research Data*

The study sought to find out the period the respondents had worked in the organisation. According to the findings 50% worked for 10-15 Years 16.67% worked for 5-10 Years, , 16.67% worked for 15-20 Years and 16.67% worked over 20 years. The Finding shows that majority of the respondents had relevant working experience in their respective organisations and could be relied in achieving the objectives of the study.

4.3 Extent of adoption of Implementation strategies by Public Road Agencies to enhance durability of road network in Kenya

In order to determine the extent of adoption of implementation strategies by Public road agencies to enhance durability of road network in Kenya, the respondents were asked to rate the extent to which their organization had undertaken various strategy

implementation practices in relation to road maintenance, axle load control, road reserve protection and traffic control strategies on a scale of 1-5 where 1 represented no extent and 5 represented to a very great extent. To consolidate and give presentation of the data, the study utilized the statistical functions of mean and standard deviation. The mean represents the average rating of all the respondents to the particular practice while the corresponding standard deviation shows the spread of the ratings or how far or the range within which the individual rating are from the mean rating.

4.3.1 Overall adoption of Implementation strategies by Public road Agencies to enhance durability of road network in Kenya

Table 4.3 below show the average mean and standard deviation of the overall adoption of various implementation strategies by public road agencies to enhance durability of road network. The findings are in relation road maintenance implementation strategies, axle load control implementation strategies, road reserve protection implementation strategies and traffic volume control implementation strategies.

Table 2.3: Overall adoption of Implementation strategies by public road agencies

Implementation Strategies	**Mean**	**Std Dev.**
Road Maintenance implementation strategies	3.02	0.8
Axle load control implementation strategies	2.5	1.22
Road reserve protection implementation strategies	2.08	0.72
Traffic Control implementation strategies	2.08	0.66
Average of Average	**2.42**	**0.85**

Source: *Research Data*

The finding shows that the overall adoption of road maintenance implementation strategies by public road agencies is moderate with an average mean of 3.02. The finding further shows that all the other three implementation strategies namely axle load control, road reserve protection and traffic control implementation strategies are adopted to a low extent with mean score of 2.5, 2.08 and 2.08 respectively. The overall finding shows that there is great non-commitment by public road agencies in implementing strategies that

enhance durability of road network. This therefore leaves public roads vulnerable to deterioration and damage on a greater scale.

4.3.2 Adoption of Road maintenance Implementation Strategies.

The findings on road maintenance implementation strategies are contained in Table 4.4 below

Table 4.4: Extent of adoption of Road Maintenance Implementation strategies

Road Maintenance Implementation strategies	**Mean**	**Std Dev.**
Routine maintenance on yearly basis	4.33	0.75
Periodic maintenance after every five years	2.83	1.21
Use of approved standards and manuals in routine and periodic maintenance	3.33	0.75
Use of quality control and assurance measures to ensure high quality of materials used in maintenance of roads	3.67	0.75
Incorporating defects liability mechanism in management of road projects	3.5	0.5
Use of in-house equipment and tools to undertake maintenance of roads	2.17	1.34
Use of third party (contracting) to undertake maintenance of roads	4.17	0.69
Use of performance based contracting	1.83	1.07
Use of Public private partnership in maintenance of roads	1.17	0.37
Use of emergency response unit to repair damaged road that requires immediate reinstatement such as a collapsed bridge.	2.67	0.94
Use of labour based method in maintenance of roads	1.83	0.69
Developing annual work plan on maintenance of roads	4.17	0.67
Adhering to developed annual work plan in maintenance of roads	3.17	0.89
Supervision of maintenance projects on regular basis	3.67	0.47
Monitoring and Evaluation of maintenance projects.	2.83	0.90
Average Mean	**3.02**	

Source: *Research Data*

The study found that the road maintenance implementation strategies adopted to a great extent is routine maintenance on yearly basis with a mean score of 4.33. There was a low degree of variation among respondent as indicated by a relatively low standard deviation of 0.75. The adoption of this strategy could be due to existence of a regulation in government that gives priority to roads in good condition to be maintained on yearly basis so that they do not deteriorate into worse conditions that require huge resources for their rehabilitation. Others road maintenance implementation strategies adopted to a great extent are contracting third party to undertake maintenance of roads with mean score of 4.17 and standard deviation of 0.69 and developing an annual work plan on maintenance of roads with mean score of 4.17 and standard deviation of 0.47. These two findings shows that the road agencies have clear work plans on maintenance of roads and are mitigating the risk involved in maintenance of roads to experts.

Road maintenance implementation strategies adopted to a moderate extent are use of standards and manuals to govern the process of routine and periodic maintenance with mean of 3.67 and standard deviation of 0.75, use of quality assurance measures to determine the quality of materials used in maintenance of roads with mean of 3.67, supervision of maintenance projects on regular basis with means score of 3.67 and adhering to annual work plan in maintenance of roads with mean score of 3.17. These findings show that the road agencies have limited quality assurance mechanisms when supervising maintenance of roads and this could perhaps explain why many road contractors use substandard materials.

The study also found that the road maintenance implementation strategies adopted to a low extent is periodic maintenance after every five years with mean score of 2.83. This is because this strategy requires huge resources to undertake and the allocation to the agencies by government is not enough to perform this task. Use of in-house equipment and tools to undertake maintenance of roads was adopted to a low extent with mean score of 2.17 because the resources required to invest in the equipments were limited to all agencies. Use of an emergency maintenance response unit to attend to a damaged section of road that requires immediate reinstatement such as a collapsed bridge was also adopted

to a low extent with mean score of 2.67. This finding show how unprepared the road agencies are in responding to emergency maintenance. Another road maintenance implementation strategy adopted to a low extent is conducting monitoring and evaluation of maintenance projects with mean scores of 2.83.

The least adopted road maintenance implementation strategies are: use of performance based contracting with mean score of 1.83, use of public private partnership in maintenance of roads with mean score of 1.17 and use of labour based method in maintenance of roads with mean score of 1.83. The road agencies and government should explore mechanisms that attract private sector in investing in road management.

4.3.3 Adoption of Axle Load Control Implementation Strategies.

Table 4.5 below shows the finding of the extent of adoption of axle load control implementation strategies by various public road agencies.

Table 4.5: Extent of adoption of axle load control Implementation Strategies

Axle Load Control Implementation Strategies	Mean	Std Dev
Use of weighbridge to determine the axle weight of vehicles in your road network	2.33	1.60
Fining heavy trucks that exceed allowable axle load limit	2.0	1.15
Enforcing axle load regulations in our road network	2.33	1.37
Educating transporters on the requirement of axle load limit to increase compliance	3.33	1.37
Average Mean	**2.5**	

Source: *Research Data*

With respect axle load control implementation strategies, the finding indicates that none of the strategy was adopted to a great extent. This perhaps could explain why most newly constructed roads are rapidly deteriorating at high speed due to overloading. The only axle load control implementation strategy adopted to a moderate extent is educating transporters on the requirement of axle load limit in order to increase compliance with a mean of 3.33 and standard deviation of 0.75. All the other axle load implementation

strategies were adopted to a low extent. They includes use of weighbridge to determine the axle weight of vehicles with mean score of 2.33, fining heavy trucks that exceed allowable axle load limit with mean score of 2 and enforcing axle load regulations with mean score of 2.17 were all implemented to a low or no extent. This does not augur well with the government effort of investing heavily in road infrastructure as roads are normally designed to withstand specific traffic loading throughout their lifetime. Overloading normally leads to rutting, cracking among other deformations, which shorten the pavement design life. This results in increased vehicle operating costs, reduction in service levels, unsafe conditions leading to increased accident risks and increasing road maintenance costs.

4.3.4 Adoption of Road Reserve Protection Implementation Strategies.

Table 4.6 below shows the finding of the extent of adoption of road reserve protection implementation strategies by various public road agencies.

Table 4.6: Extent of adoption of road reserve protection Implementation Strategies

Road Reserve Protection Implementation Strategies	Mean	Std Dev
Enforcing policies that protect road reserve	2.83	0.69
Marking the boundaries of road reserves	1.83	0.69
Participating in planning of roadside development	1.83	0.90
Demolishing road side development that encroaches on road reserves without authority.	2.5	0.95
Conducting monitoring of road reserves on regular basis	2.33	0.75
Licensing road side development	1.17	0.37
Average Mean	**2.08**	

Source: *Research Data*

Table 4.5 highlight the mean and standard deviation of the extent of adoption of road reserve protection implementation strategies. The study findings indicated that most organization have adopted road reserve protection implementation strategies to a low or no extent and this should worry the government and policy makers on why these strategy

implementation strategies are not adopted by government agencies. The road reserve protection strategies adopted to a low extent are: enforcing policies that protect road reserve with mean of 2.83, marking the boundaries of road reserves with mean score of 1.83, participating in planning of roadside development with mean score of 1.83, demolishing road side development that encroaches on road reserves without authority with mean score of 2.5, conducting monitoring of road reserves on regular basis with mean score of 2.33 and licencing all road side development with a mean of 1.17. The findings show that the road reserves in Kenya are vulnerable to encroachments by corrupt individuals who grab the land for personal gain. This make any future expansion of road very challenging and expensive as it will entails legal redress and where possible demolitions and change of designs.

4.3.5 Adoption of Traffic Control Implementation Strategies.

Table 4.7 below shows the finding of the extent of adoption of traffic control implementation strategies by various public road agencies.

Table 4.7: Extent of adoption of traffic control Implementation strategies

Traffic Control Implementation Strategies	**Mean**	**Std Dev**
Limiting certain vehicles from using certain section of our road network	2.83	1.07
Diverting heavy trucks to use alternative route such as bypasses	2.17	0.37
Constructing road blocks and bridges that disallow passage of vehicles with tall or wide load	1.5	0.5
Issuance of permit to transport abnormal load within your road network.	1.83	0.69
Average Mean	**2.08**	

Source: *Research Data*

Table 4.6 above highlight the mean and standard deviation of the extent of adoption of traffic control implementation strategies. Traffic control strategies adopted to a low extent are limiting certain vehicles from using certain section of road network with mean score of 2.83, diverting heavy trucks to use alternative route such as bypasses with mean score of 2.17, constructing road blocks and bridges that disallow passage of vehicles with tall or wide load with mean score of 1.5 and issuance of permit to transport abnormal load within respective road network with a mean score of 1.83. The finding indicates that traffic control implementation strategies have not been embraced totally by public agencies and this could lead to a reduced lifespan a road can remain in good condition.

4.4 Impact of adoption of implementation strategies that enhances the durability of road network in Kenya

This section covers finding from question posed to the respondents to assess the impact of implementation of strategies that enhances durability of road network in Kenya. The respondents were asked to indicate the impact of adoption of road maintenance implementation strategies, axle load control implementation strategies, road reserve protection implementation strategies and traffic volume control implementation strategies to a number of measures of durability on a scale of 1-5 where 1 represented no extent and 5 represented to a very great extent.

4.4.1 Road Maintenance implementation Strategies and durability of road network

Table 4.8 below shows the various impacts of adoption of road maintenance implementation strategies to durability of road network. The impact is analysed using statistical measure of mean and standard deviation The mean represents the average rating of all the respondents to a particular impact while the corresponding standard deviation shows the spread of the ratings or how far or the range within which the individual rating are from the mean rating.

Table 4.8: Showing Impact of adoption road maintenance implementation strategies

Impact of adoption road maintenance implementation strategies	Mean	Std Dev.
Reduced Number of potholes and cracks in road surface	4.33	0.75
Reduced level of pavement deterioration	4.83	0.37
Reduced level of rutting in road surface	3.83	0.37
Reduced drainage blockage	4.17	0.37
Improved road bearing capacity	3.83	0.69
Reduction in Vegetation on road reserve	3.17	0.37
Reduction in vandalism of road signs and road furniture	2.33	0.47
Average Mean	**3.78**	

Source: *Research Data*

The findings indicate that adoption of road maintenance implementation strategies has to a great extent reduced the level of pavement deterioration with a mean score of 4.83 and standard deviation of 0.37. Other impacts experienced to a great extent are reduced number of potholes and cracks on road surface with a mean score of 4.33 and reduced drainage blockage with a means of 4.17. The least impact on adoption of road maintenance implementation strategies are reduction in vandalism of road signs and road furniture which had a mean score of 2.33 and standard deviation of 2.33. This is perhaps why there is a huge outcry from road agencies on the level of theft of scrap metals to the newly constructed roads. Road maintenance involves potholes repairs, crack sealing, unblocking drainages to enhance smooth flow of storm water. All these prevent water from reaching the base of a road and therefore avoid further damage.

4.4.2 Axle load control implementation Strategies and durability of road network.

Table 4.9 below shows the various impacts of adoption of axle load control implementation strategies to durability of road network. The impact is analysed using statistical measure of mean and standard deviation The mean represents the average rating of all the respondents to a particular impact while the corresponding standard

deviation shows the spread of the ratings or how far or the range within which the individual rating are from the mean rating.

Table 4.9: Showing Impact of adoption of axle load control implementation strategies.

Impact of adoption of axle load control implementation strategies.	**Mean**	**Std Dev.**
Reduced Number of potholes and cracks in road surface	4.17	0.37
Reduced level of pavement deterioration	4.83	0.37
Reduced level of rutting in road surface	5.00	0
Reduced drainage blockage	2.5	0.5
Improved road bearing capacity	3.67	0.94
Reduction in Vegetation on road reserve	1.00	0
Reduction in vandalism of road signs and road furniture	1.17	0.37
Average Mean	**3.19**	

Source: *Research Data*

Adoption of axle load control implementation strategies has to a very great extent reduced the level of rutting or depression in road pavement with mean score of 5. It has to a great extent reduced the level of pavement deterioration with a mean score of 4.83 and standard deviation of 0.37 and also reduced the number of potholes and cracks on road surface with a mean score of 4.16 and standard deviation of 0.37. This strategy seems to have little impact on reduction of vegetation on road reserve with a mean of 1. Axle load control limits the weight a vehicle can carry as majority of road network are designed to withstand certain weight beyond which deterioration of road surface will start occurring.

4.4.3 Road reserve protection implementation strategies and durability of road network.

Table 4.10 below shows the various impacts of adoption of road reserve protection implementation strategies to durability of road network. The impact is analysed using statistical measure of mean and standard deviation The mean represents the average rating of all the respondents to a particular impact while the corresponding standard

deviation shows the spread of the ratings or how far or the range within which the individual rating are from the mean rating.

Table 4.10: Showing Impact of adoption of road reserve control implementation strategies

Impact of adoption of road reserve control implementation strategies	**Mean**	**Std Dev.**
Reduced Number of potholes and cracks in road surface	2.83	0.69
Reduced level of pavement deterioration	3.17	0.69
Reduced level of rutting in road surface	2.50	0.50
Reduced drainage blockage	4.83	0.37
Improved road bearing capacity	2.33	0.47
Reduction in Vegetation on road reserve	4.83	0.37
Reduction in vandalism of road signs and road furniture	4.16	0.37
Average Mean	**3.52**	

Source: *Research Data*

Adoption of road reserve protection implementation strategies has to a great extent reduced drainage blockage and vegetation growing on road reserve with mean score of 4.83. It has also reduced vandalism of road signs and road furniture to a great extent with mean of 4.16. Road reserve protection strategies ensure that there is enough space for drainage constriction, foot path construction and any future expansion of road network.

4.4.4 Traffic control implementation Strategies and durability of road network.

Table 4.11 below shows the various impacts of adoption of traffic control implementation strategies to durability of road network. The impact is analysed using statistical measure of mean and standard deviation The mean represents the average rating of all the respondents to a particular impact while the corresponding standard deviation shows the spread of the ratings or how far or the range within which the individual rating are from the mean rating.

Table 4.11: Showing Impact of implementation of traffic control strategies

Impact of implementation of traffic control strategies	Mean	Std Dev.
Reduced Number of potholes and cracks in road surface	4.17	0.67
Reduced level of pavement deterioration	4.83	0.37
Reduced level of rutting in road surface	4.33	0.47
Reduced drainage blockage	2.33	0.47
Improved road bearing capacity	2.50	0.50
Reduction in Vegetation on road reserve	1.17	0.37
Reduction in vandalism of road signs and road furniture	2.17	0.69
Average Mean	**3.07**	

Source: *Research Data*

The findings indicate that adoption traffic control implementation strategies has to a great extent reduced the level of pavement deterioration with mean of 4.83 and standard deviation of 0.37, reduced level of rutting in road surface with mean of 4.33 and standard deviation of 4.33 and standard deviation of 0.47 and reduced number of potholes and cracks in road surface with mean of 4.17 and standard deviation of 0.67.

4.5 Relationship between adoption of implementation strategies and durability of road network

The relationship between adoption of strategies implementation and durability of road network was established using a Pearson correlation coefficient. A correlation is a number between -1 and +1 that measures the degree of association between two variables. A positive value for the correlation implies a positive association. A negative value for the correlation implies a negative or inverse association. Table 4.12 highlight the correlation coefficients and the significance level of adoption of various strategy implementation strategies and the durability of road network. A cross tabulation table was used to presents the findings.

Table 4.12: Correlation Coefficients

Correlation	Coefficients	Durability of road networks	Road maintenance Implementation strategies	Axle load control Implementation strategies	Road reserve protection Implementation strategies	Traffic control Implementation strategies
Durability of road networks	Pearson Correlation	1	.963**	.891*	.921**	.836*
	Sig. (2-tailed)		.002	.017	.009	.038
	N	6	6	6	6	6
Road maintenance implementation strategies	Pearson Correlation	.963**	1	.948**	.962**	.934**
	Sig. (2-tailed)	.002		.004	.002	.006
	N	6	6	6	6	6
Axle load control implementation strategies	Pearson Correlation	.891*	.948**	1	.951**	.887*
	Sig. (2-tailed)	.017	.004		.004	.018
	N	6	6	6	6	6
Road reserve protection implementation strategies	Pearson Correlation	.921**	.962**	.951**	1	.868*
	Sig. (2-tailed)	.009	.002	.004		.025
	N	6	6	6	6	6
Traffic control implementation strategies	Pearson Correlation	.836*	.934**	.887*	.868*	1
	Sig. (2-tailed)	.038	.006	.018	.025	
	N	6	6	6	6	6

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

*. Correlation is significant at the 0.05 level (2-tailed).

Source: *Research Data*

The analysis of correlation results between the adoption of road maintenance implementation strategies and durability of road networks in Kenya show a positive coefficient 0.963, with p-value of 0.002. It indicates that the result is significant at α=5%. The correlation results between axle load control implementation strategies and durability of road networks also indicates the same type of result where the correlation coefficient is 0.891 and a p-value of 0.017 which is significant at α = 5%. The results also show that there is a positive association between road reserve protection implementation strategies and durability of road networks where the correlation coefficient is 0.921, with a p-value of 0.009. Further, the findings indicate that there is a positive relationship between traffic control implementation strategies and durability of road networks where the correlation coefficient is 0.836, with a p-value of 0.038.

This notwithstanding, all the factors had a significant p-value ($p<0.05$) at 95% confidence level. The findings indicate that there is a strong correlation between adoption of all implementation strategies and durability of road network. The finding further shows that adoption of road maintenance implementation strategies was the most significant factor influencing durability of road networks followed by road reserve protection strategies then axle load control and finally traffic control strategies.

4.6 Challenges that hinder adoption of implementation strategies that enhances durability of road network.

There are various challenges that hinder adoption of implementation strategies that enhance durability of road network in Kenya. These challenges among others are inadequate resources, delay in releasing required resources on time, inefficient operation procedures that lack clarity in legal, operational and structures, inefficient and cumbersome institution framework, political influence on road matters, poor axle load enforcement, encroachment on road reserve, lack of mechanisms for private sector investment in road, lack of modern information technology techniques and lengthy procurement process. The respondent were supposed to rate the extent these challenges hinder adoption of various implementation strategies that enhance durability of road.

Table 4.13: Showing Challenges that hinder adoption of implementation strategies that enhances durability of road network

Challenges that hinder adoption of implementation strategies	Mean	Std Dev.
Inadequate Resources	4.83	0.37
Delay in releasing required resources on time	4.5	0.5
Inefficient Operation procedures that lack clarity in legal, operational and structures	2.83	0.37
Inefficient and cumbersome institution framework	3.83	0.37
Political influence on road related decisions	4.33	0.47
Poor Axle Load enforcement	3.33	0.74
Encroachment on road reserve	4.17	0.69
Lack of mechanisms for private sector investment in road	3.33	0.47
Lack of modern information technology techniques	3.33	0.75
Lengthy Procurement process	3.83	0.37

Source: *Research Data*

The finding indicates that inadequate resources hinder adoption of implementation strategies to a very great extent with a mean of 4.83. There was little variation of respondents as indicated by a low standard deviation of 0.37. Therefore the government should endeavour to provide adequate resources to public road agencies for them to achieve their objectives. The inadequate resources could be explained by unpredictable and unreliable developments partners who put a lot of conditions on financing infrastructure projects. The other reason of inadequate resources could be due inadequate allocation of road development funds in Kenya's national budget, unexploited sources from private sectors and diversion of road development resources during emergencies such as famine, floods operations among others.

Other Challenges that hinder adoption of implementation strategies to a great extent are delay in releasing required resources on time with mean score of 4.5 and standard deviation of 0.5, political interference on road related decisions with mean of 4.33 and standard deviation of 0.47 and encroachment on road reserve with mean of 4.17 and standard deviation of 0.69. The government together with the road agencies should address these challenges inorder to achieve the realisation of vision 2030 which put road infrastructure as key pillars in attaining accelerated economic growth. Operational procedures that lack clarity seems to hinder the implementation of strategy by only a little extent as indicated by a mean of 2.83 with small variations of respondent as indicated by small standard deviation of 0.37.

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents summary of the findings, conclusion drawn from the research findings and the recommendations for policy and theory as well as for further studies.

5.2 Summary of the Findings

The first objective was to find out the extent of adoption of implementation strategies by public road agencies to enhance durability of road network in Kenya. The finding shows that most of the public road agencies have adopted routine maintenance on yearly basis and use of third party (contracting) to undertake maintenance of roads to a great extent. These came out strongly across the six agencies as the most prevalent and adopted road maintenance implementation strategies. Also worth noting is that the other three strategies i.e. axle load control, road reserve protection strategy and traffic volume control strategy, there was no single implementation strategy that was adopted to a great extent. The finding shows that the average adoption of road maintenance implementation strategies is moderate while axle road control implementation strategies were adopted to a low extent. Equally the road reserve protection implementation strategies and traffic control implementation strategies were all adopted to a low extent.

The second objective was to assess the impact of adoption of implementation strategies by public road agencies to the durability of road network in Kenya. The finding indicated that there is reduction in the number of potholes and cracks in road surface when these implementation strategies are adopted. Other impacts were reduction in the level of pavement deterioration, reduced drainage blockage and reduced level of rutting in road surface. However all these impacts depended on the implementation strategies adopted. For instance adoption of axle load control implementation strategies had the highest impact on the level of rutting (depression) experienced in road surface while at same time it had little impact on the vegetation growing on road reserve.

The results also show that there is a strong positive correlation between adoption of implementation strategies and durability of road networks. Further, the findings indicate that adoption of road maintenance implementation strategies was the most significant factor influencing durability of road networks followed by road reserve protection strategies then axle load control and finally traffic control strategies.

The third objective was to identify the main challenges that hinder adoption of implementation strategies that enhances durability of road network in Kenya. The main challenges identified were: Inadequate resources, delay in releasing required resources on time, Political interference on road related decisions and encroachment on road reserves.

5.3 Conclusion

The road maintenance implementation strategies adopted to a great extent to enhance durability of road network are routine maintenance on a regular basis, use of third party construction companies to maintain roads and developing an annual work plan to maintain roads. The average adoption of road maintenance implementation strategies is moderate while axle road control implementation strategies are being adopted to a low extent. Equally the road reserve protection implementation strategies and traffic control implementation strategies are both adopted to a low extent.

It was also established that adoption of road maintenance implementation strategies have a great impact on reduction of potholes and cracks on road pavement, reduction in the level of pavement deterioration and reduction in the level of drainage blockage. However it had less impact on reduction of vandalism of road signs and road furniture. Adoption of axle load control implementation strategies had the highest impact on reduced level of rutting, reduced level of pavement deterioration and reduced numbers of cracks in road surface. It had little impact on reduction in vegetation growing on road reserve. Adoption of road reserve protection implementation strategies had the highest impact on reduced drainage blockage and reduced level of vandalism of road signs and road furniture. It had little impact on reduced level of rutting in road surface. Finally adoption of traffic control implementation strategies had the highest impact on the level of reduced pavement deterioration, reduced level of rutting and reduced number of potholes and cracks.

A good road network is important for both economic and social development, particularly in a growing economy such as Kenya. If Kenya is going to be competitive globally, it must develop and sustain a good road network that supports the economic growth envisioned in Vision 2030. With globalisation the country is no longer competing just within the region but globally. The road network must be maintained in a good condition to enhance productivity.

It is worth noting that regular inspection and maintenance of roads as well as strict enforcement of axle load regulations are crucial in ensuring durability and longevity of roads in Kenya. The road agencies should continue enforcing the axle load regulation through Cap 403 of the laws of Kenya which aims at controlling overloading on our roads to avoid pavement damage.

5.4 Recommendations for policy and Theory

The good implementation strategies already adopted by public road agencies should be employed continuously to sustain the good condition and durability of road network. The adoption of road maintenance implementation strategies should be sustained inorder to have a great impact on the durability of road network. At the same time the government together with public road agencies should put in measures that will accelerate the adoption of the other three implementation strategies adopted to a low extent ie axle load control, road reserve protection and traffic control implementation strategies. These measures could include strengthening the capacity of implementation staff through training, provision of more resources to improve monitoring and putting in relevant legislations and regulations to facilitate easier adoption of implementation strategies.

If the public road agencies adopt all implementation strategies to a great extent, the road network in Kenya would improve tremendously since this study has established that there is a strong correlation between adoption of implementation strategies and durability of road network. In this regard the public road agencies should incorporate in their performance contract an index that will assess the extent of adoption of implementation strategies that enhance durability of road network in Kenya. This should also be monitored on a continuous basis. The government on the other hand should commit itself

to provide required resources to assist in implementation of strategies. The policy makers in road sector should look in to the challenges that are hindering adoption of implementation strategies for enhancing durability of road network and come up with measures to reduce their negative effect.

5.5 Recommendations for further study

There is also need to replicate this study in other institutions that have mandate of management of road network in Kenya such as County governments and Constituency development committee. Further there could be more strategy implementation practices adopted and which were not included in this study which further research should explore. More research should be conducted on why there is degree of variation on the extent of adoption of various strategy implementation practices among Public road agencies

5.6 Limitation of the Study

The study was carried out with limited resources and within a very short time and some respondents did not have enough time to internalise the question before they give their response. Due to the time constraint the study only concentrated on public road agencies recognised by KRB act of 2007. However there are other players in the road sector who are involved in management and maintenance of roads such as local authorities, Constituency development committee among others. The new constitutional has also placed some responsibilities on management of rural roads to the newly created County governments and who were not included in the study sample.

The study targeted senior management of the road agencies in the belief that they were knowledgeable in matters related to implementation strategies for enhancing durability of road network in Kenya. However there could be some low cadre job holders in the organisation who were well equally knowledgeable in the field of the study and who could have been involved in actual implementation of strategy. An important knowledge group could have been inadvertently ignored by virtue of their perceived junior job position thereby limiting the findings of this study to the views of senior managers only.

Another limitation of this study is that all variables were measured at the same time and thus one cannot infer any causal relationship. Although it seems likely that a positive relationship exist between strategy implementation and road durability, one cannot say this definitely unless it is tested in a longitudinal study. There could be other factors that determine the durability of road network other than the implementation practices adopted.

REFERENCES

Aaltonen, P., and Ikavalko,H.(2001), *Implementing strategies successfully in integrated Manufacturing systems.* A paper presented at the 12th World productivity Congress.

Aboud, M. (2007), *Challenges Facing the Implementation of Strategy for revitalizing Agriculture (SRA),* Unpublished MBA Research Project, University of Nairobi.

Alexander, L.D (2008), *Successfully implementing Strategic Decisions,* Long Range Planning, Vol.18 No. 3, Pg 91-97

Ansoff, H. and McDonnell E.(1990), *Implanting Strategic Management,* Prenctice Hall, Cambridge UK. 2nd Edition.

Aosa, E. (1998), *The Nature of Strategic management*. Unpublished Doctoral paper, University Of Nairobi.

Aosa, E. (1992), *Empirical Investigation of Aspects of Strategy Formulation and Implementation within large Private Manufacturing Companies in Kenya*. Unpublished PHD Thesis, University Of Nairobi.

Ayabei, K. (2010), *Challenges of Strategy Implementation at Teachers Service Commission,* Unpublished MBA Research Project, University of Nairobi.

Awino, Z.B (2001), *Effectiveness and Problems of Strategy implementation in Financing higher education by Higher Education Loans Board,* MBA Reseach Project, UON

Barney, J. (1991), *Firm Resources and Sustained Competitive advantage,* Journal of Management 17

Becker, P. (2003), "*Strategy implementation: the new realities*", , Vol. 1

Capon, (2008) *Understanding Strategic Management.* Prentice Hall.

Cole, G. A (1993) *Management Theory and Practice,* 4th edition. London: DP Publication.

Crawford. K.M., Blackstone J.H., Cox J.F. (1998) , *A study of JIT Implementation and Operating Problems, International Journal of Production,* Vol 26, No 9.

Cummings, T and Warley, C. (2005), *Organizational Development and Change,* Ohio, South – Western, Irwin Mc Graw Hill.

Daft, R. (2009) *Strategy Formulation and Implementation.* 6th edition. New York: Prentice Hall.

David F. R. (2003), *Strategic Management: Concepts and Cases*, 9th Edition, Prentice Hall, Upper Saddle River.

David, F. R. and Hughes (1997), *In at the deep End: Conducting Processual Research on Organizational Charge*, Scandinavian Journal of Management, Vol. 13

Delloite & Touché (2003): *Business planning and Strategy implementation*, Retrieved from http://www.deloitte.com

Gakenia (2008) *Strategy Implementation in Kenya Commercial Bank.* Unpublished MBA Research Project, University of Nairobi.

Gakombe, K. (2002). *Analysis of the Industry forces and strategic choices adopted by private hospitals in Nairobi*. Unpublished MBA project, University of Nairobi

Ghieck, S. (1980), *Policy and strategic management*, Newyork.

Ghosan, J. (2002), *Saving the Business without loosing the company*, Havard Business Review.

Giles, R. (2007), *Strategy Implementation: Structure Systems and Process*, 2nd Edition, West Publishing Company, New York, NY.

Gole, R. (2005) *"Responding to the Competitive Challenge of 1990's", International Journal of Contemporary Hospitality Management*, Vol. 2 No. 3, Pp. 1-111.

Hambrick, D.C., and Cannella, A.A. (2009), *Strategy implementation as Substance and Selling, Academy of Management Executive,* Vol. 3.

Hefat et al, (2007), *Know how and asset complementarity and dynamic capability accumulation*, Strategic Management Journal

Hill C. and Jones G. (1997), *Strategic Management Theory. An Integrated Approach*, Hougton Mifflin Company, New York, 5th Edition.

Jack, A. P. and, Suuzy B (2010), *Corporate Strategy.*

John, A. P 11, Robinson B (2002), *Strategic Management; strategy formulation and implementation*. A. I. T. B. S India

Johnson G. and Scholes K. (2002), *Exploring Corporate Strategy*, Prentice Hall, 6th Edition.

Kaplan and Norton (2001), *The Strategy focused Organisation* Havard Business School Press, USA.

Kenya *Vision 2030* Blue print

Kimathi, (2006) *Challenges facing K-Rep Bank in implementation of strategic plans.* Unpublished MBA Research Project, UON

Kimeli, (2008) *Challenges of Strategy implementation at Kenya Revenue Authority.* Unpublished MBA Research Project, University of Nairobi.

Kiprotich, Juma (2008). Strategy implementation and its challenges: *A case study of African Braille Centre.* Learning Organizations: Information Age. *Exploring Future Management Practice.*

Kithinji, (2008). *Factors affecting implementation of government of government strategies in Agriculture sector*. Unpublished MBA Research Project, UON.

Koskei (2003) *Strategy Implementation and Its Challenges in Public Corporations.* A Case of Telkom Kenya. Unpublished MBA Research Project, UON

Kothari, C. R. (2004) *Research Methodology, Methods and Techniques.* 2nd Edition, New Delhi, India. New Age international (p) Ltd.

Kotler, P. And Keller, K. L (2004) *Marketing Management.* New Jersy, Pearson Prentice Hall, upper Saddle River.

Kubinski, C. (2002), *Exporting strategies: developing a strategic framework,* Advanced Management Journal, Vol. 60 No. 1, pp21 – 8.

Larry Downes, (2001), *The Industry Standard Publication*

Lavie, D. (2006). *The competitive advantage of interconnected firms, an extension of resource based view,* Academy of management view.

Lockett, Thompson & Morgenstern (2009). *The development of the the resource based view of the firm* ,International Journal of Management Review

Lynch, P. (2003), "*Strategy implementation: the new realities*", Long Range Planning, Vol. 31 No. 1 pp. 18-29.

Makadok, R, (2001) *Toward a synethesis of resource based and dynamic capability views of rent creation,* Strategic Management Journal 13

Malhotra, N.K & Birks, D.F, (2006) *Marketing Research, an applied approach,* London Financial Times Prentice Hall.

Manyarkiy, T.J (2006) *Challenges facing middle level managers in implementation of corporate strategies at National social Security fund.*

Marginson W. G. (2002),*Great Strategy or Great Strategy Implementation, Two Ways of Competing in Global Markets*. *Sloan Management Review.*

Mburu, V. (2007) *Competitive Strategies Adopted by Private Hospitals in Mombasa* Unpublished MBA Research Project School of Business, University of Nairobi

McCraken J. (2002), *The Strategic Human Resources Management Process in Practice*, Planning Review, Vol. 21 No. 5 Pp. 37 – 8.

Mintzberg, H. And Quinn, J.B. (1999), *The strategy process, concepts, contexts and cases*. 2nd edition, prentice hall,inc.

Mobisa, (2007). *Strategy formulation and implementation at United Nations High Commission for Refugees*, unpublished MBA Research Projects, UON. .

Mugenda, O.M & Mugenda, A.G (2003), *Research Methods, Nairob.,* Africa Centre for Technology studies.

Muthuiya (2004), *Strategy Implementation and its Challenges in not for Profit Organizations in Kenya: A Case of AMREF,* unpublished MBA Research Projects, UON.

Mwikali (2007) *Challenges facing implementation of strategies at Kenya Power & Lighting Company* .

Newman, K. (1989), *The Strategy Led Business Steps By Step Planning For Your Company's Future,* Mcgraw Hill Company UK.

Noble, C.H (1991). *The Eclectic Roots of strategy implementation Research.* Journal of Business Research.

Olson, E.M., Slater, S.F.,and Hult, G.T., (2005)), *The importance of structure and process to strategy implementation,* Business Horizons, Vol. 48

Owen, J. (1982), "The Structure of Strategy", *Business Strategy Review*,

Pearce H. J. A and Robinson JR. R. B. (2007), *Strategic Management, Formulation, Implementation and Control* 10th Edition Mcgraw Hill Irwin.

Porter M., (1990), *Competitive Advanatage Techniques for analysing industries and performamnce,* The Free Press, Newyork.

Pride, W. M. and Ferrell, Oc (2003), *Marketing Concepts and Strategies*, Houghton Mifflin Company, Boston.

Republic of Kenya, *Kenya Road Act*, 2007

Republic of Kenya, Ministry of Roads, *Joint Reform Steering committee report on Road Sub-Sector Institutional framework*, Vol 1, Main Report, 2006

Republic of Kenya, *Physical infrastructure Sector MTEF Report*, 2010/11-2012/13

Ronga, (2008 Challenges of strategy implementation at Madison Insurance. unpublished MBA Research Projects, UON.

Sekaran, U., (2006), *Research Methods for Business, A Skill Building Approach.* 4th Edition , Published by John Wiley & Sons (Asia0 Pty Ltd.

Shirley, M. (1983), *Global Strategy implementation at unit level, operational capabilities and administrative mechanisms*, Journal of International Business Studies, Vol. 22 No. 3 pp. 369-402.

Thompson A. A. and Stickland, A. J. (2007), *Crafting and Executing Strategy. Texts and Readings*, McGraw Hill Irwin, 10th edition.

Thompson and Strickland, (1998):. *Strategy Formulation and Implementation*. McGraw Hill

Thompson A.A. (1987) "*Strategy in action – techniques for implementing strategy*", Long Range Planning, Vol. 21 No. 3 pp. 67 – 74.

Thompson, A.A and Strickland, A.J (1980), *Hospitality Marketing Strategies and international development*: Tourism Marketing and Management Handbook

Un-habitat (2001) "The participatory urban decision making process": *Strategy formulation and implementation urban governance Toolkit series"*.

Weihnrich H. and Kootnz H. (2001) *Management: A Global Perspective*, McGraw – Hill, 10th edition.

World Bank, (1990) *The Road Maintenance Intiative.* Building Capacity for policy Reform,Vol1

APPENDICES

Appendix 1: List of Public Road Agencies in Kenya

1. Ministry of Roads (MOR)
2. Kenya Roads Board (KRB)
3. Kenya National Highways Authority (KeNHA)
4. Kenya Rural Roads Authority (KeRRA)
5. Kenya Urban Roads Authority (KURA)
6. Kenya Wildlife Service (KWS)

Source: Kenya Road Act, First Schedule, 2007

Appendix 2: Introduction Letter

UNIVERSITY OF NAIROBI
SCHOOL OF BUSINESS
DEPARTMENT OF BUSINESS ADMINSTRATION
NAIROBI

1st July 2013
Dear Respondent,

Re: Collection of Data

I am a postgraduate student at the University of Nairobi pursuing an MBA degree. In order to fulfil the degree requirements, I am undertaking a research project titled: Implementation of Strategies by Public Road Agencies for enhancing durability of road networks in Kenya.

Your organization has been selected to form part of this study. This is to kindly request you to assist me collect the data by honestly filling out the accompanying interview guide. The information collected will be used strictly for academic purposes and will be treated with utmost confidentiality

Your cooperation will be highly appreciated and your feedback will assist the researcher come up with useful information on the study.

Kind regards,

Samuel Gatiba Njoroge
Student

Appendix 3: Interview Questionnaire

This questionnaire is designed to collect views on Strategy Implementation by Public road Agencies for enhancing durability of road networks in Kenya. The information collected will be used strictly for academic purposes and will be treated with utmost confidentiality. Your feedback will assist the researcher come up with useful information on the study.

Section A: General Information

1. Name of your organisation. _____

2. What is your current position in the organization? _____

3. How long have you worked with the organisation
   (a) Less than 2 years ( )
   (b) 2-5 years ( )
   (c) 5-10 years ( )
   (d) More than 10 years ( )

Section B: Extent of Adoption of Strategy Implementation Practices

1. Are you involved in Strategy Formulation and Implementation in your Organisation?
   (a) Yes ( )
   (b) No ( )
   (c) Don't know ( )

2. To what extent has your organization adopted the following Implementation strategies to enhance durability of road network in Kenya? (Use a scale of 1-5 where 1 = No extent; 2 = Low extent; 3 = Moderate extent; 4 = Great extent and 5 = Very great extent) (Tick in the appropriate column)

	1	2	3	4	5
Road Maintenance Implementation Strategies					
Routine maintenance on yearly basis					
Periodic maintenance after every five years					
Use of approved standards and manuals in routine and periodic maintenance					
Use of quality control and assurance measures to ensure high quality of materials used in maintenance of roads					
Incorporating defects liability mechanism in management of road projects					
Use of in-house equipments and tools to undertake maintenance of roads					
Use of third party (contracting) to undertake maintenance of roads					
Use of performance based contracting					
Use of Public private partnership in maintenance of roads					
Use of an emergency maintenance response unit to attend to a damaged section of road that requires immediate reinstatement such as a collapsed bridge.					
Use of labour based method in maintenance of roads					
Developing annual work plan on maintenance of roads					
Adhering to developed annual work plan in maintenance of roads					
Supervision of maintenance projects on regular basis					
Monitoring and Evaluation of maintenance projects.					
Axle load control Implementation strategies					
Use of weighbridge to determine the axle weight of vehicles in your road network					
Fining heavy trucks that exceed allowable axle load limit					
Enforcing axle load regulations in our road network					
Educating transporters on the requirement of axle load limit to increase compliance					
Road Reserve protection Implementation Strategies					
Enforcing policies that protect road reserve					

Marking the boundaries of road reserves					
Participating in planning of roadside development					
Demolishing road side development that encroaches on road reserves without authority.					
Conducting monitoring of road reserves on regular basis					
Licensing road side development					
Traffic Control implementation Strategies					
Limiting certain vehicles from using certain section of our road network					
Diverting heavy trucks to use alternative route such as bypasses					
Constructing road blocks and bridges that disallow passage of vehicles with tall or wide load					
Issuance of permit to transport abnormal load within your road network.					

Section C: Impact of adoption of implementation strategies

1. What are the impact of adoption of implementation strategies that enhance durability of road network in Kenya ? (Use a scale of 1-5 where 1 = No Impact; 2 = Low impact; 3 = Moderate impact; 4 = Great impact and 5 = Very great impact) (Tick in the appropriate column)

Statement	1	2	3	4	5
Impact of adoption of road maintenance implementation strategies					
Reduced Number of potholes and cracks in road surface					
Reduced level of pavement deterioration					
Reduced level of rutting in road surface					
Reduced drainage blockage					
Improved road bearing capacity					
Reduction in Vegetation on road reserve					
Reduction in vandalism of road signs and road furniture					
The frequency and number of accidents occuring in our road network has reduced.					

Impact of adoption of Axle Load Control implementation strategies					
Reduced Number of potholes and cracks in road surface					
Reduced level of pavement deterioration					
Reduced level of rutting in road surface					
Reduced drainage blockage					
Improved road bearing capacity					
Reduction in Vegetation on road reserve					
Reduction in vandalism of road signs and road furniture					
Impact of adoption of road reserve control implementation strategies					
Reduced Number of potholes and cracks in road surface					
Reduced level of pavement deterioration					
Reduced level of rutting in road surface					
Reduced drainage blockage					
Improved road bearing capacity					
Reduction in Vegetation on road reserve					
Reduction in vandalism of road signs and road furniture					
Impact of adoption of traffic control implementation strategies					
Reduced Number of potholes and cracks in road surface					
Reduced level of pavement deterioration					
Reduced level of rutting in road surface					
Reduced drainage blockage					
Improved road bearing capacity					
Reduction in Vegetation on road reserve					
Reduction in vandalism of road signs and road furniture					

Section D: Challenges that hinder adoption of implementation strategies that enhance durability of road network

1. What are the challenges that hinder adoption of implementation strategies that enhance durability of road network in Kenya? Use a scale of 1-5 where 1 = No extent; 2 = Low extent; 3 = Moderate extent; 4 = Great extent and 5 = Very great extent) (Tick in the appropriate column)

Challenges of adoption of Implementation strategies	1	2	3	4	5
Inadequate Resources					
Required resources not released on time					
Inefficient Operation procedures that lack clarity in legal, operational and structures					
Inefficient and cumbersome institution framework					
Political influence on road related decisions					
Poor Axle Load enforcement					
Encroachment of road reserve					
Lack of mechanisms for private sector investment in road					
Lack of modern information technology techniques					
Lengthy Procurement process					

2. List any other challenge that your organisation may be experiencing when implementing strategies for enhancing durability of road network in kenya.

   _____
   _____
   _____
   _____