CAPACITY BUILDING AND SUSTAINABILITY OF BUILD OPERATE TRANSFER PROJECTS: A CASE OF NAIROBI EXPRESSWAY, NAIROBI COUNTY, KENYA

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A Research Project Submitted in Partial Fulfillment of the Requirements for the Award of A Master of Arts Degree in Project Planning and Management of the University of Nairobi

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DECLARATION

This research project is my original work and has never been presented to any institution or university for the award of a degree, diploma or certificate whatsoever.

Signature…….  **…….. Date……31/03/2023……**

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

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DEDICATION

I dedicate this project to my parents, Mr. Francis Asuma Mitiambo, together with Mrs. Jayne Kwamboka Asuma, for their unmatched encouragement throughout my studies, my dear wife Caroline Mongina Matara, and my lovely daughter Jemma Kwamboka Manua for their uninterrupted support and motivation in the course of this degree.

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ABBREVIATIONS AND ACRONYMS

BOO:	Build, Operate and Own,
BOOT:	Build, Operate, Own, and Transfer
BOT:	Build Operate Transfer
BTO:	Build, Transfer, and Operate
BT:	Build and Transfer
CBD:	Central Business District
CRBC:	China Road and Bridge Corporation
GDP:	Gross Domestic Product
GoK:	Government of Kenya
HCB:	Human Capacity Building
KeNHA:	Kenya National Highways Authority
NGO:	Non-Governmental Organization
OT:	Operate and Transfer
PPP:	Public-Private Partnership
ROT:	Reconstruction, Operate, and Transfer
UN:	United Nations

ABSTRACT

There exists a number of Public Private Partnership(PPP) models. Among them is the popular Build-operate-transfer(BOT), that is used to finance public sector infrastructure development and service delivery. PPPs in the Kenyan road sector are continuing to grow, thus county governments, contractors, and managers will need advice on how to apply them successfully. Capacity building in project management and the implementation of build-operate-transfer projects is a complicated activity that requires the involvement and participation of several stakeholders. Project execution must be effective and efficient in order to be sustainable. The primary goal of this research project was to look into how capacity building influences the sustainability of build-operate-transfer projects in developing countries, specifically utilizing the Nairobi expressway in Nairobi County, Kenya. The main objectives of the study were to establish the influence of capacity needs assessment on the sustainability of BOT projects, to examine how public participation affects the sustainability of BOT projects, to ascertain what impact leadership base has on sustainability of BOT projects, and to evaluate how individual skills influence sustainability of BOT projects. The intervening variables in the study included government policy, community culture and attitude, political goodwill and legal framework. The study was based on Allan Kaplan's theory of capacity building and Dr. Edward Freeman's stakeholder theory. Kaplan saw capacity development as requiring a paradigm change, defining it as an essential and pervasive notion with little cohesive or collective appreciation, either for theory or practice. The stakeholder theory, on the other hand, contended that shareholders are just one of many persons who own stock in a corporation. It was thought that a stakeholder ecosystem included anybody who is interested in, involved in, or influenced by the firm, such as workers, the working environment, dealers, government organizations, among others. The study adopted a quantitative research approach. A total of 180 respondents were chosen using simple random sampling, 170 of whom were employees of the China Road and Bridge Corporation (CRBC), the directorate of PPP staff, staff of the Kenya National Highways Authority (KeNHA), as well as 10 consultant staff. Data collection was achieved using questionnaires. Data was then analyzed through the SPSS statistical software.

CHAPTER ONE: INTRODUCTION

1.1 Background to the Study

Privatizing infrastructure projects has made build-operate-transfer (BOT) projects highly attractive in both developing and wealthy countries (Farnad Nasizradeh, 2014). Private companies build and operate significant infrastructure projects like power plants, expressways, dams, bridges, roads, railways, and ports using BOT techniques (Budayan and Dikmen, 2020). Additionally, this style of contract has resulted in cost efficiency, quicker delivery, better project performance and good quality. This is because private entities handle project management better than government. There are various facets of Public-private partnerships, with the popular ones being operate-and-transfer (OT), build-operate-and-own (BOO), build-operate-transfer (BOT), reconstruction-operate-transfer(ROT), build-and-transfer (BT), and build-transfer-and -operate (BTO). A concession agreement applies to these contracts (Lam, T.Y.M. 2020). The BOT strategy has been around for a while. The 1854 construction of the Suez Canal serves as an excellent illustration. The Egyptian government granted the private business a 99-year concession under this agreement to build and run the canal between the Mediterranean and Red Seas (Zaazou, Z.A., 2020). In BOT contracts, the project firm, founded by private investors, finances, designs, and builds the public projects. The corporation manages the projects throughout the concession period, which follows the building phase, in order to pay back debts, recoup investments, and generate profits.

BOT has so yet only enjoyed little success on a global scale. Only approximately a dozen of the several hundred initiatives started in developing nations are currently operating (Muntadher Kareem, 2019). Lack of PPP skills and ability is one of the top difficulties that researchers have found in developing nations, among a number of others (Kavishe, 2018). Since China’s open economic policy was established in the early 1980s, several government entities began to undergo reforms by converting to limited liability organizations. Some municipal governments have been turning to private firms to provide public buildings and amenities since the 1990s. The BOT emerged as one of the main methods the Chinese government used to provide public amenities and services since 2000. Since the mid 1990s, the Government of Zimbabwe's objective has been to

privatize (concession) the railroads in compliance with the SADC convention. With the help of the World Bank, the privatization process for NRZ was initially started in the later half of the 1990s. A concession for the railroad was made possible in 1997 because of changes made to the Railways Act. In Tanzania, (Kavishe, 2018) noted that a lack of PPP knowledge and expertise was the top obstacle, highlighting the necessity of a human capacity development (HCB) plan. Although PPP agencies have the capacity to formulate structured PPP infrastructure development projects, PPP projects are more difficult to plan, structure, and conduct because they require specialized skills that are rarely available (World Bank, 2016). Hence the requirement for this sector's capacity enhancement.

A PPP plan has been put in place by the Kenyan government (GoK) to improve PPP implementation and create a solid foundation for the formulation of PPP regulations. The PPP Bill 2012 was most recently adopted by the legislature in December of 2012, and became operative on the 8th of February 2013. Additionally, the road sub-sector made a great effort to ensure that PPP is an option by way of rules. According to the directorate of PPP of the Treasury of Kenya, the nation must close a finance gap of $40 billion over the following eight years in order to implement its infrastructure initiatives (Kamau, 2012).

Since early 1950s, the idea of capacity building has been included into national and subnational plans by governments, international organizations, non-governmental organizations (NGOs), and communities as an element of social and economic development. The World Bank, the United Nations, and the European Commission have all established five areas as the common strategy of the global community for the components of capacity building: a solid policy structure, institutional development and legal structure, civic engagement and scrutiny, human resources developments such as training and education and sustainability. Capacity development, at the individual level, is the act of altering attitudes and behaviors, most typically via teaching information and honing skills through instruction. However, it also includes methods related to boosting performance through adjustments in management, motivation, and morale, as well as enhancing accountability and responsibility. The establishment of mandates, tools, standards, and management information systems that promote and catalyze organizational change are all examples of how to build capacity at the organizational level. At this level, capacity building

attempts to enhance ties with the environment, as well as to establish a set of competent persons and groups. The "enabling environment," or the overarching legislative, financial, legislative, and accountability frameworks under which organizations and individuals function, is what capacity development is concerned with on a systemic level. It's crucial to consider the official and informal relationships, procedures, and mandates between organizations.

1.2 Statement of the Problem

The Government of the republic of Kenya is presently carrying out the development plan for the country from 2008 to 2030. By 2030, Kenya should have a middle-income economy that offers all of its citizens excellent levels of life, according to Vision 2030. A nation is urged under Vision 2030 to provide high-quality infrastructure development projects and amenities top priority. Government fathoms that incorporating private will be necessary to finance a portion of the nation's development objectives and close the infrastructure gap. PPP agreements, therefore, give a country the chance to involve private players in the financing, expansion, and management of infrastructure and other services.

Private investors are now taking part in Kenya's economic infrastructure development such as in energy, transport, water, waste disposal, and telecommunications since 1996. These initiatives have shown how committed GoK is to PPPs and how they engage private players, lenders, and investors. However, no defined legal or financial PPP structures support these infrastructure investments. The breadth of a project's success is demonstrated by project sustainability and the benefits that its beneficiaries are receiving. A sustainable project offers its creators and intended audience a direct influence over its management, governance, and decision-making processes (Mutiganda, 2021).

Many nations have attempted to implement the World Bank's proposal to create a PPP policy, and institutional and legal frameworks, as a means of supplying the necessary organizational and human capacities, but have failed to do so. Additionally, even though capacity building is recognized as a key element of the capability to execute the PPP method, it has not yet been achieved (Mourgues and Kingombe, 2017), demonstrating a gap in human capacity building

(HCB). In light of this, the research aims to address the existing gap by determining the latent impact of capacity building on the durable sustainability of the Nairobi Expressway project.

1.3 Purpose of the study

With a focus on the Nairobi Expressway located in Kenya's capital Nairobi County, the aim of this research is to evaluate what role capacity building plays on the sustainability of build operate transfer projects.

1.4 Research Objectives

This following objectives will guide the study:

i. To determine the influence of capacity needs assessment on sustainability of Nairobi Expressway, Nairobi county, Kenya.
ii. To assess how public participation affects sustainability of Nairobi Expressway, Nairobi county, Kenya.
iii. To establish the impact of leadership base on the sustainability of Nairobi Expressway, Nairobi county, Kenya.
iv. To examine the influence of employee skills on the sustainability of Nairobi Expressway, Nairobi county, Kenya.

1.5 Research Questions

i. What influence does capacity needs assessment have on the sustainability of Nairobi Expressway, Nairobi county, Kenya?
ii. How does public participation affect sustainability of Nairobi Expressway, Nairobi county, Kenya?
iii. What is the impact of leadership base on the sustainability of Nairobi Expressway, Nairobi county, Kenya?
iv. In what ways does employee skills influence sustainability of Nairobi Expressway, Nairobi county, Kenya?

1.6 Significance of the Study

BOTs are increasingly being used to fund public projects. The central government, local governments, contractors, and consultants will all benefit from suggestions on how to carry them out effectively and minimize any difficulties they may encounter. It is envisaged that participants in up-coming BOT road projects may use results from this study to leverage on the sustainability of those projects. The study has suggested important details about the significance of adopting sustainable development, by guaranteeing optimal resource usage while taking into account both current and generations to come.

1.7 Delimitation of the study

This research looked at how capacity building influenced the sustainability of the Nairobi Expressway, one of Kenya's main BOT projects. The research looked primarily at the impact of leadership, public participation, capacity needs assessment, and individual skills on project sustainability. The respondents' confidentiality was ensured by hiding the respondents' identities and obtaining permission from the university, CRBC, and KeNHA.

1.8 Limitation of the study

The research targeted the impact of human capacity building on the sustainability of the Nairobi Expressway BOT project. As a result, its conclusions may not be applicable to other BOT projects. Because the study is not sponsored, the resources available will limit the distance and places studied. The sample size, on the other hand, assured representation. Some respondents did not immediately comprehend the questions, pointing to other initiatives not included in the study, causing the researcher to commit a significant amount of time on such questions while having little time for other inquiries.

1.9 Assumption of the study

This research presumed that the personnel from KeNHA, CRBC and the consortium of three consulting firms were literate and understood the project's capacity development in order to provide reliable capacity building information. The research also assumed that respondents were truthful in their responses and that the data presented the most accurate picture of capacity-building activities within the Nairobi Expressway construction project. The study also assumed that build-operate-transfer is a viable paradigm for project funding.

1.10 Definition of significant terms used in the study

Sustainability: This technique makes sure that balancing environmental, economic, and social concerns comes first when allocating resources.

Sustainable development: Is a method of resource utilization that guarantees the satisfaction of human needs while protecting the environment in the now and the future. By looking at the capability of natural resources and addressing the resource requirements that mankind is experiencing, it focuses on determining the point of equilibrium to resource usage.

Projects: This is a short-term, one-of-a-kind project that is being executed with limited funds, time, and other resources.

Project sustainability: Capacity to design, undertake and launch projects while ensuring current needs are met while still planning for how people in the future can manage the outcomes.

Institutional sustainability: Is the capability of functioning institutions to be self-reliant once external financing for the project ceases.

Capacity building: This is the establishment of a supporting environment, including favorable legislative and legal frameworks; organizational development, including community engagement; and human resource development and management system development.

Capacity needs assessment: This is a comparison of anticipated capacities with actual capacities that results in a knowledge of capacity assets and requirements and guides the creation of a capacity development response.

Capacity: Is the capacity for individuals, organizations, and society as a whole to successfully manage their affairs.

1.11 Organization of the study

This research project is organized as outlined: Chapter one outlines a brief overview of the research project and illustrates the statement of the problem. It also includes the research objectives, the research questions, the relevance of the study's restrictions, the extent of the study's assumptions, the definition of important words, and the arrangement of the project proposal.

Chapter two outlines a literature review based on the study's goals. This is where the study's theoretical framework and conceptual framework have been introduced. Chapter three illustrates the research methodology adopted for data collection, the anticipated target population, the sampling methods employed, what research instruments will be used, how reliability and validity of the data collection instrument will be achieved, how data will be analyzed, and the ethics observed during collection of data. The fourth chapter analyzes and interprets the data obtained, while the fifth chapter explains the study's results, conclusion, and suggestions.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

The researcher in this chapter examined the impact of capacity building on the sustainability of BOT projects, specifically the Nairobi Expressway. The theoretical framework and the conceptual framework are illustrated in this chapter. The information deficit that the study seeks to investigate is also stated in this chapter.

2.2 Project sustainability

The definition of Project sustainability is taken as the creation, implementation, and management of project organized changes to assets, procedures, policies, resources or organizations while taking into account the project, its outcome, and its impact on the environment (Amin Khalifeh 2020). According to (Peter Farrell, 2020), sustainability in projects is generally understood as that it involves the integration of social, economic and environmental facets in the running of projects. Projects' sustainability ought to be viewed at the project level, along with the project's outcomes and effects.

According to (Yazici, H.J., 2020), project sustainability must be taken into account at every step of the whole project life cycle. It is still exceedingly uncommon for sustainability and project management to coincide (Chuan Chen and Yao Yu, 2019). Their case study showed that the project management approach paid little regard to sustainability. It did however show that the project's outputs received attention to sustainability, but the project progression did not receive this attention. They contend that this is due to not closely considering sustainability in the project management deliverables .

Despite there being a lot of awareness about sustainability, (Richard Hughes and Ros Yates, 2020) there is still no connection between creating a viable process and approach for project management. Projects are a way to achieve durability on all three company levels (strategic, methodical, and operational). This was supported by (Peter Farrell, 2019), who discovered that sustainability is the

key project management standard and the primary purpose component in the Project Management Body of Knowledge.

2.3 Capacity Building

(Mohd Noh, 2020) defines capacity building as the formation of a favorable environment with adequate policy and legal frameworks, organizational development, including community engagement, human resource development, and management system enhancement. The tactics and strategies employed by developing nations and foreign stakeholders to enhance performance at the personal, organizational, sectoral and the larger system levels are referred to as capacity development (Razzaq, 2020).

Nonetheless, each organization's capacity building process is different because it must cater to the needs of the organization at a certain stage of growth while taking into account the environment in which the organization works and the goals it is working to accomplish. Additionally, organizations cannot be forced to engage in capacity building; rather, nonprofit and community groups must embrace the process, which calls for an outlook that is both open and learning-centered. Above all, it calls for effort and dedication to not just provide a service but to examine, assess, and improve that service.

2.4 Capacity needs assessment and project sustainability

Capacity needs assessment is the practice of examining genuine prevailing gaps within management individuals in terms of information, abilities, strengths, flaws, opportunities, risks, resources, and other characteristics essential for them to accomplish certain objectives. Even though there has existed a capacity improvement practice over time, it’s primarily been seen as a requirement to achieve targets and meet objectives in the form of supported training lineups to expand skills, processes, and structures.

The majority of projects fall short of achieving sustainability as a result of the capacity development process not including an appropriate capacity requirements evaluation in their agenda, despite the fact that capacity building directly influences project sustainability. It is crucial to

identify what significant capacities already exist and what potential new capacities may be needed to attain goals in order to properly aid the capacity improvement process. An evaluation of capacity needs is meant to address this. In order to create a capacity improvement strategy that points out the capacities that could be reinforced while also maximizing current capacities that are well-founded, a capacity requirements assessment is used to compare preferred capacities to existing ones. This comparison helps to understand capacity assets and needs. It also serves as a baseline for regular monitoring and assessment of progress against important indicators, laying the groundwork for long-term planning, execution, and long-term results.

The UNDP Report on Capacity Development for 2018 stated that capacity requirements assessment is an integral aspect of the capacity improvement process. Before any interventions with the public, a capacity needs assessment should be conducted because this will serve as a monitor on the actions to be undertaken and how to integrate them into the improvement progression. A company's human resources department is in charge of determining capacity needs. As a result, capacity requirements assessment provides a systematic and interactive way to identifying capacity needs and bridging gaps by bringing together diverse ideas to achieve a shared goal. When a proper capacity assessment is performed prior to the capacity development process, people' capability is strengthened where necessary and they have candid regulation over their resources, leading to better sustainability of projects.

2.5 Project sustainability and Public participation

Public participation is a fundamental process where individuals categorize themselves and their aims and collaborate through nongovernmental community groups to influence decision-making (Steven Van de Walle, 2022). Citizens are most engaged in this process when the subject at hand directly affects them. Additionally, public engagement happens when all stakeholders work together to make reforms.

The new aid concept views involvement as beneficial not just in improving the efficacy, efficiency, and coverage of project benefits, but also in boosting project participants' self-reliance (Byron Miller, 2020). Participation is important for achieving sustainability since it is dependent on the

participation of the stakeholders, mainly those directly involved with projects or programs, for instance the government and the implementing agencies, and the beneficiaries(Melanie Rock, 2020). The intended participants are significant because they have the power to continue or discontinue the use of services generated by development initiatives. As a result, true stakeholder involvement has become important in supporting project sustainability (Noel Keough, 2020).

According to certain studies, there is a link between project sustainability and public involvement. A study of small farmer initiatives in eleven Latin American and African nations, for example, discovered a correlation between small farmer engagement in project decision-making and farmers' willingness to devote resources to the project (Rossana Landa, 2022). Two World Bank researches on participatory projects, as well as research on 17 water delivery systems in the Malawi Rural Piped Water Scheme Program (FG Bello, 2018), found that initiatives that use participatory methodologies are more likely to be sustainable than ones that do not involve any participation. In a study of 52 project assessments, the United States Agency for International Development (USAID) discovered a favorable association between involvement and project success (Kovachev, 2018).

2.6 Leadership base and project sustainability

Leadership involves social influence upon which a leader seeks subordinates' deliberate engagement so as to accomplish organizational goals (Salah Haridy, 2020). A leader assigns tasks to others or persuades them to act in a certain way in order to accomplish certain objectives. Present day organizations require skilled leaders who are cognizant of the convolutions of a fast evolving universal environment. In cases where the job is organized well and the leadership has a strong rapport with the team, employee impact will be high. According to (T.J. Bond-Barnard, 2018), autonomous leaders ensure to include all team members in conversation and may function with a rather small but very motivated team.

The expansive ideology of leadership may be divided into three interconnected realms: the leader's individual traits, leadership style, and situational theories (H. Steyn, 2018). In other terms,

leadership is an evolving activity, and a leader's ideal style changes as a result of the circumstances and qualities. Therefore, there is no definite leadership character, and most conceptualizations of leadership imply that "the interaction among leaders and followers who want meaningful changes and outcomes that represent their shared aims" (S. Pretorius, 2018).

As a result, coping with fast, complicated, and frequently sporadic change necessitates competent leadership. As much as the role of leadership has been recognized as a success element for businesses, there is no enough empirical research on the relationship between leadership style and project performance in the project setting (Junwei Zheng, 2018). On the other hand, a number of elements that contribute to overall project success are dependent on the manager's leadership style and skill set. The aptitude school of leadership, according to (Mazlan Ismail, 2018), has identified fifteen leadership characteristics that may be divided into two competences: managerial Quotient(MQ) and intellectual Quotient(IQ), as well as an assessment of a person's emotional and social intelligence Quotients(EQ).

According to (Nathalie Drouin, 2018), initiatives are more likely to succeed if they include a wide range of leadership support from local companies, media representatives, communal leaders, the youth and other parties that are associated with the project. Leaders from the numerous partner organizations, corporations, government, and the stakeholders that are dedicated to the mission of the project are considered key champions (M.S. Fathi, 2018). The project's key champions utilize their power to connect people, direct resources, create networks, and foster support. Community capacity is increased by local leaders who involve newcomers in decision-making. According to (Ralf Muller, 2018), the opportunity to acquire, practice, and develop leadership abilities is a crucial component of the leadership foundation.

2.7 Employee skills and project sustainability

Enhancing an individual's capacity to bring about change inside themselves is a key component of strengthening employee skill (Cristian Rotar, 2021). An establishment that employs a variety of resources to generate possibilities for individual skill development plays a significant role in

institutional capacity building. The caliber of occupational assistance increases as people gain new abilities and knowledge.

According to (Pamela J. Macktosh, 2018), in order to implement the project and maintain its long-term sustainability, it is necessary to have personnel with the appropriate skills, expertise, and availability. She continues by saying that one must also ensure that the office's support operations can handle the increased burden the project will bring about. But most projects aren't managed by a team of experts with all the requisite abilities. Therefore, in order to effectively deliver the project over the long term, it is vital to create capacity through improving individual knowledge and abilities as well as the supporting organizational structures and procedures.

The United Nations Development Program (2017) states that by measuring and increasing capacity, project managers are able to put the necessary people, structures, and procedures in place and utilize them to their fullest extent. It specifically aids in the definition of precise capacity needs. That is to say, new talents may be necessary, necessitating training, the hiring of new personnel, or the search for new partnerships. Management may need to restructure working relationships, adopt new procedures, or use different systems in such a situation. Existing employees' duties may need to be modified so that they may participate in the project in some new ways (UNDP, 2020).

2.8 Theoretical Framework

The stakeholder theory of Dr. F. Edward Freeman and the capacity development theory of Allan Kaplan will serve as the foundation for this research.

2.8.1 Allan Kaplan – Theory of Capacity Building

Allan Kaplan focuses on the special relationship between capacity building for individuals and organizational change. He urges the rejection of reductionist language in favor of a more morphogenic strategy, in which interpersonal connections, social patterns and behaviors are just as important as the development of fundamental skill sets (Kaplan, 2002). Early in the 1990s, Kaplan created a hypothesis that was eventually presented in the United Nations Report, "Organizational Capacity: A Different Perspective," in 1999. According to the theory, the

conceptual framework, vision, culture, structure, skills, strategy, and material resources are the capacity aspects that serve as the foundation for all other capacities. Kaplan treats capacity building as a live, dynamic notion by outlining visible and unseen capacity building processes within these components. The unseen ideas mentioned by Kaplan (1999)—such as one's attitude, perception of the environment, and how members of an organization work together to form the whole—are difficult to quantify. As a result, Kaplan's approach is based on a fluid hierarchy that gives priority to unseen social processes and places a lower emphasis on physical products. According to him, the development of capacity should be viewed as a "point of transition" when "processes will occasionally lose their coherence, shape, and rhythm, in order to allow the new to emerge" (Kaplan, 2002).

Kaplan describes capacity development as an "essential and pervasive idea with little cohesive or collective appreciation - either for the theory or the practice," and he feels a paradigm change in this area is necessary (1999, Development Dossier). He urges "real attempts to think through one's own practical response to thoughts of adopting such an alternate perspective" as alternatives to what assistance professionals are currently doing.

2.8.2 Dr. F. Edward Freeman – The Stakeholder's Theory

Dr. F. Edward Freeman, originally introduced the stakeholder idea in his seminal work "Strategic Management: A Stakeholder Approach" (Freeman,1984). According to this view, shareholders are only a group of people who own stock in a corporation. This implies that a stakeholder ecosystem includes everyone who has an interest in, is associated with, or is impacted by the firm, including workers, the neighborhood surrounding the company's facility, vendors, governmental organizations, and more. The foundation of the idea is "the concept of whoever or what truly counts," which centers on the moral evaluation of every organization's conduct (Freeman, 1984). The notion serves as a moral standard that mandates fair profit distribution between the business and all of its shareholders. Three taxonomies—descriptive, instrumental, and normative—are used to describe the theory (Kristen Rohanna, 2021).

This theory is crucial to the research because it clarifies the variables that affect project selection, procurement, and risk distribution during project execution. This is due to the fact that both private

and governmental entities are constrained by contracts and pool the resources, expertise, and solutions required across the many phases of project implementation. In terms of empirical evidence, experts do contend that the private sector is more effective, skewed toward completing projects more quickly, and better able to keep the assets in good condition over the concession time. This idea is predicated on the suppositions of competitive markets, efficient project risk, pricing, identification, and transfer, and the capacity to create elaborate contracts (OECD, 2017). The following variables may be used to describe the aspects affecting PPPs in transportation projects: project selection, economics, procurement, risk allocation, and governance (Osei-Kyei and Chan, 2015).

2.9 Conceptual Framework

Project sustainability is the dependent variable for this research project, which is measured using the relative market share, profitability, reliability and corporate philanthropic donations, whereas the independent variable is capacity building, which is as well measured using capacity needs assessment, public participation, the leadership base and employee skills. The nexus between capacity building and project sustainability is that whenever current capacities are established and improved to some level, projects have a higher chance of being sustainable. Involving the public in development programs, usually leads to an increase of participants in decision-making and this will influence structural change since the community members will take part and point out the main social and economic draw backs in their community, therefore, being more effective at addressing the issues that are most important to them. Similar to how increasing the management pool by educating new ones may aid in improving institutional sustainability. This is because the project will be sustainable if well-trained, competent, and prepared managers are in leadership positions. The employees possession of various skills, such as business management skills, technical skills and interpersonal relationship skills will support project sustainability when these skills are strengthened through various platforms for skill development, such as apprenticeship programs, seminars and workshops.

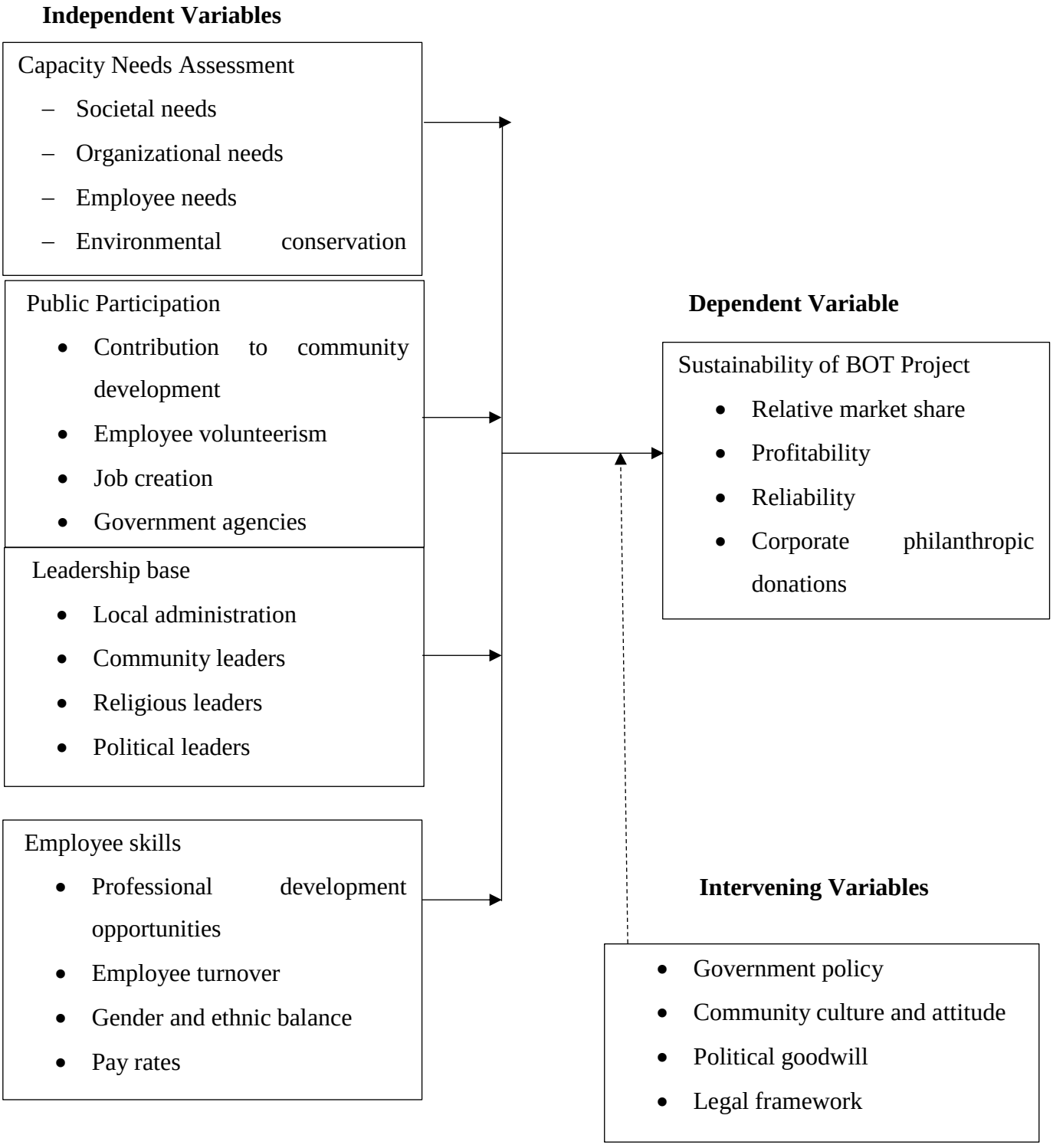

Figure 1: Conceptual framework

2.10 Summary

This chapter brushed over relevant literature on different aspects of project sustainability, capacity needs assessment, public participation, leadership base and employee skills, theoretical framework based on capacity building framework by Allan Kaplan and Dr. F. Edward Freeman's stakeholder theory. Independent, dependent and intervening variables were also conceptualized for the current study.

2.11 Knowledge gap

The researcher's assessment of the literature typically used case studies of projects from other nations that might not have similar field issues as those in Kenya to explain the notion of capacity building and project sustainability at a macro level. In particular with this case of the Nairobi Expressway, Nairobi County, Kenya, capacity building has not been measured using the sub-variables of capacity needs assessment, public participation, leadership base and individual skills, exhibiting a content gap that this research shall seek to fill by determining how capacity building influences the sustainability of Build Operate Transfer projects, a case of Nairobi Expressway, Nairobi County, Kenya.

Table 2.1: Summary of Gaps in Knowledge

STUDY	FOCUS	METHODOLOGY	FINDINGS	KNOWLEDGE GAP	FOCUS OF CURRENT STUDY
Neema Kavishe (2018)	Threats linked with Public Private Partnership (PPP) Housing Projects Delivery in Tanzania	Literature review	PPPs failed because there were no defined sectoral norms and regulations, no viable projects to draw private investors, no bankable enterprises, and an underdeveloped and inactive private sector.	Research not done in Kenya.	This study will emphasis on capacity needs assessment on the sustainability of Nairobi expressway, Nairobi County, Kenya.
Chege Stella (2020)	Influence of Community Empowerment on Sustainability of Water provision Projects: Case of Ng'uuru-gakirwe Water Project Tharaka South Sub-county, Kenya	The study used a mix of research designs and used questionnaires for collecting data.	A strong positive relationship exists between community enablement and sustainability of water provision projects.	This was not applied to BOT projects.	This study will emphasis on the effect of involving the public on the sustainability of Nairobi expressway, Nairobi County, Kenya.

Chebett, Dismass K (2017)	Sustainability and Piped Water Project in Nakuru County	The study used a case study approach.	A strong positive relationship exists between Influence of Stakeholder Involvement and sustainability of Piped Water Projects in Nakuru County	Examined Stakeholder Involvement in sustainability of Piped Water Projects but not roads projects	The on-going study will focus on the effect of leadership base on the sustainability of Nairobi expressway, Nairobi County, Kenya.
A. Nurlanov (2021)	Public Private Partnership in achieving Sustainable Development targets in Kazakhstan	Literature review and Survey method	PPP units seek to overcome policy competence gaps, which has resulted in the quality management of PPPs, despite the fact that steering committees and public bodies demand large-scale planning, monitoring, and technological assistance for PPP projects.	The research was conducted in Central Asia hence creating a content gap in relation to this study.	The current study will focus on the effect of employee skills on the sustainability of Nairobi expressway, Nairobi County, Kenya.

Zhe Cheng (2021)	Public–private partnership as a driver of sustainable development: toward a conceptual framework of sustainability-oriented PPP	Literature review	The inability of the government to carry out PPP initiatives or inadequate policy engagement may be factors in project failure.	Only the governance structure and regulatory framework were studied.	The current study will focus on capacity needs assessment on the sustainability of Nairobi expressway, Nairobi County, Kenya.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter outlines the information regarding the research design to be employed, the population the researcher is targeting, the sampling design to be adopted, sample size and the sampling technique to be adopted. Additionally, methods for collection of data and the procedures used, and how the data will be analyzed are also covered.

3.2 Research Design

The research design method adopted in this research project is the descriptive research design. Teams that worked on the Nairobi Expressway project were given standardized questionnaires to complete in order to answer the study questions. The staff members that were involved in the project from its inception through its execution made up the project implementation team (PIT). The questionnaire employed a 5-point Likert scale that measured respondents' levels of agreement with the various issues that were under investigation.

3.3 Target Population

The study focused on staff who are involved in the construction of the expressway, who include KeNHA staff, the Consultant's staff and the Contractor's staff . The questionnaire will be administered to at least 5 individuals for each of the category as outlined in the table below;

Table 3.1: Target Population

Sn. No.	Designation	Target Population
1.	KeNHA Staff	20
2.	Consultant Staff	10
3.	Contractor's Staff	190
4.	Directorate of PPP Representatives	10
TOTAL		**330**

3.4 Sample Size and Sampling Procedure

The process of choosing a figure of items to represent a specific group is what is referred to as sampling. A sample is considered valid if the results accurately reflect the population it represents (P Salvo 2020).

3.4.1 Determination of the Sample Size

A sample represents a subgroup drawn from a larger population (M Greenwood, 2020). The population's size, available time, and financial restrictions were the main considerations while determining the sample size. Slovin's formula was adopted to ascertain the sample size used in this research project. The formula is expressed as:

$\boldsymbol{n = \frac{N}{1+N(x)^2}}$ **,** Where n = Sample size, N = Target population, *x* = 0.05 Margin of error

$$n = \frac{330}{1 + 330(0.05)^2}$$

n = 180

3.4.2 Sampling Procedure

The research was carried out using a simple random sampling method. Simple random sampling, according to (S Campbell, 2020), is a probability sampling strategy that provides a generalized picture of the research population. Simple random sampling, according to (M Greenwood, 2020), enables the researcher to benefit from examples that provide the required knowledge about the goals of the investigation. This strategy was judged suitable because KeNHA, the contractor, and the consultant people relocated, while other workers were absent from their stations for days due to other commitments.

Table 3.2: Determination of the Sample Size

Sn. No.	Designation	Target Population	Sample size
1	KeNHA Staff	20	12
2	Consultant Staff	10	6
3	Contractor's Staff	290	156
4	Directorate of PPP Staff	10	6
Total		**330**	**180**

3.5 Research Instruments

Questionnaires were adopted as the data collection instrument for this research project. The questionnaire's items were comparably tailored to specific respondents. In order to collect descriptive data, the questionnaires included multiple-choice options. Utilizing a variety of data-gathering techniques aided in triangulation, which was used to assess the validity and reliability of the data that was gathered. Personnel who had worked for KeNHA, the contractor, and the consultant for at least five years made up the survey structure for the research. This is because the majority of these employees who had previously worked in various roles were well positioned to give information about service delivery in their organizations throughout the years.

3.5.1 Pilot Testing

This step is essential for finding perplexing and inaccurate questions in data collection systems. The purpose of the pilot test is to assess if the target respondents comprehend the enquiries posed in the instrument in the early phase. This research's pilot study was conducted on 10% of the expected 180 respondents giving 18 participants who worked in the now disbanded Rift Valley Railways concession. The concession was a brownfield BOT project that operated for fifteen years. Questionnaires were distributed to respondents and collected three days later. A preliminary analysis was then conducted. According to (Kothari, 2019), a sample size of between 1 to 10 percent of the real study is considered suitable enough for a pilot study.

3.5.2 Validity of Instruments

Relevance is defined as the soundness of the research's outcome. This is how data interpretation illustrates the investigated phenomenon (S Campbell, 2020). In this study, the validity was determined by how well the instruments matched the goals. The supervisor reviewed the quality of the questionnaire that was utilized. Its goal was to uncover any latent shortcomings in the research equipment and to assure the material's integrity. There were a few corrections that were made to the questionnaire.

3.5.3 Reliability of Instruments

Reliability is the ability of a testing instrument to give predictable findings over time. It demonstrates how well the data gathering equipment produces consistent results. Cronbach coefficient alpha was determined using SPSS version 25 in order to ascertain the questionnaires reliability. A Cronbach's alpha value of 0.70 and above is required for a research instrument to be considered reliable. The Cronbach's alpha coefficient is a measure of internal consistency.

Table 3.3 Cronbach's alpha results

Variable	Cronbach's Alpha
Capacity Needs Assessment	0.768
Public Participation	0.800
Leadership Base	0.791
Employee skills	0.823
Sustainability of Rift Valley Railways concession	0.761

A consistent and reliable questionnaire produces repeatable results that are not based on chance or environmental factors when used on the same respondents and even when used by different researchers. The Cronbach's alpha values for each of the above variables was above 0.7 indicating that the instrument was reliable and attained internal consistence for actual data collection.

3.6 Data Collection Procedures

A letter of introduction from the University of Nairobi requesting permission to conduct the research was obtained. A permit to conduct research was also obtained from the National Commission for Science, Technology, and Information. A summary of the research criteria defining the subjects to be covered in the questionnaire was delivered to participating staff members. In the case of absent staff members, the questionnaire was emailed to them to ensure that the study obtained a sufficient sample to represent the population. To draw parallels with the research's findings, a comprehensive assessment of media information deemed relevant for this study was conducted.

3.7 Techniques of Data Analysis

The researcher gathered and evaluated the data in order to meet the study's research objectives. Statistical Packages for Social Sciences (SPSS) software and statistical methodologies were used for data analysis. Before entering data, all questionnaire responses were checked to ensure that they were consistent, correct, and comprehensive. SPSS gave descriptive and inferential statistics that were adopted in data analysis. Descriptive statistics describe information about variables in data, such as variable averages and variances. Spearman correlation on the data was conducted for inferential statistics. The technique of spearman correlation was used to explore the influence of one or more dependent variables on an independent variable.

3.8 Ethical Considerations

The University of Nairobi Ethics Review Board was consulted for ethical approval. Before the collection of data, the researcher also got authorization from key project stakeholders. Before administering the questionnaire, each participant was asked to provide informed permission. Furthermore, any sensitive information about or given by respondents was not compromised. The researcher adhered to the concept of anonymity by ensuring that the identities of the participants were not shown on the research instruments throughout data collection. The researcher ensured that a representative sample size was used and that data was analyzed objectively. The University of Nairobi research format was followed, as with any applicable norms of conduct.

3.9 Operationalization of Variables

The independent variables were offered as factual statements with the goal of determining their link to the dependent variable. The respondents were asked if they agreed or did not agree with each of the assertions using a one-to-five scale for each of the statements. The measuring scale results were weighted and statistically evaluated in order to determine their validity.

Research Objectives	Variables	Measurement Indicators	Type of Statistical Data Analysis	Measurement Scale	Tools of Analysis
To assess the influence of capacity needs assessment on sustainability of Nairobi Expressway, Nairobi county, Kenya	Capacity needs assessment	– Societal needs – Organizational needs – Employee needs – Environmental conservation needs	– Quantitative	– Ordinal	– Correlation, Frequencies, Means and Percentages
To examine how public participation affects sustainability of Nairobi Expressway, Nairobi county, Kenya	Public participation	– Contribution to community development – Employee volunteerism – Job creation – Government agencies	– Quantitative	– Ordinal	– Correlation, Frequencies, Means and Percentages

To determine the impact of expanding leadership base on the sustainability of Nairobi Expressway, Nairobi county, Kenya	Leadership base	– Local administration – Community leaders – Religious leaders – Political leaders	– Quantitative	– Ordinal	– Correlation, Frequencies, Means and Percentages
To assess the influence of employee skills on the sustainability of Nairobi Expressway, Nairobi county, Kenya	Employee skills	– Professional development opportunities – Employee turnover – Gender and ethnic balance – Pay rates	– Quantitative	– Ordinal	– Correlation, Frequencies, Means and Percentages

The research aimed to assess the contribution of capacity building towards the sustainability of build operate transfer projects focusing on the Nairobi Expressway in Nairobi County, Kenya.	Sustainability of Build Operate Transfer Projects	– Relative market share – Profitability – Reliability – Corporate philanthropic donations	– Quantitative	– Ordinal	– Correlation, Frequencies, Means and Percentages

CHAPTER FOUR: DATA ANALYSIS, PRESENTATION, INTEPRETATION AND DISCUSSION OF THE FINDINGS

4.1 Introduction

This section illustrates the analysis of the data, presentation of the data, interpretation of the data and discussion of the findings of this study. The quantitatively analyzed data was meant to explain the effect of capacity building on the sustainability of BOT projects using the Nairobi Expressway, Nairobi County, Kenya. Use of questionnaires was adopted for the collection of primary data. SPSS was employed to carry out analysis and the results were presented using frequency tables, numerical values, and percentages.

4.2 Response Rate

The researcher purposed to distribute 180 questionnaires to staff selected from the China Road and Bridge Corporation (CRBC), staff of PPP directorate, staff of the Kenya National Highways Authority (KeNHA) and staff from the consultant. 120 questionnaires were filled representing a response rate of 66.67%, which was considered sufficient enough and dependable for drawing conclusions for similar studies. The response rate of the study is summarized on Table 4.1 below.

Table 4.1: Response Rate

	Issued	**Returned**	**Percentage**
Questionnaires	180	120	66.67%
Total	180	120	66.67%

4.3 Demographic Information of the Respondents

This section includes information about age, gender, area of specialization and education level, to understand the research better.

Table 4.2: Distribution of Respondents by Gender

Category	Frequency	Percentage
Males	78	65.0%
Females	42	35.0%
Total	**120**	**100%**

From the findings, it could be seen that the respondents were majorly male at 65% while the remaining 35% were female, indicating that both categories of gender were embodied in this research. It is important for both men and women to take part in the development processes since different needs, situations and perspectives of both genders are taken into consideration.

Table 4.3: Distribution of Respondents by Age

Category	Frequency	Percentage
Below 25 Years	8	6.67%
26 – 35 Years	97	80.83%
36 – 45 Years	12	10.0%
46 – 55 Years	3	2.50%
Total	**120**	**100%**

The results outcome demonstrates that a big number of the participants were within the age group of 26-35 years at 80.83%. Moreover, the study established that those below the age of 25 years were 8, representing 6.67% of the population. Those that were between 36 – 45 Years were 12 representing 10.0% of the population while the fewest were those in the age group of 46 – 55 Years who were only 3 representing 2.50% of the population. The study established that 93.23% of the participants were between the ages of 18-55, indicating a large productive population. This to some extent will promote sustainability as these people continue to take part in gainful employment.

Table 4.4: Distribution of Respondents by Education Level

Category	Frequency	Percentage
College/University	119	99.17%
Secondary	1	0.83%
Total	**120**	**100%**

A large number of the participants had College/University education at 99.17% and only 1 had secondary education. Education helps community members to be extra productive and make better livings, this leads to a better quality of life as well as contributing to a nation's general economic growth. Education is a crucial tool for sustainable development. All of the respondents in this study had a formal education, which indicated that they had the ability to comprehend the questions while providing accurate feedback and demonstrating their aptitude for taking part in development projects that mattered to them.

Table 4.5: Distribution of Respondents by Area of Specialization

Category	Frequency	Percentage
Engineering	62	51.67%
Environmental	3	2.5%
Planning	3	2.5%
Others	52	43.33%
Total	**120**	**100%**

Most of the respondents were in the engineering field at 51.67% followed by those in the other professions at 44.33%. Planners and environmentalists came in at a distant third at 2.5%. This indicated that data collection was done on relevant project professionals who would provide the necessary and rich data for the study.

4.4 Sustainability of BOT Projects a case of Nairobi Expressway, Nairobi County, Kenya.

The participants were required to give their views on the sustainability of BOT Projects a case of Nairobi Expressway, Nairobi County, Kenya. The outcome is as illustrated in the table below.

Table 4.6: Sustainability of BOT Projects a case of Nairobi Expressway, Nairobi County, Kenya.

Statement	SD	D	N	A	SA	Mean	Std Dev
The Nairobi Expressway Project has little competition	17 (14.2%)	9 (7.5%)	24 (20%)	30 (25%)	40 (33.3%)	3.56	1.389
The Nairobi Expressway Project is very profitable	14 (11.7%)	13 (10.8%)	35 (29.2%)	33 (27.5%)	25 (20.8%)	3.35	1.255
The Nairobi Expressway Project is very reliable	14 (11.7%)	9 (7.5%)	22 (18.3%)	37 (30.8%)	38 (31.7%)	3.63	1.315
The Nairobi Expressway Project takes part in CSR activities	21 (17.5%)	11 (9.2%)	35 (29.2%)	35 (29.2%)	18 (15%)	3.15	1.294
Average						**3.42**	**1.313**

With regard to the statement that the Nairobi Expressway Project has little competition, 14.2% of the participants strongly disagreed with the statement, 7.5% disagreed with the statement, 20% were neutral, 25% agreed with the statement, while 33.3% of them strongly agreed. Averagely the score for this assertion was 3.56, which was greater than the combined average of 3.42. The standard deviation was 1.389, which was higher than the general figure of 1.313. Most of the participants agreed that the Nairobi Expressway has little competition at 58.3%

With regard to the statement that the Nairobi Expressway Project is very profitable, 11.7% of the participants strongly disagreed with the statement, 10.8% disagreed with the statement, 29.2%

were neutral, 27.5% agreed with the statement, while 20.8% of them strongly agreed. Averagely the score for this assertion was 3.35, which was lesser than the combined average of 3.42. The standard deviation was 1.225, which was lesser than the general figure of 1.313. Most of the participants agreed that the Nairobi Expressway is very profitable at 48.3%

With regard to the statement that the Nairobi Expressway Project is very reliable, 11.7% of the participants strongly disagreed with the statement, 7.5% disagreed with the statement, 18.3% were neutral, 30.8% agreed with the statement, while 31.7% of them strongly agreed. Averagely the score for this assertion was 3.63, which was greater than the combined average of 3.42. The standard deviation was 1.294, which was higher than the general figure of 1.313. Most of the participants agreed that the Nairobi Expressway is very reliable at 62.5%

With regard to the statement that the Nairobi Expressway Project encourages participation in CSR activities, 17.5% of participants strongly disagreed with the statement, 9.2% disagreed with the statement, 29.2% were neutral, another 29.2% agreed with the statement, while the remaining 15% strongly agreed. Averagely the score for this assertion was 3.15, which was greater than the combined average of 3.42. The standard deviation was 1.294, which was higher than the general figure of 1.313. Most of the participants agreed that the Nairobi Expressway takes part in CSR activities at 44.2%

4.5 Capacity Needs Assessment and the Sustainability of Nairobi Expressway Project

The participants were expected to give their views on capacity needs assessment and sustainability of BOT projects. The outcome was as indicated in the table below.

Table 4.7: Capacity Needs Assessment

Statement	SD	D	N	A	SA	Mean	Std. Dev
The needs of society have been addressed	14 (11.7%)	19 (15.8%)	26 (21.7%)	39 (32.5%)	22 (18.3%)	3.30	1.268
The needs of the organization have been addressed	16 (13.3%)	14 (11.7%)	33 (27.5%)	39 (32.5%)	18 (15%)	3.24	1.237
The needs of employees have been addressed	10 (8.3%)	19 (15.8%)	39 (32.5%)	40 (33.3%)	12 (10%)	3.21	1.092
Environmental conservation needs have been addressed	20 (16.7%)	19 (15.8%)	22 (18.3%)	33 (27.5%)	26 (21.7%)	3.22	1.391
Average						**3.24**	**1.247**

With regard to the statement that the needs of society have been addressed in relation to the target respondent, 11.7% of the participants strongly disagreed with the statement, 15.8% disagreed with the statement, 21.7% were neutral, 32.5% agreed with the statement, while 18.3% strongly agreed. Averagely the score for this assertion was 3.30, which was greater than the combined mean of 3.24. The standard deviation was 1.268, which was greater than the general value of 1.247. Most of the respondents agreed that the needs of the society have been addressed at 50.8%.

Regarding the statement that the needs of the organization have been addressed, 13.3% of the participants strongly disagreed with the statement, 11.7% disagreed with the statement, 27.5% were neutral, 32.5% agreed with the statement, while 15% strongly agreed. Averagely, the score for this assertion was 3.24, which was equal to the combined mean of 3.24. The standard deviation was 1.237, which was lesser than the general figure of 1.247. Most of the respondents agreed that the needs of the organization have been addressed at 47.5%.

The results also indicated that with regards to the needs of employees being addressed, 8.3% of the participants strongly disagreed with the statement, 15.8% disagreed with the statement, 32.5% were neutral, 33.3% agreed with the statement, while 10% strongly agreed. Averagely the score for this assertion was 3.21, which was lesser compared to the combined mean of 3.24. The standard deviation was 1.092, which was lesser than the general value of 1.247. Most of the respondents agreed that the needs of the employees have been addressed at 43.3%.

The results also show that as far as the environmental conservation needs being addressed are concerned, 16.7% of the participants strongly disagreed with the statement, 15.8% disagreed with the statement, 18.3% were neutral, 27.5% agreed with the statement, while 21.7% strongly agreed. Averagely the score for this assertion was 3.22, which was lesser than the combined mean of 3.24. The standard deviation was 1.391, which was greater than the general value of 1.247. Most of the respondents agreed that the environmental conservation needs have been addressed at 49.2%.

Spearman correlation analysis was conducted between Capacity Needs Assessment and Sustainability of the Nairobi Expressway Project at 95% confidence level, and the outcome was as outlined on Table 4.8.

Table 4.8: Correlation of the study variables

Factors		Sustainability of Nairobi Expressway Project
Capacity Needs Assessment	Spearman Correlations	0.541(*)
	Sig. (2 tailed)	0.000
N	120	

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

Through correlation, the study established that there is a strong, positive and significant correlation between capacity needs assessment and the sustainability of the Nairobi Expressway, Nairobi County since r= 0.541, and P Value=0.000<0.05. This implied that most of the participants considered capacity needs assessment to be important in the sustainability of the Nairobi Expressway project in Nairobi County.

4.6 Public Participation and the Sustainability of Nairobi Expressway Project

The participants were expected to offer their views on public participation. The outcome was as outlined in the table below.

Table 4.9: Public Participation

Statement	SD	D	N	A	SA	Mean	Std Dev
The Project has contributed to community development	9 (7.5%)	15 (12.5%)	29 (24.2%)	35 (29.2%)	32 (26.7%)	3.55	1.222
The employees volunteer in project activities	10 (8.3%)	21 (17.5%)	37 (30.8%)	34 (28.3%)	18 (15%)	3.24	1.160
The project has created jobs for locals	13 (10.8%)	10 (8.3%)	25 (20.8%)	39 (32.5%)	33 (27.5%)	3.58	1.275
The project involves government agencies	11 (9.2%)	10 (8.3%)	19 (15.8%)	50 (41.7%)	30 (25%)	3.65	1.207
Average						**3.51**	**1.216**

With regard to the statement that the Project has contributed to community development, 7.5% of the participants strongly disagreed with the statement, 12.5% disagreed with the statement, 24.2% were neutral, 29.2% agreed with the statement, while 26.7% strongly agreed. Averagely the score for this assertion was 3.55, which was greater than the combined mean of 3.51. The standard deviation was 1.222, which was greater than the general figure of 1.216. Most of the respondents agreed that the Project has contributed to community development at 55.9%.

Regarding the statement that the employees volunteer in project activities, 8.3% of the participants strongly disagreed with the statement, 17.5% disagreed with the statement, 30.8% were neutral, 28.3% agreed with the statement, while 15% strongly agreed. Averagely the score for this assertion was 3.24, which was lesser than the combined mean of 3.51. The standard deviation was 1.160,

which was lesser than the general figure of 1.216. Most of the participants agreed that the Nairobi Expressway employees volunteer in project activities at 43.3%

The results also indicated that with regards to the project creating jobs for locals, 10.8% of the participants strongly disagreed with the statement, 8.3% disagreed with the statement, 20.8% were neutral, 32.5% agreed with the statement, while 27.5% strongly agreed. Averagely the score for this assertion was 3.58, which was greater compared to the combined mean of 3.51. The standard deviation was 1.275, which was greater than the general value of 1.216. Most of the participants agreed that the Nairobi Expressway has created jobs for locals at 60.0%

The results also showed that the project involving government agencies, 9.2% of the participants strongly disagreed with the statement, 8.3% disagreed with the statement, 15.8% were neutral, 41.7% agreed with the statement, while 25% strongly agreed. Averagely the score for this assertion was 3.65, which was greater than the combined mean of 3.51. The standard deviation was 1.207, which was lesser than the general figure of 1.216. Most of the participants agreed that the Nairobi Expressway involves government agencies at 66.7%

Spearman correlation analysis was conducted between Public Participation and Sustainability of the Nairobi Expressway Project at 95% confidence level, and the outcome was as illustrated on Table 4.10.

Table 4.10: Correlation of the study variables

Factors		Sustainability of Nairobi Expressway Project
Public Participation	Spearman Correlations	0.663(**)
	Sig. (2 tailed)	0.000
N	120	

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

Through correlation, the study established the existence of a strong, positive and significant correlation between public participation and the sustainability of the Nairobi Expressway, Nairobi County since r= 0.663, and P Value=0.000<0.05. This implied that a good number of the

participants considered public participation to be important in the sustainability of the Nairobi Expressway project in Nairobi County.

4.7 Leadership Base and Sustainability of Nairobi Expressway Project

The participants were required to give their views on leadership base. The outcome was as shown on the table below.

Table 4.11: Leadership Base

Statement	SD	D	N	A	SA	Mean	Std Dev
The project involves the local administration	19 (15.8%)	22 (18.3%)	39 (32.5%)	28 (23.3%)	12 (10%)	2.93	1.207
The project involves community leaders	16 (13.3%)	33 (27.5%)	33 (27.5%)	21 (17.5%)	17 (14.2%)	2.92	1.247
The project involves religious leaders	19 (15.8%)	32 (26.7%)	42 (35%)	10 (8.3%)	17 (14.2%)	2.78	1.231
The project involves political leaders	10 (8.3%)	21 (17.5%)	44 (36.7%)	28 (23.3%)	17 (14.2%)	3.18	1.135
Average						**2.95**	**1.205**

With regard to the statement that the project involves the local administration 15.8% of the participants strongly disagreed with the statement, 18.3% disagreed with the statement, 32.5% were neutral, 23.3% agreed with the statement, while 10% strongly agreed. Averagely the score for this assertion was 2.93, which was lesser than the combined mean of 2.95. The standard deviation was 1.207, which was greater than the general value of 1.205. Most of the participants did not agree that the Nairobi Expressway involves the local administration at 34.1%

Regarding the statement that the project involves community leaders, 13.3% of the participants strongly disagreed with the statement, 27.5% disagreed with the statement, 27.5% were neutral, 17.5% agreed with the statement, while 14.2% strongly agreed. Averagely the score for this assertion was 2.92, which was less than the combined mean of 2.95. The standard deviation was

1.247, which was greater than the general figure of 1.205. Most of the participants did not agree that the Nairobi Expressway involves community leaders at 40.8%

The results also indicated that with regards to the project involving religious leaders 15.8% of the participants strongly disagreed with the statement, 26.7% disagreed with the statement, 35% were neutral, 8.3% agreed with the statement, while 14.2% strongly agreed. Averagely the score for this assertion was 2.78, which was lesser compared to the combined mean of 2.95. The standard deviation was 1.231, which was greater than the general figure of 1.205. Most of the participants did not agree that the Nairobi Expressway involves religious leaders at 42.5%

The results also show that as far as the project involving political leaders is concerned, 8.3% of the participants strongly disagreed with the statement, 17.5% disagreed with the statement, 36.7% were neutral, 23.3% agreed with the statement, while 14.2% strongly agreed. Averagely the score for this assertion was 3.18, which was greater than the combined mean of 2.95. The standard deviation was 1.135, which was greater than the general figure of 1.205. The majority of the participants agreed that the Nairobi Expressway involves political leaders at 37.5%

Spearman correlation analysis was conducted between leadership base and the sustainability of the Nairobi Expressway Project at 95% confidence level, and the table below illustrates the results.

Table 4.12: Correlation of the study variables

Factors		Sustainability of Nairobi Expressway Project
Leadership Base	Spearman Correlations	0.227(**)
	Sig. (2 tailed)	0.013
N	120	

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

Through correlation, a relatively moderate positive relationship was established between leadership base and the sustainability of the Nairobi Expressway, Nairobi County since r= 0.227, P Value =0.013<0.05. This implied that not a majority of the participants considered leadership base to be key in the sustainability of the Nairobi Expressway project in Nairobi County.

4.8 Employee Skills and Sustainability of Nairobi Expressway Project

The participants were required to give their views on employee skills. The table below indicates the outcome.

Table 4.13: Employee Skills

Statement	SD	D	N	A	SA	Mean	Std Dev
The project provides professional development opportunities	10 (8.3%)	15 (12.5%)	25 (20.8%)	37 (27.5%)	37 (30.8%)	3.60	1.273
The project has provided employees with job security	19 (15.8%)	12 (10%)	34 (28.3%)	37 (30.8%)	18 (15%)	3.19	1.272
The project has maintained a gender balance	12 (10%)	14 (11.7%)	42 (35%)	35 (29.2%)	17 (14.2%)	3.26	1.149
Project Pays employees well	16 (13.3%)	15 (12.5%)	54 (45%)	25 (20.8%)	10 (8.3%)	2.98	1.100
Average						**3.26**	**1.199**

With regard to the statement that the project provides professional development opportunities, 8.3% of the participants strongly disagreed with the statement, 12.5% of the respondents disagreed with the statement, 20.8% were neutral, 27.5% agreed with the statement, while the remaining 30.8% strongly agreed. Averagely the score for this assertion was 3.60, which was greater than the combined mean of 3.26. The standard deviation was 1.273, which was greater than the general value of 1.199. Most of the participants agreed that the Nairobi Expressway provides professional development opportunities at 58.3%

Regarding the statement that the project has provided employees with job security, 15.8% of the participants strongly disagreed with the statement, 10% disagreed with the statement, 28.3% were

neutral, 30.8% agreed with the statement, while 15% strongly agreed. Averagely the score for this assertion was 3.19, which was lesser than the combined mean of 3.26. The standard deviation was 1.273, which was greater than the general figure of 1.199. Most of the participants agreed that the Nairobi Expressway has provided employees with job security at 45.8%

The results also indicated that with regards to the project maintaining a gender balance, 10% of the participants strongly disagreed with the statement, 11.7% disagreed with the statement, 35% were neutral, 29.2% agreed with the statement, while 14.2% strongly agreed. Averagely the score for this assertion was 3.26, which was equal to the combined mean of 3.26. The standard deviation was 1.149, which was lesser than the general figure of 1.199. Most of the participants agreed that the Nairobi Expressway has maintained a gender balance at 43.4%

The outcome indicated that as far as employees being paid well is concerned, 13.3% of the participants strongly disagreed with the statement, 12.5% of the respondents disagreed with the statement, 45% of them were neutral, 20.8% agreed with the statement, while 8.3% strongly agreed. Averagely the score for this assertion was 2.98, which was lesser than the combined mean of 3.26. The standard deviation was 1.100, which was lesser than the general figure of 1.199. Most of the participants neither agreed nor disagreed that the Nairobi Expressway pays employees well at 45%

Spearman correlation analysis was conducted between employee skills and the sustainability of the Nairobi Expressway Project at 95% confidence level. The outcome was as illustrated on the table below.

Table 4.14: Correlation of the study variables

Factors		Sustainability of Nairobi Expressway Project
Employee skills	Spearman Correlations	0.563(*)
	Sig. (2 tailed)	0.000
N	120	

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

Through correlation, a strong positive relationship was established between employee skills and the sustainability of the Nairobi Expressway, Nairobi County since r= 0.563, PV=0.000<0.05. This implied that a majority of the participants considered employee skills to be key in the sustainability of the Nairobi Expressway project in Nairobi County.

CHAPTER FIVE: SUMMARY OF THE FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

A summary of the findings, conclusions and recommendations of this research project are outlined in this chapter. Further research suggestions for research are also outlined in the chapter. This is in accordance with the research project's objective.

5.2 Summary of the Findings

5.2.1 Capacity Needs Assessment and Sustainability of BOT Projects, a case of Nairobi Expressway.

Through correlation, the research exhibited a strong and positive relationship between capacity needs assessment and the sustainability of BOT Projects a case of the Nairobi Expressway, Nairobi County, Kenya since r= 0.541, P Value=0.000<0.05. This inferred that most of the participants considered assessing the needs of the society, the needs of the organization, the needs of the employees and environmental conservation needs to be important in the sustainability BOT projects, a case of the Nairobi Expressway.

5.2.2 Public Participation and Sustainability of BOT Projects, a case of Nairobi Expressway.

Through correlation, the research exhibited a strong and positive relationship between public participation and the sustainability of BOT Projects a case of the Nairobi Expressway, Nairobi County, Kenya since r= 0.663, P Value=0.000<0.05. This implied that a good number of the participants considered contribution to community development, employee volunteerism, job creation and involvement of government agencies to be important in the sustainability of BOT Projects, a case of the Nairobi Expressway.

5.2.3 Leadership Base and Sustainability of BOT Projects, a case of Nairobi Expressway.

Through correlation, the research exhibited a relatively moderate but positive relationship between leadership base and the sustainability of BOT Projects a case of the Nairobi Expressway, Nairobi

County, Kenya since r= 0.227, and the P Value=0.013<0.05. This implied that a majority of the participants considered involving the local administration, community leaders, religious leaders and political leaders to be key in the sustainability of BOT Projects, a case of the Nairobi Expressway.

5.2.4 Employee Skills and Sustainability of BOT Projects, a case of Nairobi Expressway.

Through correlation, the research exhibited a strong and positive relationship between employee skills and the sustainability of BOT Projects a case of the Nairobi Expressway, Nairobi County, Kenya since r= 0.563, P Value=0.000<0.05. This implied that a majority of the participants considered offering employees professional development opportunities, issuing incentives that minimize employee turnover, maintaining a gender and ethnic balance and offering competitive remuneration to employees to be key in the sustainability of BOT Projects, a case of the Nairobi Expressway.

5.3 Conclusion

5.3.1 Capacity Needs Assessment and Sustainability of BOT Projects, a case of the Nairobi Expressway.

This research project concluded that a strong positive relationship is present between capacity needs assessment and the sustainability of BOT Projects a case of the Nairobi Expressway, Nairobi County, Kenya. Addressing the needs of the society, those of the organization, those of the employees as well as those of environmental conservation, all contribute to the sustainability of BOT Projects, a case of the Nairobi Expressway.

5.3.2 Public Participation and Sustainability of BOT Projects, a case of the Nairobi Expressway.

This research project concluded that a strong positive relationship is present between public participation and the sustainability of BOT Projects a case of the Nairobi Expressway, Nairobi County, Kenya. Project contribution to community development, employee volunteerism in

project activities, job creation for the locals and involvement of government agencies are key to the sustainability of BOT Projects, a case of the Nairobi Expressway.

5.3.3 Leadership Base and Sustainability of BOT Projects, a case of the Nairobi Expressway.

This research project concluded that a relatively moderate but positive relationship is present between leadership base and the sustainability of BOT Projects a case of the Nairobi Expressway, Nairobi County, Kenya. Involvement of local administration, community leaders, religious leaders as well as political leaders is important for the sustainability of BOT Projects, a case of the Nairobi Expressway.

5.3.4 Employee Skills and Sustainability of BOT Projects, a case of the Nairobi Expressway.

This research project concluded that a strong and positive relationship is present between employee skills and the sustainability of BOT Projects a case of the Nairobi Expressway, Nairobi County, Kenya. This implied that providing employees with professional development opportunities, providing them with job security, maintaining gender balance and proper remuneration contribute immensely in the sustainability of BOT Projects, a case of the Nairobi Expressway.

5.4 Recommendations

This research project recommends:

- Capacity needs assessment being an introductory phase to most capacity enhancement processes has a substantial impact on project sustainability. Information on the needs of the society, organization, employees and environmental conservation needs to be collected from relevant verified and reliable sources. It is advised that any capacity building effort should begin with preliminary, systematic, and participative Capacity Needs assessment activities since they will serve as a roadmap for the tasks to be completed and how to include them into the development process.
- Due to the nature and situation of the county's economic situation, many people live below the poverty line. It is recommended that BOT projects involve members of the local

community in order to uplift their living standards. Members of the local community can also acquire technical skills that they can use in future as a result of being involved in these projects. Managers of these projects are also encouraged to participate in corporate social responsibility activities so as to leave a mark in the community around where the projects are undertaken.

- The study also recommends the need of involvement of influential community leaders, such as the politicians, religious leaders as well as administrative leaders. This is because the members of the community hold these leaders in high regard. This creates in the society a sense of project ownership which is critical in project sustainability.
- Regarding employee skills, it is recommended that projects recruit qualified staff and maintain gender balance for various roles in the organization. Projects should also invest in improving employee technical skills through trainings, workshops and seminars. Management staff should be exposed to more managerial and leadership training and expose staff to more advanced technology as it has been determined that skills are imperative to the success or failure of attaining project sustainability.

5.5 Suggestions for further studies

This research project focused on the influence of capacity building on the sustainability of BOT projects using the Nairobi expressway, Nairobi County as a case study. Further research can be done on:

1. The study focused on a BOT road located in Kenya's capital Nairobi County. Similar research projects can be conducted on different BOT roads in different counties and countries.
2. The study focused on the sustainability of a BOT road, similar studies should be carried out on the sustainability of different infrastructure projects procured under the BOT model.
3. The research project suggests that further investigation should be conducted on the impact of capacity building on projects' sustainability that are procured through different PPP models.

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APPENDICES

Appendix i: Introduction Letter

Felix Manua Asuma,
P.O. Box 73559-00200,
Nairobi.

Dear Sir/Madam,
My name is Felix Manua Asuma, a master's degree student at the University of Nairobi partaking Project Planning and Management. My research topic is Capacity building on the sustainability of Build Operate Transfer projects, a case of the Nairobi Expressway in Nairobi County, Kenya.' I'd like to invite you to fill out the associated questionnaire. Any information you share with me will be kept strictly confidential and used exclusively on this research. Your involvement is entirely deliberate. The findings of this research will be utilized for academic purposes, such as creating research reports. Your support will be much appreciated.

Yours sincerely,
Felix Manua Asuma.

Appendix ii: Questionnaire for KeNHA, CRBC and consultant staff.

Dear Sir/Madam,

Hope this finds you well. I am a University of Nairobi student studying a master's degree in Project Planning and Management. To complete my course, I am doing a project as a prerequisite before graduating. Please help me complete this questionnaire. Your identity will be confidential. This information is just for my research, I promise you of strict confidentiality. The research is about capacity building for the sustainability of Build, Operate, and Transfer projects, focusing on the Nairobi Expressway in Nairobi County, Kenya. The information created will be very useful to the national/county governments and development stakeholders since it would show the benefits of capacity building on project sustainability. Much appreciation to your cooperation in advance.

Section 1 below requires your biographical data. Desire to provide the requisite information.

Section A: General Information

This section comprises items that require your feedback. You will be required to mark on the options that represent your feeling.

1. Gender

   Male ☐

   Female ☐

2. Age bracket

   Below 25 Years ☐

   26-35 Years ☐

   36-45 Years ☐

   46-55 Years ☐

   Over 55 Years ☐

3. Education level

   Non Formal ☐

   Primary ☐

   Secondary ☐

   College/University ☐

4. Area of specialization

Engineering ☐

Environment ☐

Planning ☐

Other ☐

Section B: Capacity Building on Sustainability of Nairobi Expressway

The table below contains 4 items on capacity building on sustainability of the Nairobi expressway. Kindly put a mark in the option that represents your feeling

Key: Strongly agree (SA)= 5; Agree (A) = 4; Neutral (N)= 3; Disagree (D)= 2; Strongly disagree (SD)= 1

I. Capacity Needs Assessment

ITEM	SD	D	N	A	SA
The needs of society have been addressed					
The needs of organization have been addressed					
The needs of employees have been addressed					
Environmental conservation needs have been addressed					

II. Public Participation

ITEM	SD	D	N	A	SA
The Project has contributed to community development					
The employees volunteer in project activities					
The project has created jobs for locals					
The project involves government agencies					

III. Leadership Base

ITEM	SD	D	N	A	SA
The project involves the local administration					
The project involves community leaders					
The project involves religious leaders					
The project involves political leaders					

IV. Employee Skills

ITEM	SD	D	N	A	SA
The project provides professional development opportunities					
The project has provided employees with job security					
The project has maintained a gender balance					
Project Pays employees well					

Section C: Sustainability of BOT Projects: Use the following scales to indicate/tick the extent to which you agree or disagree with the statements in the table below

I. Sustainability of BOT Projects

ITEM	SD	D	N	A	SA
The Nairobi Expressway Project has little competition					
The Nairobi Expressway Project is very profitable					
The Nairobi Expressway Project is very reliable					
The Nairobi Expressway Project takes part in CSR activities					

Your cooperation in completing this questionnaire is highly appreciated .

Appendix iii: NACOSTI Research Authorization

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: **568484**

Date of Issue: **21/November/2022**

RESEARCH LICENSE

This is to Certify that Mr.. Felix Asuma of University of Nairobi, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev.2014) in Nairobi on the topic: CAPACITY BUILDING AND SUSTAINABILITY OF BUILD OPERATE TRANSFER PROJECTS: A CASE OF NAIROBI EXPRESSWAY, NAIROBI COUNTY, KENYA for the period ending : 21/November/2023.

License No: **NACOSTI/P/22/22081**

568484

Applicant Identification Number

Director General
NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Verification QR Code

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See overleaf for conditions

Appendix iii: Data Collection Letter

UNIVERSITY OF NAIROBI
FACULTY OF BUSINESS AND MANAGEMENT SCIENCES
OFFICE OF THE DEAN

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Our Ref: L50/39221/2021 November 10, 2022

TO WHOM IT MAY CONCERN

RE: INTRODUCTION LETTER: FELIX MANUA ASUMA

The above named is a registered Master of Project Planning and Management Student at the Faculty of Business and Management Sciences, University of Nairobi. He is conducting research on: **"Capacity Building and Sustainability of Build Operate Transfer Projects: A Case of Nairobi Expressway, Nairobi County, Kenya."**

The purpose of this letter is to kindly request you to assist and facilitate the student with necessary data which forms an integral part of the Project.

The information and data required is needed for academic purposes only and will be treated in **Strict-Confidence**.

Your co-operation will be highly appreciated.

PHILIP MUKOLA (MR.)
FOR: ASSOCIATE DEAN, GBS & R
FACULTY OF BUSINESS AND MANAGEMENT SCIENCES

PMfmi