RESOURCE PLANNING AND PERFORMANCE OF POWER DISTRIBUTION PROJECTS BY KENYA POWER WITHIN NAIROBI CITY COUNTY

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DECLARATION AND APPROVAL

Declaration

This thesis is my original work and has not been presented for any academic award in any institution.

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DEDICATION

Dedicated to my beloved parents, brothers, sisters, wife, son, and daughters for their support, restraint, and perseverance they tolerated during classwork and this study.

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The Almighty God has granted strength, a conducive environment, and resources to complete this work. Surely, His grace has been sufficient.

ABSTRACT

Kenya Power has faced difficulties carrying out distribution projects in Nairobi City County, including the last-minute relocation of a proposed substation site due to land availability and the suspension of a substation due to objections from nearby landowners. The incidents brought to light Kenya Power's power distribution projects inside Nairobi City County's performance concerns. A thorough resource planning exercise before project implementation is a realistic strategy to solve this problem. However, there were limited empirical investigations documenting the influence of resource planning on the performance of power distribution projects in the local context. This study sought to establish resource planning influence on the performance of power distribution projects by Kenya Power within Nairobi City County. The specific objectives were to determine the influence of resource capacity on the performance of power distribution projects by Kenya Power within Nairobi City County; to establish the effect of resource allocation on the performance of power distribution projects by Kenya Power within Nairobi City County and to determine the influence of teamwork management on performance of power distribution projects by Kenya Power within Nairobi City County. The study variables were anchored in Resource-Based View (RBV) theory, the general systems theory, and the star team model. Investigation method used Descriptive survey design. Actual phenomenon information about the identification of the impact of resource planning on the effectiveness of electricity distribution projects in Nairobi County was sought. Target population comprised of 162 personnel, working for Kenya Power in Nairobi County. Krejcie and Morgan (1970) method was utilized to calculate the 114 sample size. The study adopted a stratified random sampling recognizing non-homogeneity of the sample population. Questionnaires were used to collect primary data. A pilot test was done before the main study involving 11 respondents using Cronbach value of 0.7 as the instrument reliability threshold. The questionnaires were administered through drop and pick method, the data collected analysed using descriptive and inferential statistics done using SPSS and MS Excel. Tables and figures were used to summarize responses for further analysis and to facilitate comparison. A multiple regression model was finally applied to link the independent variables to the dependent variable. The response rate was 79% representing 93 respondents who correctly filled and returned questionnaires of the total sample of 114. The study indicated that there was a highly significant relationship (with t static p-value between 0.01590 < 0.05) between resource capacity and performance of power distribution projects. There existed a highly significant relationship (with t static p-value between 0.0034< 0.05) between teamwork management and the performance of power distribution projects. There is less significant relationship (with t static p-value between 0.062> 0.05) between resource capacity and performance of power distribution being beneficial to Kenya Power as verifiable proof why some projects are not completed by the anticipated performance requirements. Finally, the conclusions of this research study do provide recommendations that are more realistic and advantageous to project managers in determining the best project performance enhancing course other researchers acting as source or secondary information.

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LIST OF ABBREVIATIONS AND ACRONYMS

KeRRA Kenya Rural Roads Authority

KP Kenya Power

KURA	Kenya Urban Roads Authority
MW	Mega Watt
NACOSTI	National Commission for Sciences, Technology and Innovation
NGOs	Non-Government Organisations
NSE	Nairobi Securities Exchange
PMBOK	Project Management Body of Knowledge (PMBOK)
RBV	Resource-Based View

CHAPTER ONE

INTRODUCTION

1.0 Introduction

This first chapter discussed the different viewpoints of how resource planning affected project performance. An explanation of the issue that highlights the current condition of project performance in the context of this study was discussed. The chapter also discussed the study's scope, significance, and objectives, in addition to its limitations and delimitations. Lastly, the study's assumptions were stated.

1.2 Background of the Study

In the world we are living in, it is important to note that developing nations have made a concerted effort over the past 20 (twenty) years to implement strong resource management at the national and local levels of government so as to attain the intended goals or objectives in their many operational sectors (Caiado, Leal Filho, Quelhas, de Mattos Nascimento, & Ávila, 2018). Resource planning used to be considered a major administrative concern, but recent research has shown that everyone within an organization must plan to accomplish the stated objectives of that company. Itegi (2015) claims that a project is an investment that includes current and projected costs that have been calculated to cover the resources required to implement the project. The attainment of the intended goals for completed projects and national development both depend on effective resource planning.

To make advancement in attaining the 2030 Agenda and the Sustainable Development Goals, it was indispensable to have a thoughtful indulgent on the obstacles and qualifiers that organizations express in this progression to project more operative stratagems to motivate greater commitment to the SDGs (Caiado et al. 2018; Garrido-Ruso et al. 2022;

Mahajan et al. 2024). To actualize a pre-planned dream with its associated benefits for the larger community that will be involved directly or indirectly, all the structures and actions for projects in the power sector collaborate while keeping in mind the final goal. Initiating, planning, carrying out (implementing), monitoring, controlling, and closing are the five stages of project management (Kerzner & Saladis, 2017). A project is brought to its success by having a clear, well designed, planned, effective and efficient methods that are established through carefully considered decisions.

A well-defined project is a series of responsibilities that must be accomplished to attain a definite result. Projects in the energy sector are included in the definition of a project as any effort that aims to satisfy the needs of various stakeholders (Project Management Institute, 2016*). Additionally, the word project is defined as to some extent provisional endeavor with a certain commencement and conclusion (Project Management Institute). A project's performance is frequently evaluated in terms of the quality, schedule, and cost implication. Successful projects, according to PMI, are completed on schedule, under the budget, and with the intended quality.* Numerous projects around the world were seen struggling to achieve these performance criteria. According to the Project Management Body of Knowledge (PMBOK), the majority of power transmission and distribution projects were distinctive since they were recurrently, and tremendously complicated often riddled with uncertainty, particularly due to the complex project environment. They must react to the many physical, economic, social, and environmental circumstances present at the moment of execution. As a result of this, these projects might be delivered later than the planned duration and beyond the allocated budget.

According to Macharia (2015), a company's strategy is its management's plan of action for carrying out operations. When a project resource plan is created, management commits to taking a specific course of action to complete the project. The only thing that is permanent

in the environment is change. To thrive in the challenging climate, organizations must be proactive at the strategic planning level and constantly adapt to changes in the environment present opportunities and dangers to businesses, thus strategies that match capabilities to the environment are needed.

The identical pattern is repeated all across the planet. According to Niazi and Painting (2017), efficient project resource planning is an issue that causes time and cost overruns in energy projects in Afghanistan. They identify corruption, payments, and funding, among other things, as the main causes. Shah (2016) observed that one of the crucial elements in Australia is the way projects are managed. Ineffective resource planning procedures are to blame for the ongoing time and expense overruns in building projects in

India, according to Salunkhe and Patil (2014). A similar difficulty is acknowledged in Hong Kong civil engineering projects by Al-Ageeli and Alzobaee (2016).

Although the issue was thoroughly researched in Africa, it has not yet been properly solved. According to the Ugandan Civil Aviation Authority, inefficient project resource planning procedures have caused schedule delays and cost overruns that have continued to negatively impact the performance of public projects (Alinaitwe, Apolot, & Tindiwensi, 2013). Effective project management was identified as a recurring difficulty for projects in South Africa (Mukuka, Aigbavboa & Thwala, 2015). Saleh et al. (2019) highlighted the factors that contribute to delays in Libyan construction projects, adding that these factors frequently have an impact on the projects' performance. Amusan, Dolapo, and Joshua (2017) claim that Nigeria's energy sector was also experiencing

difficulties.

In the local context, project implementation in the parastatals was not well coordinated and lapses did exist that were bound to cause overruns in the said projects that need streamlining to enhance satisfaction (Olima, 2015). According to the author, parastatals faced challenges

related to resource planning to varying extents. In projects within the construction industry, the contractors experienced serious challenges in their quest to execute resource planning and leveling in their projects. The three most pressing challenges experienced by contractors were project delays, technical incompetence, materials shortages, or late delivery. Several benefits also enticed contractors to carry out resource planning and leveling in their projects. The three most significant benefits were establishing plans for material delivery, balanced resources, reducing over allocations or overtime, and determining or predicting resources needed (Simon, 2021). Resource planning and project performance had a considerable and positive link, according to Njihia and Mwirigi (2014). Additionally, Nyaguthii and Oyugi (2013) noted that resource planning had a favorable influence on project performance.

1.1.1 Project Resource Planning

The process of distributing work to team members based on their qualifications, their capacities, and their suitability for the position is best known as resource planning aimed at keeping the projects on budget and schedule, helping teams manage their usage rates, track capacity, and monitor progress (Costantino, Di Gravio & Nonino, 2015). The project team could also be organized using resource planning so they know what to work on and when. A resource planner could assist in effective management of project team, time and capacity to prevent staff burnout. Since resource planning is a component of project management, considerations like time and budget cannot be avoided either. The proper resources were made available at the right time for the right work thanks to good resource management (De Toni, Fornasier & Nonino, 2015). As part of project planning, the resource manager's job was to identify the resources needed (people with the necessary skills and expertise) to complete the work and to schedule when they will be needed (Costantino et al., 2015).

Resource capacity planning was defined as a complementary performance based progression of describing the quantity of effort that prerequisites conclusion by the resources at your organization/ firm. The process that demarcated the quantity of work that could be accomplished by resources within a company, identifying the tasks and projects that could be completed by such resources, and matching the work that needed to be done with the available resources to fulfill current and future demands was also identified as resource capacity planning (Heravi, Coffe & Trigunarsyah, 2015). Resource capacity planning involved estimating the difference between future capacity and the demand to determine where there wouldl be a shortage or surplus of resources (Kendrick, 2015). Resource capacity planning facilitated the early detection of problems to ensure successful project delivery and maximal use of all available resources throughout the entire organization. Planning for resource capacity necessitated consolidating data from diverse platforms. These systems included those for human resources, skills, projects that were underway or in the pipeline, resource demand and allocation, vacations, and nonproject work (Seethamraju, 2015).

Capacity planning at the project level was all about figuring out whether you had adequate resources to finish a certain project. Its responsibility was to ensure that the organization had the anticipated resources needed for a project or job, anticipated at a projected time, and capable of completing the project with the anticipated needs at the anticipated point in time (Kerzner, 2019). An organization could maximize its resources and billable hours by having a clear understanding of and thorough planning for the existing and future available capacity. Shahzad, Bajwa, Ansted, and Mamoon (2016) claim that to effectively manage resource capacity, one must had a thorough grasp of resource capabilities, the requirements of each activity that an organization completes, realistic project schedules, and an efficient resource management system. Planning for resource capacity was essential to employing

effective project management techniques. According to Golini, Kalchschmidt, and Landoni (2015), project managers could effectively plan out the timeline for a project and ensure that the resources they needed were available by being able to see how much work each resource could currently handle, what tasks were appropriate for their special skills, and when they would have available time to be assigned to a new task.

Matching skills was a key component of efficient resource capacity planning for maximizing the utilization of resources. A database that accumulated and ranks resource skills together with a thorough evaluation of each team member connected to a corporation is used in skill matching (Shahzad et al., 2016). To ensure a project's success, the project managers would swiftly comprehend the strengths and capabilities of both the individual team members in the project and the entire organization with the aid of these insights. A corporation could better understand the talents that were currently being offered by its resources by using *skill matching*. It could also determine which resources needed to be added to supply more in-depth capabilities, either through full-time recruiting or contract labor (Kerzner, 2019). The major benefit of skill matching was that, project managers who fully understand the skills of each team member could match their people to the best potential projects based on talents and interests for a more predictable project outcome (Dasí, Pedersen, Barakat & Alves, 2021).

According to Schwindt (2016), resource allocation was identified as the process of allocating and scheduling accessible resources most efficiently and cost-effectively. Resources were in short supply, and projects would always need resources. Therefore, it was the project manager's responsibility to decide when those resources should be used within the project timetable. Engwall and Jerbrant (2018) asserted that resource allocation in project management was crucial because it provided a clear picture of the amount of work that needed to be done, enabled planning and preparation for the project's

implementation or goal-achieving, and permited analysis of current threats and risks to the project, which led to improved project performance. The proper allocation of tangible and intangible resources could influence system performance thereby bringing about a comparative advantage for a firm.

Project resource allocation, according to Crivelli and Gupta (2013), entailed identifying technical, physical, human, and, most crucially, financial resources and allocating those resources in a way that ensured a project's successful completion. Construction projects required a lot of financial resources because the project contractors needed them to buy the necessary machinery and equipment as well as to meet other financial requirements of the project, such as fueling vehicles and equipment, maintaining machinery and equipment, and paying project-related wages and salaries, among other costs. In addition to the material and financial resources, the management and allocation of human resources was another essential factor in the success of projects (Amadi, 2017). Many researchers had studied teamwork in project management, and the results had amply demonstrated that the highest project performance was obtained when the entire project team was fully integrated and aligned with project objectives (Safapour, Kermanshachi, Shane & Anderson, 2017). Project success was already a challenging task; working with multicultural professional teams who were geographically dispersed and had diverse organizational and regional cultures just added to the complexity. Project management teams that collaborated were more effective and productive (Noguera, Guerrero-Roldán, & Masó, 2018). Everyone was showcasing their skills, being honest with themselves, and willing to accept assistance because they valued one another. There was less conflict and more optimistic views everywhere. The staff became more receptive to providing input as they collaborated, which ultimately resulted in improvements. This was especially crucial if teams frequently worked on projects.

1.1.2 Performance of Power Distribution Projects

According to Thomas and Fernandez (2008), budget, deliverables, and time criteria were essentially used to determine the performance of a project. However, recent research had demonstrated that project performance was multifaceted and broaden the focus to include factors like project management performance. According to Sundqvist, Backlund, and Chronéer (2014), a project's performance depended on how well it met its timelines and how effectively it operated. While effectiveness was measured by the caliber of output and whether intended outcomes were being accomplished, efficiency was recognized by the seamless operation among team members and how resources like cost and time were adhered to.

The quality, the time, and the cost were considered common elements of performance evaluation, according to Phiri (2015). Another effective method involved using two sets of indicators, which were widely used. The first set, as noted by Enshassi, Mohamed, and Abushaban (2009), refered to users, the general public, and the stakeholders; as a group of people who will assess performance from a broad perspective. The second one involved the developer and contractor, a team of individuals who would assess performance at the micro level. Therefore, a project was considered to have performed well if its technical requirements were met and its stakeholders, including end users, project team members, parent organization managers, funders, and financiers, were satisfied. This performance was, however, largely determined by personal capabilities as well as skills of the available potential leaders rather than a mere understanding of the projects' constraints.

Similarly, project performance and success in terms of effectiveness measures had five major component factors: customer satisfaction, learning and exploitation, stakeholder objectives, user satisfaction, and operational assurance (Takim, Roshana & Hamimah, Adnan 2009). The indicators of proper project performance included; aligning project

outcomes with customer needs expectations and specifications. Other criteria for measuring project performance, according to Lisa (2013), included whether the project was completed to the intended specifications, within the allotted budget, and before the scheduled deadline. Kenya Power was committed to providing its customers with reliable, safe, high-quality, and reasonably priced electric electricity as it carried out its projects.

1.1.3 Kenya Power Company Limited

Kenya Power is a state-owned corporation assigned solely with the responsibility of selling, distributing, and transmitting electricity in Kenya. It is a parastatal in which the government owns 50.1% of the shares and the investors have or own 49.9%. It is a publicly traded corporation with an NSX listing (NSE). It was established in 1922 and has since undergone several changes to reach its current stage where it is only concerned with the transmission of energy/ power. The company was originally founded as East Africa Power and Lighting Company, due to its extensive operations in Kenya, its name was changed to Kenya Power and Lighting Company in 1997, and then, following several rebranding initiatives, to Kenya Power Limited in 2011.

In the Vision 2030 plan, Kenya Power plays a significant part in the infrastructural development of the energy industry. The main responsibilities of Kenya Power include developing and maintaining the power distribution and transmission network, retailing electricity to its customers, and planning for adequate electricity generation and transmission capacity to fulfill the demand in the country. As of April 2018, Kenya Power owned and ran the whole nation's electrical distribution network and sold electricity to over 2.8 million clients. Kenya Power's strategic and commercial strategies, which are closely associated with the government's 5,000+ MW plan under Vision 2030 and its other target of having power available and affordable to more than 70% of the population by 2020,

compared to 35% today, serve as a guide in carrying out its duty of transmitting, distributing, and retailing electricity throughout Kenya (Kenya Power, 2020).

The expansion and renovation of the distribution network cost Kenya Power Ksh.11 billion, according to the financial report for the fiscal year that concluded in 2020–2021. The project's funding was anticipated to come from both internally generated revenues and aid from multilateral financing organizations like the World Bank. To expand its portfolio of distribution projects nationwide and specifically in Nairobi County to meet the rising electricity demand, Kenya Power must do so to meet its strategic objectives and make the infrastructure investments outlined in the Vision 2030 national plan.

Kenya Power's organizational structure features a robust matrix that exhibited a combination of functional and projected qualities. A matrix structure was preferred for managing specific projects within targeted cost, schedule, and performance objectives, claim Javanmard, Afshar-Nadjafi, and Taghi Akhavan Niaki 2022). Strong matrix organizational structures shared many traits with projectized organizations and had fulltime project administrators and managers who had great authority. Therefore, a projectbased company like Kenya Power must establish a project resource planning system that is reliable and has qualified project team members who collaborate to improve the performance of the parastatal's numerous projects.

1.2 Statement of the Problem

A project must be carried out within the allocated or anticipated budget, adhere to the scheduled timetables, and more so produce a result that meets the quality and criteria set forth by the procurement organization to be successful (Sundqvist *et al.*, 2014).

Additionally, the project deliverables must be acquired within the allotted time frame. This demonstrates the complexity that goes into completing projects. Kenya Power, which is reliant on its environment, has restructured its organization, increased its customer base,

renegotiated bulk pricing, and pursued a market-driven bulk and retail tariff in response to changes for its continued survival. A project manager should anticipate an improvement in the quality of the decisions made during the execution of the project and a decrease in the risk of failure if they adhere to the mandatory rules for time, scope, money, risk management, and other knowledge areas.

According to Costantino, Di Gravio, and Nonino (2015), a thorough resource planning exercise before project implementation was one of the realistic strategies to solve this problem. Hill and Schilling (2014) asserted that resource planning was essential and affected project execution. Resource planning had been regarded as the most important aspect of project implementation, and if it was not correctly included, it could cause a project to fail in addition to playing a big role in the smooth operation of the project.

Several studies had been conducted but which had yielded conflicting results. For instance, a case study on resource management in construction projects was done by Nagaraju and Reddy (2012). However, the focus of the study was on the construction industry as opposed to the energy sector, particularly Kenya Power projects. Anunda (2016) evaluated the factors that contributed to the failure of HIV/AIDS projects carried out by NGOs in Nairobi County. It was discovered that many projects ran out of resources before they could be finished. But unlike the projects that will be taken into account in this study, the context of the study was different. Bulle and Makori (2015) investigated how the Kenya Urban Roads Authority's projects performed about resource allocation. However, the backdrop of this study examined projects carried out by KURA, while the current study focused on projects at Kenya Power. Due to decisions made by its managers while carrying out projects, power utilities like Kenya Power suffered from projects not achieving their maximum potential. Kenya Power had faced difficulties carrying out its distribution projects in Nairobi City County, including the last-minute relocation of a proposed substation site due to land

availability and the suspension of a substation due to objections from nearby landowners, according to a 2020 report by the World Bank that described specific incidents during the planning and execution of several distribution projects within Nairobi County. These incidents pointed to the challenges of Kenya

Power's power distribution projects inside Nairobi City County's performance concerns. This study was to address the knowledge gap by answering the following research question; what is the influence of resource planning on the performance of power distribution projects by Kenya Power within Nairobi City County?

1.3 Research Objective

1.3.1 Purpose of the Study

This study sough to establish the influence of resource planning on the performance of power distribution projects by Kenya Power within Nairobi City County.

1.3.2 Research objectives

i. To determine the influence of resource capacity on the performance of power distribution projects by Kenya Power within Nairobi City County.
ii. To establish the effect of resource allocation on the performance of power distribution projects by Kenya Power within Nairobi City County. iii. To determine the influence of teamwork management on the performance of power distribution projects by Kenya Power within Nairobi City County.

1.4 Research Questions

The study will seek to answer the following questions;

i. What was the influence of resource capacity on the performance of power distribution projects by Kenya Power within Nairobi City County?

ii. How did resource allocation influence the performance of power distribution projects by Kenya Power within Nairobi City County?
iii. What was the effect of teamwork management on the performance of power distribution projects by Kenya Power within Nairobi City County?

1.5 Significance of the Study

Since several electricity projects were being carried out across the country, it was important to understand the factors that influence whether or not they were successful. According to reports, many projects got over budget, took longer than expected, and did not prioritize quality and safety standards. This study aimed to determine how resource planning affects Kenya Power's power distribution projects within Nairobi City County. With this knowledge, a project manager could plan for project resources effectively and steer clear of project management activities that were associated with poor performance. Kenya Power would benefit from the study since it would provide verifiable proof of the reasons why some projects were not finished by the anticipated performance requirements. Project managers, academicians, and researchers will receive information from the results that will assist them broaden their understanding of relevant topics and themes, as well as serve as a beneficial resource for future research.

With this study, Kenya Power's power distribution projects within Nairobi City County was evaluated for their performance in resource planning. Kenya Power should thus benefit from the study since project managers would be advised to emphasize project resource planning to enhance project outcomes. This would guarantee operational consistency and create connections to overarching corporate objectives. Additionally, this study would give a project manager a clear path for integrating long-term resource planning viewpoints, thereby strengthening internal controls and eradicating instances of resource misappropriation. The project managers in many organizations can also benefit greatly

from this study in terms of determining the best course for enhancing project performance. The study's conclusions would guide other researchers and when conducting research on similar disciplines in various areas of interest, be useful to them as a source of secondary data. The research study would help other academics gain knowledge in the area of project management. The results of this study anticipated to provide a solid starting point for scholars to conduct additional research in resource planning and project performance because there are so few studies in the field.

1.6 Scope of the Study

The study analyzed the influence of resource planning on the performance of power distribution projects by Kenya Power within Nairobi City County. Specifically, the influence of resource capacity, resource allocation, and teamwork management on the performance of power distribution projects by Kenya Power within Nairobi City County will be examined. Evaluation will be done on the performance of power distribution projects by Kenya Power started in the year 2017; both ongoing and completed projects will be included in the analysis. The study's target population will be employees who work for Kenya Power in Nairobi County. In this investigation, a sample size of 108 determined using the Krejcie and Morgan methodology was used. In-depth information was gathered using structured questionnaires. This research study was undertaken over a six-month period, with data collection happening for a period of one month during the first four months of the study.

1.7 Limitations and Delimitations of the Study

1.7.1 Limitations

There were several limitations while carrying out this study that were encountered: There was deliberate refusal by some of the identified respondents to respond adequately to the survey questionnaire. However, there were written and oral assurances by the researcher.

A second limitation was the possibility of limited inferential use or utility value of the results of the study. The researcher mitigated the effects of this limitation by ensuring the scope of the research considered variables that were widely common to the power utility sector.

Some participants viewed the information sought as confidential and were hesitant to provide information. However, the researcher used an authorization letter from the university to assure the participants that the information provided was used for education purposes only.

There was delays in data collection where the respondents were too busy to fill in the research questionnaire. The researcher, however, persuaded the respondents by explaining the importance of the research study

The study also relied on sampling to enable easy collection of data. Small or inappropriate sample sizes proved difficult to find significant relationships from the data. However, the researcher used an appropriate formula applied by other researchers to determine the sample size.

1.7.2 Delimitations

The study focused on Kenya Power, a company in the energy and utilities sector, and how different resource planning activities, such as resource capacity, resource allocation, and teamwork, influenced the performance of Kenya Power's power distribution projects within

the boundaries of Nairobi City County. Other categories of Corporation projects that did not fall under this category were expressly excluded from the study. Descriptive survey design was chosen as the study's design approach because it was thought to be the most appropriate for the data that was to be produced by this survey.

1.8 Assumptions of the Study

The following assumptions were made while preparing and conducting the research: The respondents had a basic understanding of the various resource planning techniques that ought to have an affect the performance of the distribution projects they manage in the course of their everyday job activities, and they were motivated to use resource planning to enhance project results.

This study assumed that the variables under examination were quantifiable and that the instrument being used to measure the variables was both valid and trustworthy.

The questions in this study were also assumed to appropriately reflect the phenomenon being studied and allowed for the elicitation of trustworthy responses to answer the research issue.

1.9. Operational Definition of Key Terms

Power Distribution is the final stage in the delivery of electricity to end users

The project Manager person responsible for ensuring that team members are aware of their responsibilities and what is expected of them.

Project Performance: This is the criteria of budget, deliverables, and time. It is generally the quality of a given project based on how valuable it is to the beneficiaries, how effective, efficient, and sustainable it is in its implementation, and finally how it impacts development

Project: refers to a temporary endeavor initiated to meet unique objectives, goals, and criteria with a defined budget, scope, and time frame.

Resource allocation: in this study, it refers to the process whereby the available resources are assigned and scheduled to specific project tasks most effectively and economically.

Resource planning: this refers to the documentation or specification of the particular amount of materials, labor, and equipment that are required in carrying out various tasks and activities within the project to ensure that it is completed successfully.

Teamwork management: is the capacity of a person or an organization to lead and organize a team of people to complete a task and entails collaboration, dialogue, goal-setting, and performance reviews.

1.10 Chapter Summary

The introduction of the study, which examined the independent variable of project resource planning (resource capacity, resource allocation, and teamwork management), as well as the dependent variable of project success, had been briefly described in this first chapter. Additionally, it had outlined the problem statement and the project's study objectives. The research questions, significance of the study, assumptions, study scope, limits, and definitions of key terms were also included in this chapter. The study's literature review was presented in the following chapter.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter includes both empirical and theoretical literature on the research variables. A literature review is crucial for illuminating the subject at hand and identifying any knowledge gaps.

2.1 Theoretical Literature Review

This section discussed the theories that were relevant to the study's theme. The many hypotheses that underpinned the study's variables included the resource-based View (RBV) theory, the general systems theory, and the star team model.

2.1.1 Resource-Based View (RBV) Theory

According to Barney's Resource-Based View theory, which was the basis for this study, a firm was characterized as a collection of resources. The hypothesis was developed from a study in strategic management on how businesses create value, specifically how they might get a competitive edge in the marketplace. It was important to note that a company's competitive edge was its value-creating strategy, which must be materially different from the competitors' existing or future strategies. As a result, the firm's resources were seen in this perspective as its source of long-term competitive advantage. That is, a corporation's major source of competitive advantage is its resources, which could either be a strength or a weakness. This included both the intangible and tangible resources the company had at its disposal. In RBV the Resources and capabilities were considered as the rudimentary structure blocks that organizations must have used to craft stratagems. It is important to note that these two building blocks were tightly connected— proficiencies from using resources over duration and /or time.

The two key tenets of the RBV theory, according to Barney (1991), were that the resources must be both immobile and heterogeneous. According to the heterogeneity assumption, businesses were essentially varied because they have a range of competencies, resources, and organizational structures. According to the immobility assumption, a firm's resources must have been immobile, meaning they could not be transferred from one company to another. As a result, if the resources were "valuable, rare, imperfectly imitable, and not substitutable", an organization could develop a longterm competitive advantage (Barney, 1991). To effectively manage and utilize resources to gain a competitive edge, project managers ought to determine whether the existing resources match the aforementioned criteria. The RBV theory, according to Almarri and Gardiner (2014), was similarly significant for project managers since it enabled them to spread out the available resources to align with strategy, determine the value of the resources, and determine the necessary competencies for the firm's success.

Since *project resource allocation was one of the most important components of project management, the RBV theory was appropriate to the current study thus informing the need to use this theory in the study.* The "valuable, scarce, imperfectly imitable, and not substitutable" requirements ought to have been met by the resources found by the project managers of the energy projects to ensure that they were used effectively and, even if there are no competitors, that they were used to gain an advantage. The project manager was to identify the essential resources and capabilities that were to ensure the projects were finished on schedule and under budget, despite the problem of resource availability. Furthermore, effective resource allocation was essential in Kenya Power projects when addressing project cost overruns and time delays.

2.1.2 The General Systems Theory

The biological organism perspective assisted as the supporting or the basis for Ludwig von Bertalanffy's (1973) General Systems Theory. This theory aimed to progress a philosophy and explain the thought of complex marvels by expounding the theoretical models as they happen in real states of affairs. Conclusively, the model pursued to elucidate and progress the propositions about the appearances that ascend inside intricate organizations that superficially may perhaps not ascend in a somewhat solitary structure within the entire system. The synergy, interdependence, interconnectivity, and organism view of a system were the guiding concepts of the systems theory. According to this viewpoint, organizations were made up of several interrelated subsystems that cooperate and related to one another for the benefit of the whole organization, with each subsystem had a major impact or influence on the other subsystems and the entire system (Von Bertalanffy, 2010). The theory simulated intricate interactions between subsystems and how the overall system depended on how well each subsystem performs. According to Mwaura and Ngugi (2014), the study of organizations was to conceptually begin at the system level, but the actual measures could be built from observations and reports of individual behaviors and attitudes. According to this theory, an organization was a social system made up of people who work together formally to generate goods by utilizing available resources, labor, and resources.

The systems approach according to Shaw (2003) illustrated how the many organizational capacity variables interacted and impacted an organization's performance. Systems must have been managed since failure in one system could cause failure in another. An organization was a social system made up of individuals who collaborated within a formal framework and used resources, personnel, and funding to manufacture products

(Piscicelli, Cooper & Fisher, 2015). To demonstrate this interdependence, it was important to consider how skill development depended on the resources available to teach the staff while

technology utilization was to depend on the staff's ability to use the skills and knowledge in technology to achieve the purpose. *In this study, resource capacity factors were explained using the systems theory as the subsystems of the organization, which included its resources (finance, membership, and equipment), and skills all of which contributed to the accomplishment of projects. It therefore anchored the resource capacity variable of this study informing the need to use this theory in the study.*

2.1.3 The Star Team Model

The Jay Galbraith Star team model gave teamwork theory's stages, situations, and environments meaning. This model aided in figuring out what a team and team leader (project manager) could be seen to concentrate on and implement to ensure project accomplishments in time and with the available resources. This idea outlined the leadership techniques that each team captain ought to have used to perform successfully and inspire the team's other members to do the same (Hu & Liden, 2015). It provided useful advice and principles to assist team leaders in concentrating their efforts. The star team model basically outlined a management model that elucidated what project leaders or managers must do or permissible to accomplish the task at hand. The model is explained by three main advantages: *Strengths-based*, which emphasizes the developing field or the emerging area of strength-based leadership, and *outside factors*, which recognized what is recurrently omitted from some leadership models; that the privileged project managers or team leaders need to be as proficient at managing outside their team as they do within the team: *Integration* was centered on the need for leaders to align key elements so that individual, team, and organizational outcomes were achieved (Thylefors,

Persson & Hellström 2005).

In addition, it was important to note that the model recommended that operative teamwork at the workplace materialized when the four elements of *Strengths*, *Teamwork, Alignment,*

and Results were in consideration: the individual project members excelled as they developed and used their *strengths*; individuals congregated and shaped associations that resulted in operational *Teamwork*; the project manager *aligned* the team through real communication of the project objective and mission, in order for specific personal strong points syndicate with teamwork that provided the team's results; this synergy made every concerned project stakeholder to accomplish more as enactment streams and *Results* that were expressive and satisfying to the project team are attained.

The STAR team model essentially conveyed some of these collected theories, emphasizing the project manager's or leader's responsibility in supporting specific fortes with teamwork, so as to attain significant outcomes. The model integrated the awareness that a project manager and / or the team leader desired to comport oneself in a different way certain of the diverse phases of project team growth. The project team leader's emphasis of consideration contrasted at dissimilar steps of the team's expansion. A good instance was through team forming. It was crucial to safeguard the clarity of the team members as to why they were in the project team, and the reason as to what they were anticipated to accomplish. Majorly, the prime attention during this team forming phase was on the projected results which was project completion in the desired duration using the available resources and the budgetary allocation. As a project manager there was more emphasis of being familiar with the characteristics of teamwork in a project and the strengths of individual members compounded and contributing to the team synergy. Throughout further steps of the project completion, the emphasis was definitely resolved to the prominence of collaboration or synergy between the project team and the strengths they possessed being an added advantage to the overall project cycle.

According to the model, effective team leadership was setting up the environment for the team members to collaborate and share ideas, communicate effectively ensuring bonding

and forming a synergy to improve the overall project performance. In the pursuit of difficult and meaningful team objectives, it was always crucial to strike a balance between developing team members' skills and creating strong bonds and connections between team members. This promoted efficient teamwork on a project (Hoegl, Weinkauf & Gemuenden, 2004). *Therefore, this model demonstrated the significance of leadership in teamwork approaches.* It motivated team members to work toward a distinct vision and objectives, which enhanced performance. There must have been a defined aim and goal in a given project scenario so that each team member could work toward accomplishing it. To guarantee that a high level of performance was attained, project leaders, coordinators, consultants, and lead contractors provided strong leadership on how to carry out project tasks. *This model/theory was more suited to guide this research because it concentrates on qualities essential to managing teamwork informing the necessity to use it for the study.*

2.2 Theoretical Framework

The hypotheses that served as the study's guiding principles are shown in Figure 1.

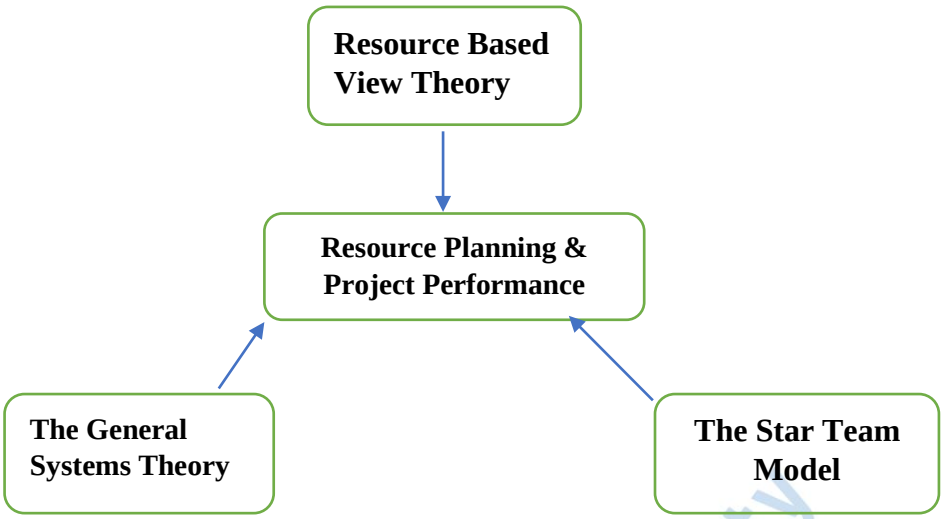


Figure 1 *Theoretical framework 1*

Source: Researcher (2024)

2.3 The Empirical Literature

This section discussed earlier research on the project study's variables.

2.3.1 Resource Capacity and Project Performance

Kipkech and Bor (2017) focused on the relationship between resource capacity and the performance of local community organizations in Bureti Sub County. The communitybased organizations that were registered in Bureti Sub County served as the study sample. Community organizations were chosen via stratified sampling, and 100 members of the studied organizations were randomly chosen, along with 5 technical officers. Open-ended and closed-ended interview questions were used to gather the data. To offer thorough justifications, a thematic analysis of qualitative data was conducted. **The performance of community organizations was found to be significantly and favorably correlated with their resource capacity but not with their skill capacity**. These results imply that increased resource capacity would boost local organizations' performance. However, the

focus of the study was on organizational performance and not on the performance of power distribution projects.

Omondi (2016) examined the influence of capacity-building programs on project performance in non-governmental organizations in Kenya. The purpose of the study was to evaluate the degree to which training methodologies in capacity-building programs influence project performance in non-profit organizations, as well as the degree to which participant characteristics in capacity-building programs influence project performance in non-profit organizations. A descriptive survey design was employed for the investigation. To gather information from the target sample, the study used stratified sampling, simple random sampling, and purposive sampling. The results showed that training methodology was a significant factor in project success. Finally, the study's findings indicated *that a capacity-building program's curriculum material has an impact on project performance*. While the current study was also factor in the effect of resource allocation and teamwork management, Omondi (2016) emphasized the role of resource capacity only on project performance. Moreover, contextually, the study was based on projects in nongovernmental organizations as opposed to the energy sector and specifically Kenya Power.

Rugiri and Njangiru (2018) examined the effect of resource availability on the performance of water projects funded by constituency development funds in Nyeri

County, Kenya. The study used a descriptive research design and relied on data from the National Government Constituency Development Fund Board to identify 86 water projects in Nyeri County that had received CDF funding. The researcher chose 60 respondents from among the project managers working on the water projects using a stratified random selection technique. Questionnaires were used to collect primary data. The results of the regression analysis showed that resource availability was a reliable indicator of project performance. The findings of the Pearson correlation analysis showed that project

performance was positively correlated with resource availability. While the constituency development fund in Nyeri County was the unit of analysis, the current study will focus on distribution projects in Kenya Power. This study will fil the identifiable gaps identified in other studies done as factors contributing hindering project performance in relation to power distribution projects by providing additional information through further studies.

2.3.2 Resource Allocation and Project Performance

A case study on resource management in construction projects was done by Nagaraju and Reddy (2012). They pointed out that resource planning is essential for building projects, particularly given their high risks and requirements for effective resource usage. Due to the complexity of allocation requirements, including resource limitations, efficient resource usage, and the inherent uncertainty of construction projects, project managers must make difficult allocation decisions. The study's findings emphasized the importance of resource allocation because the nature of building projects is distinctive and characterized by complicated resource deployment patterns that enhance risk and uncertainty. As a result, the project's success depended on cutting-edge resource management and resource allocation ought to be done carefully to guarantee the project's prompt completion. However, the focus of the study was on the construction industry as opposed to the energy sector, particularly Kenya Power projects.

A study on the impact of scheduled-driven project management when handling several projects was conducted by Yaghootkar and Gil (2012). The results showed that a schedule-driven project management approach might significantly increase the company's capacity to execute on the long-term scheduled project milestones and lead to noticeable success. Although acquiring resources guarantees the timely delivery of the project, the project's timetable is negatively impacted by a shortage of employees and free resource capacity since it is resource-starved. The staff's productivity was also impacted by the frequent

project switching as more projects are switched between. In the end, inefficient resource allocation limits the company's ability to complete tasks as a whole.

Anunda (2016) evaluated the factors that contributed to the failure of HIV/AIDS projects carried out by NGOs in Nairobi County. The research design was descriptive. The success of these initiatives was influenced by allocating enough money and attracting a sizable number of partners and contributors. The majority of NGOs carrying out the projects under study, claimed this report, lacked enough funding. Having adequate financial and non-financial resources set aside was essential to carrying out project plans successfully.

It was discovered that many projects ran out of resources before they could be finished. But unlike the projects that will be taken into account in this study, the context of the study was different.

Bulle and Makori (2015) investigated how the Kenya Urban Roads Authority's projects performed about resource allocation. The study's descriptive study design was used for the investigation. According to the study, projects' performance was impacted by the allocation of financial, physical, and human resources. To ensure that the cost parameters were followed as stated in the project plans, resource allocation had an impact on the pace and quality of project delivery. The study placed a strong emphasis on how adequate resource allocations may improve and maintain project performance. When resources are properly distributed and used, projects are guaranteed to be efficient and effective, leading to superior project outputs. However, the backdrop of this study examines projects carried out by KURA, while the current study will focus on projects at Kenya Power.

Effective resource allocation was one of the key project success determinants, according to Obegi and Kimutai's (2017) study on the impact of resource allocation on the performance of NGO projects in Nairobi City County. The study's findings underlined the need for periodic project performance evaluations, project adjustments during implementation, and

occasional budget monitoring to compare spending to project budgets. Resource allocation had an impact on project performance since it made sure that the project was on budget, that adjustments were made to accommodate the project's dynamic character, and that the staff had everything they needed to do their jobs. In their research on the impact of flexible resource management on project duration and cost, Pinha and Ahluwalia (2019) pointed out that ineffective resource management was frequently the main contributor to cost overruns and schedule failures. They provided a strategy designed to give project managers the tools they need to evaluate various situations and, as a result, cut down on project expenses and length. Modern project resource allocation techniques heavily relied on the dynamic resource allocation and project management methodology that the researchers describe. According to the study's findings, modern methods should have been employed to allocate projects as project environments become more complicated because they were crucial to the success of

projects.

Mogaka (2017) examined the relationship between the methods for allocating funding and the methods by which donor-funded health projects in Nairobi County were carried out. The chosen survey design was descriptive. It became clear that allocating resources had a favorable and noteworthy impact on how these projects were carried out. As stated in the study, resource allocation aided in allocating resources to activities throughout the project. The study emphasized the importance of allocating adequate project resources for carrying out the initiatives. The study placed a strong emphasis on timely resource allocation and adequate project personnel training. The study found that when projects begin, there may occasionally be instances of resource overallocation or even resource competition between various projects and jobs.

The resource allocation syndrome was examined by Engwall and Jerbrant (2013) in the context of managing several projects. The qualitative case studies served as the study's foundation. The interdependence of projects and resource scarcity were cited as the two main issues in multi-project setups. Setting priorities and even reallocating resources were required due to competition between projects. It was determined that a lot of projects experienced short-term problem-solving issues, which greatly increased project delays. The majority of them did not reach the project goals and several fell behind their timetables as a result of inadequate resource allocation. However, the study relied on qualitative case studies, leaving a methodological vacuum as the current research will depend on the creation of a descriptive survey.

2.3.3 Team Work Management and Project Performance

Waweru (2018) examined how the teamwork approach affects project performance. This study concentrated in particular on team leadership, team trust, team spirit, recognition, and reward and how these affect the success of road construction projects in Kenya. At Kericho County, the target population totaled 83 and included KeRRA official's/project managers, consultants, and contractors. The census sampling technique was appropriate given the small population. However, the study used a stratified random sampling approach to divide the population into three strata. The information was gathered through questionnaires and interview schedules. The research revealed that teamwork has been promoted in road-building projects, however, more work has to be done to strengthen the program and guarantee that teamwork is properly integrated into construction projects. It was discovered that the project performance had a favorable, significant association with team trust, team leadership, team spirit, recognition, and reward.

Nawaz, Ghafoor, and Manir (2016) looked into how project management and teamwork affected project success. It looks at pertinent research on teamwork, project leadership, and

project success as it relates to changed procedural aspects. The technique of purposeful sampling was adopted. Data from workers at industrial companies was gathered via questionnaires. According to the results of the hypothesis test, project success was positively connected with the project manager's leadership, and teamwork was also positively correlated with project performance. A case study of the Ghana Broadcasting Corporation's education project was used by Kara and Kester (2015) to evaluate the influence of good project team management on project team productivity. In conclusion, it was evident that team-level factors such as good teamwork, motivation, and human resources are critical to a project's overall success.

Al-Shatti (2018) explored how cooperation quality affected project effectiveness in the context of several projects. Six criteria were used to assess the quality of the teamwork: communication, coordination, balanced member contributions, mutual support, effort, and cohesion. Project performance was used to assess the effectiveness of the teamwork. 184 project managers in total took part in the poll. The results demonstrate that the project performance was positively influenced by each of the six teamwork quality construct variables.

Adu and Opawole (2019) undertook an evaluation of the effectiveness of collaboration in the execution of construction projects in southern Nigeria. To improve project performance, key components of good teamwork as well as the difficulties the team faced during construction were identified. 420 standardized questionnaires were given to a sample of project participants, including clients', contractors', and consultants' organizations' representatives, in the South-Southern region of Nigeria to collect data for the study. The Kruskal-Wallis rank test, the mean item score, and percentages were used to analyze the data. According to the report, key components of successful teamwork include interpersonal dynamics, top management support, and leadership abilities. Poor leadership,

a lack of efficient communication, and poor relationships between team members were shown to be the three main obstacles to effective teamwork.

2.4 The Conceptual Framework

The conceptual framework is a presentation that showed how the study's variables were related to one another. The link between the dependent and independent variables was presented diagrammatically. It sought to clarify how variables related to one another and methodically synthesized the concept to give guidance.

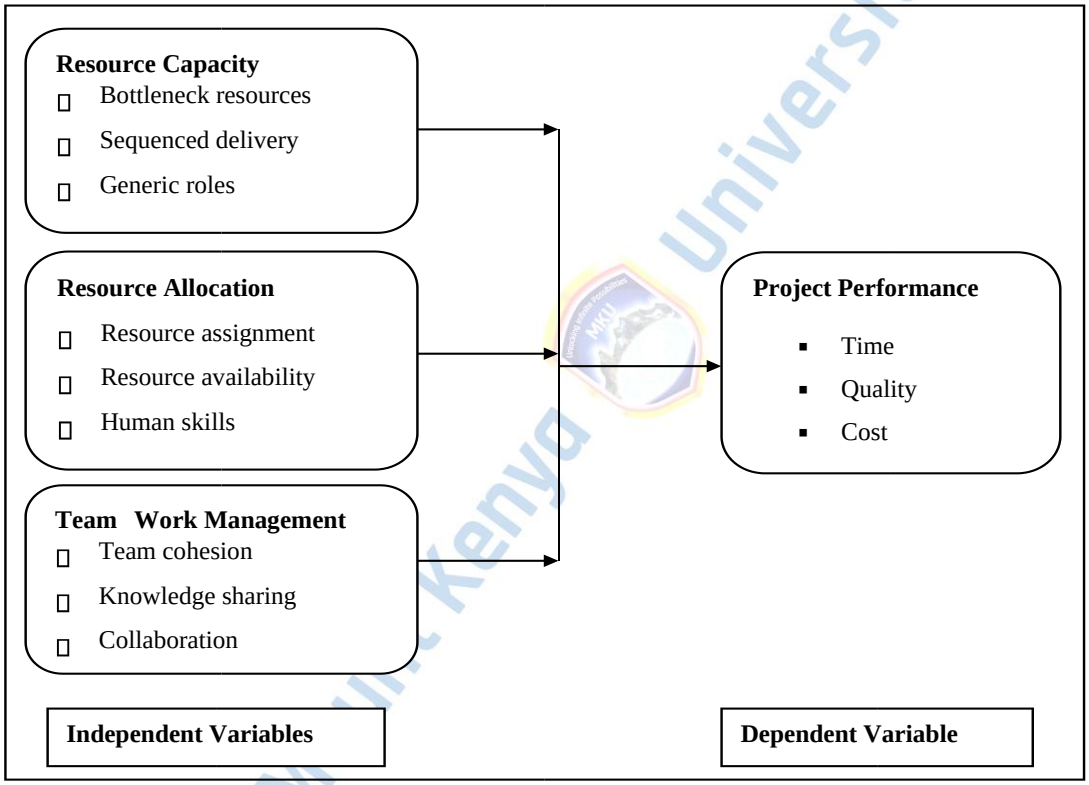


Figure 2 *Conceptual Framework 1*

Source: **Researcher (2024)**

The conceptual framework in Figure 2 showed the interrelationships between the variables. Independent variables are factors influencing the dependent variable in the study. The independent variables are parameters to be measured and their effect on the dependent variable. From the literature review, 3 independent variables have been identified which

are resource capacity, resource allocation, and teamwork management. Resource capacity in this study was conceptualized to collectively include skills and resources required to implement activities and meet the objectives of Kenya Power. Similarly, resource allocation was conceptualized to collectively encompass resource availability, assignment, and level of use of human skills. On the other hand, teamwork management was operationalized to include team cohesion, knowledge sharing, and collaborative processes. Time, cost, and quality were the three sub-constructs of the dependent variable: project performance.

2.5 Research Gaps

The independent variables in this research expected to influence project performance were resource capacity, resource allocation, and teamwork management. The expected outcome was project performance when all of the resource capacity, resource allocation, and teamwork management processes were assessed and managed effectively in an integrated manner. The study by Kipkech et al. (2017) examined the relationship between local community organizations' effectiveness and resource capacity in the Bureti Sub County. The findings suggest that improved resource capacity would improve the effectiveness of local organizations. The study's emphasis, however, was on

organizational performance rather than the success of electricity distribution initiatives. Omondi (2016) investigated how Kenyan non-governmental organizations' capacitybuilding initiatives affected the success of their projects. Although the author stressed the importance of resource capacity alone on project performance, the current study will also take into account the effects of resource distribution and teamwork management. Furthermore, the study's backdrop focused on non-governmental organization projects rather than the energy sector, and more especially Kenya Power. In Nyeri County, Kenya, Rugiri et al. (2018) looked at how the success of water projects sponsored by constituency development funds was impacted by resource availability. While Nyeri County's

constituency development fund served as the analysis's analysis unit, the current study primarily concentrates on Kenya Power distribution projects.

Nagaraju et al., (2012) conducted a case study on resource management in construction projects. The study's emphasis, meanwhile, was on the construction industry rather than the energy sector in general and Kenya Power projects in particular. Anunda (2016) examined the elements that led to the failure of NGOs' HIV/AIDS operations in Nairobi County. It was found that many initiatives couldn't be completed because of resource constraints. However, the study's background was distinct from the initiatives that will be considered in it. Bulle and Makori (2015) looked into the effectiveness of the Kenya Urban Roads Authority's projects in terms of resource allocation. However, while the current analysis will concentrate on projects at Kenya Power, the background of this study investigated projects carried out by KURA. Engwall et al., (2013) looked at the resource allocation syndrome in the context of managing multiple projects. However, since the current research may require the development of a descriptive survey, the study's reliance on qualitative case studies left a methodological gap. Because the examined studies were conducted outside of Kenya Power's study setting, they also showed contextual deficiencies. Additionally, conceptually, the majority of previous studies concentrated on individual variables rather than a combination of them to determine how those factors together affected project performance.

2.6 A Recap of Literature Review

The chapter examined conceptual, theoretical, and empirical reviews. Several hypotheses pertinent to the topic were explored under the heading of theoretical review. These theories included the star team model, the general systems theory, and the resource-based view (RBV) hypothesis. A survey of the literature also showed that little research has been done on resource planning in the energy industry, particularly Kenya Power, and how it affects

project performance. Furthermore, the assessment of the literature found that few studies had merged the three parts of resource planning, leaving a conceptual gap that this study aims to fill. Similar to this, several studies were examined using an empirical review, along with their findings, methodology, and criticism. Additionally, the study's empirical review allowed it to evaluate pertinent pieces of literature, which allowed it to identify distinct research and knowledge gaps that serve as the basis for this study.

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

The research methodology that was used to complete the study was described in this chapter. In this section, the researcher described the research design method, target population selection, sample size calculation and sampling mechanism employed, data collection techniques and procedures, and research tools that were used. Additionally, it covers the data collection techniques that were used, the data analysis process, and how validity and reliability was improved in the study. The chapter's conclusion explains how ethical considerations were followed.

3.1 Research Design

According to Grey (2014) he referred research design to the set process on the obligatory data, the approaches to be used to assemble and evaluate this data, and in what way the sum of it was to work to respond to the research question. According to Creswell, (2018) he referred descriptive research design as a study that designated the physiognomies of a population or phenomenon being under study, that is principally employed to bring more emphasis to an empathetic of a collection or spectacle. The study included gathering of data through surveys, interviews, or observations. Descriptive survey design was used as the method of investigation for this study. Descriptive research did not alter the environment while gathering data. The main goal of descriptive survey research was to describe the situation as it was at the time of the survey. This research method's primary attribute was that the researcher did not influence the variables. Only what was occurring or has already occurred was to be reported by the researcher. Since information on an actual phenomenon about the identification of the impact of resource planning on the effectiveness of electricity

distribution projects in Nairobi County was sought, a descriptive survey was preferred for this study. Check & Schutt, (2012, p. 160) define survey research as the assembly of raw facts and figures from a section of persons concluded in their reactions to enquiries. Survey research enables for diversity of approaches to recruit respondents, gather data, and apply numerous composition approaches

3.2 Target population

A target population was defined as the total collection of all units of analysis that a researcher wished to consider for a specific intended study (Rugenyi & Bwisa, 2016). According to Kothari (2014), a population was a well-defined set of people, services, elements, events, groups of things, or households that were being investigated. The target population in the study comprised of 162 personnel, working for Kenya Power in Nairobi County. The Kenya Power Human Resource department's staff list was used to identify the personnel. They had varying responsibilities that are directly related to project activities, including project planning and execution, managing internal and external contractors, authorizing project financing, logistics and procurement, legal, property, wayleaves, safety, health, and environmental concerns. The target population was divided into eight strata as illustrated in Table 1.

Table 1 Target population

Department	**Population**	**Percentage**
Customer Service and Marketing	9	5.56
Finance	13	8.02
Planning, Design, and Maintenance	54	33.33
Procurement and Logistics	8	4.94
Projects and Construction	42	25.93

Property, Risk and Legal, Insurance	13	8.02
Safety, Health, and Environment	10	6.17
Wayleaves and Survey	13	8.02
Total	**162**	**100**

Source: Kenya Power Human Resource Department, 2022

3.3. Sample Size and Sampling Techniques

A sample size was defined as a subset of the total population that was used to give the general views of the target population (Kothari, 2004). For this study, Krejcie and Morgan's (1970) method as shown in the formula below was used for the calculation of the sample size as follows.

$$s = X^2NP(1-P) \div d^2(N-1) + X^2P(1-P)$$

Where N, Population size = 162, P was the proportion of units in sample size possessing the variables under study, for this research study it was set at 50% (0.5); *X2* is the table value for chi-squared at one degree of freedom at the desired confidence level of 95% = 1.962 = 3.8416, d was the degree of precision desired for the research study which was set at 5% (0.05)

Based on the formula above, the sample size was calculated as:

s= (3.8416*162*0.5*0.5)/ ([0.05*0.05*161] + [3.8416*0.5*0.5]) s= 155.5848/ (0.4025+0.9604) s= 155.5848/1.3629

s= 114

The study adopted a stratified random sampling in recognition that the population from which the sample was drawn was not homogeneous. In this technique, the population was stratified into several non-overlapping sub-populations or strata, and sample items were

selected from each stratum. As shown in Table 2, the size for each stratum in the sample was proportional to its percentage share of the target population.

Table 2 Sample size

Department	**Population**	**Percentage**	**Sample Size**
Customer Service and Marketing	9	5.56	6
Finance	13	8.02	9
Planning, Design, and Maintenance	54	33.33	38
Procurement, and Logistics	8	4.94	6
Projects and Construction	42	25.93	30
Property, Risk and Legal, Insurance	13	8.02	9
Safety, Health, and Environment	10	6.17	7
Wayleaves and Survey	13	8.02	9
Total	**162**	**100**	**114**

Source: Researcher (2024)

3.4 Research Instruments

The study applied primary data collected through the use of questionnaires. The proposed questionnaires were structured with close-ended, multiple-choice questions. The multiple responses provided a list of possible alternatives from which the respondents were required to select the answer that best described their situation. It was expected that the responses from the respondents offered honest answers as possible and generated quantifiable data. A similar questionnaire was administered to all the respondents. The questionnaires were answered using a 5 Likert scale of agree, strongly agree, disagree, strongly disagree, and uncertain (Appendix II).

3.5 Pilot Study

The instrument for capturing the primary data- the questionnaires was tested before it was used. The pilot test brought to light the weaknesses, if any, of the questionnaire and checked if the questionnaire contained simple but straightforward directions for the respondents so that they could not experience any difficulty in answering the questions. The aspects evaluated in the pilot test included the availability of the subjects under the study, acceptability of the questions, willingness to cooperate with the potential respondents, potential errors in the instrument, and correction of the errors or format of the questionnaire. According to Mugenda and Mugenda (2003), a pre-test sample of a tenth of the sample size, for each stratum with homogeneous characteristics was considered for the pilot study. For the study, 11 staff, from the targeted population were chosen. The questionnaire was administered twice over one week. The staff chosen for the pilot study were subsequently excluded from the sample.

3.6 Validity and Reliability of Research Instrument

3.6.1 Validity

Validity refers to the extent to which an instrument measures what it was intended to measure. Therefore, an instrument is considered "valid" if it measured what it set out to measure. Validity is associated with quantitative data collection, and requires various statistical techniques and concepts to establish.

Validity was defined as the degree to which an instrument measured what it is supposed to measure. Kothari (2004) described it as the extent to which differences found with a measuring instrument reflect true differences among the sample or target population being tested. The aspect of validity considered in this study was the content validity of the instrument. Content validity was considered suitable for this study since it was found out

that the target population was familiar with the distribution project activities, associated and participated in the implementation of various aspects of distribution projects of their daily duties.

3.6.2 Reliability

A measuring instrument was considered reliable if it provided consistent results. A reliable measuring instrument contributed to the validity, but a reliable instrument needed not be a valid instrument. The stability aspect of reliability was concerned with securing consistent results with repeated measurements of the same person and with the same instrument (Cronbach, 1951). The degree of stability was determined by comparing the results of repeated measurements. The closer the value of Cronbach's Alpha was to unity, the more reliable the instrument. For this study, a value of 0.7 was used during the piloting of the study to determine the reliability of the questionnaire.

3.7 Proposed Data Collection Methods and Procedures

Primary data collection from the targeted respondents, the researcher acquired a letter of authority from Mt. Kenya University after examination and approval of the research proposal. The letter enabled the researcher to obtain a permit from NACOSTI. The letter was presented to the administration of Kenya Power who were expected to issue a letter of authority for data collection at various Kenya Power branches and offices within Nairobi City County. This allowed the researcher to conduct the research freely and in an organized manner. An introductory letter accompanying each questionnaire was sent to the respondents. The questionnaires were administered through drop and pick method. The researcher responded to clarifications sought by the respondents to ensure a high response rate.

3.8 Proposed Data Analysis Techniques and Procedures

The term analysis refers to the computation of certain measures along with searching for patterns of relationship that exist among data groups (Kothari, 2004). Data analysis is the process of bringing order, structure, and meaning to the mass of information collected. Data analysis involved the process of coding, editing, data entry, and monitoring of the collected data. The completed questionnaires were edited first of all for completeness and consistency. The data was then to be coded to enable the responses to be grouped into various categories. The data collected was later analyzed using descriptive and inferential statistics. The descriptive statistics used were frequencies, mean, and standard deviations. SPSS and MS Excel were the computer software tools that were applied in carrying out analyses. Tables and figures were used to summarize responses for further analysis and to facilitate comparison. Inferential analysis on the other hand was used to identify emerging patterns and relationships of the study variables. Pearson's Product Moment Correlation was used to determine whether there was any positive or negative relationship between the dependent and independent variables. A multiple regression model was finally applied to link the independent variables to the dependent variable as follows:

$$\mathbf{Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon .}$$

Where: Y = Performance of Power Distribution projects

X_1 = Resource Capacity

X_2= Resource Allocation

X_3 = Team Work Management

ε = error term,

β_0 = Constant

β_1, β_2, β_3, β_4 = Regression coefficients.

3.9 Ethical Considerations

Research ethics refers to the appropriateness of the researcher's behavior about the rights of the potential respondents, and the research work itself. Ethics do emerge from value conflicts which are expressed in many ways: individuals' rights to privacy versus the undesirability of data manipulation, openness and replication versus confidentiality, future welfare versus immediate relief, and others. In this study, the principle of voluntary participation was observed through seeking informed respondent consent, providing an assurance to the respondent regarding confidentiality of information that was obtained and the assurance phrase in the introductory letter and on the questionnaire. The researcher sought permission from the relevant authorities before carrying out the research. These included the Mount Kenya University, NACOSTI, and other areas or establishment under study or data collection. This assisted the researcher in assuring the organization being studied that the analysis was purely for educational purposes. The participants and /or respondents in the research study, were given adequate information about the study in order to build a sense of confidence and trust in the researcher and enhance sharing of their collected data and information through the questionnaires. This included information on the advantages and disadvantages of their participation in taking part in the research study and how the results were to be used. Moreover, the study was objective and therefore, there was no manipulation of data. The information of the participants was strictly confidential unless otherwise agreed upon through a consent obtained from the respondents in writing.

CHAPTER FOUR

RESEARCH FINDINGS AND DISCUSSION

4.1 Introduction

This fourth chapter offered the research study results based on the objectives and the research questions presented to the respondents that formed the study population. It analyzed the study responses, and specific variables and estimated their relationship, findings, and discussions. Inferential analysis was performed on specific variables. The chapter indicated the relationship of the study variables in the regression model. Lastly, there was interpretation of the analyzed results.

4.2 Response Rate

The study targeted 114 respondents working at Kenya Power within Nairobi City County, Kenya. The respondents were the employees involved at various stages of project management processes in the company's various branches within Nairobi City County. The research questionnaires were administered directly to employees/respondents in the parastatal as of April 2023. This section presented the informed and identified characteristics of the respondent's response rates in a summary obtainable in Table 3

It is important to note that from a total of 114 questionnaires were disseminated, 93 were correctly filled and returned constituting a 79% response rate, being above the 50% statistical significance, according to Mugenda and Mugenda (2003). Additionally, according to Saunders et al., (2007), a 50% response rate was adequate, a 60% rate was good and a 70% and over response rate was considered very good. This was an indication that the response rate in this study was considered to be very good and that the respondents were a good representative of the target population under study.

Table 3 Frequency percent

Items	**Number**	**Percentage**
Questionnaires Returned and correctly filled	93	79
Questionnaires Not Returned	21	21
Total	**114**	**100**

Source: Author (2024)

Table 4 Sample size

Department	**Population**	**Percentage**
Customer Service and Marketing	6	6.45
Finance	7	7.53
Planning, Design, and Maintenance	31	33.33
Procurement, and Logistics	7	7.53
Projects and Construction	25	26.88
Property, Risk and Legal, Insurance	5	5.38
Safety, Health, and Environment	6	6.45
Wayleaves and Survey	6	6.45
Total,	**93**	**100**

Source: Researcher (2024)

4.3 Demographic Information of the Respondents

This particular section represented the respondent's demography.

4.3.1 Gender of Respondents

The results displayed in Table 5 show that 54.82% (51) of the respondents were male and 45.18% (42) were female. This was an indication that there were more male respondents than females who correctly filled out and returned the research questionnaires.

Table 5 Gender of respondents

Item	Population	Percentage
Males	51	54.82
Females	42	45.18
Total	**93**	**100**

Source: Author (2024)

4.3.2: Age of the Respondents

The study sought to establish the age of the respondents. Table 6 shows the responses.

Table 6 Age of the respondents

Item	Population	Percentage
30 years and below	17	18.28
31-40 years	40	43.01
41-50 years	30	32.26
Above 50 years	6	6.45
Total	**93**	**100**

Source: Author (2024)

From the table six, 18.28% (17) of the respondents were aged 30 years and below; 43.01% (40) of the respondents were aged between 31 - 40 years old; 32.26% (30) of the respondents were aged 41-50 years while 6.45% (6) were above 50 years. The age

distribution of the respondents revealed different levels of job experience in their respective functional areas.

4.3.3: Education level

The table 7 indicates the education levels attained by respondents.

Table 7 Education level

Item	Population	Percentage
Postgraduate	10	10.75
Undergraduate	36	38.71
College diploma	37	39.79
Certificate	10	10.75
Total	**93**	**100**

Source: Author (2024)

From the table seven, 39.79% (37) of the respondents were College diploma holders; 38.71% (36) were undergraduate holders and 10.75% (10) of the respondents were each postgraduate and certificate holder respectively. The education level distribution of the respondents revealed different levels of job experience in their respective functional areas.

4.3.4 Working Duration at Kenya Power

Table 8 indicates the working duration at Kenya Power by respondents.

Table 8 Working duration

Item	Population	Percentage

1 year and below	15	16.13
2-5 years	18	19.36
6-10 years	25	26.88
Above 10 years	35	37.63
Total	**93**	**100**

Source: Author (2024)

From the table eight, 37.63% (35) of the respondents had worked for over 10 years; 26.88% (25) had worked between 6-10 years; 19.36% (18) of the respondents had worked between 2-5 years while 16.13% (15) of the respondents had worked for 1 year or less. The working duration distribution of the respondents revealed different levels of job experience in their respective functional areas.

4.3.5: Position in the organization

Table 9 indicates the position in the organization by respondents.

Table 9 Organization Position

Item	Population	Percentage
Top management	0	0.00
Middle level	48	41.61
Supervisory level	45	48.39
Total	**93**	**100**

Source: Author (2024)

4.4 Responses on Independent Variables: Specific Variables

This part summarized the responses that were received about each of the three independent variables and the dependent variable.

4.4.1 Resource Capacity

The researcher sought to find out the relationship between resource capacity and project performance. The findings are reported in Table 10.

Table 10 Resource capacity

Statement	Mean	StDev	CV
Materials such as cables and energy meters procured are of high quality	3.753	2.121	0.400
Materials such as cables and energy meters procured are of high quality	3.441	1.414	0.411
Materials such as cables and energy meters procured are of high quality	3.409	1.414	0.415
Training and educational programs are sufficient enough to improve the knowledge and skills of the project leader and the team.	3.323	1.414	0.426
Duties are allocated promptly to the project teams and all members are aware of their specific duties.	3.785	0.707	0.187
Periodic evaluations are conducted to ensure that the project remains within the budget.	3.624	0.707	0.195
Processing and analyzing project data can only be done promptly			

	3.527	1.414	0.401
by using technology.			
The company has adequate funding to carry out project activities	3.086	1.414	0.458
There is enough equipment to enable the company to carry on with project activities	2.925	1.414	0.484
The funding level is adequate for the company's activities	3.054	1.414	0.463
The company has enough employees with adequate project management knowledge and skills	2.806	2.121	0.756
The company has a capacity that is built on project funding	3.333	1.414	0.424

Source: Author (2024)

The research study results revealed that the duties were allocated promptly to the project teams and that all the members were aware of their specific duties as well as the materials such as cables and energy meters procured were of high quality highly affecting Resource planning and performance of power distribution projects by Kenya Power within Nairobi City County. This was an indication by **3.785** and **3.753** respectively. The study also revealed that the company had enough employees who had adequate project management knowledge and the skills to moderately affect Resource planning and performance of power distribution projects by Kenya Power within Nairobi City County. This was expressed by a **mean of 2.806** and a **coefficient of variance of 0.756**.

4.4.2 Resource allocation

The researcher sought to investigate the relationship between resource allocation and project performance. The research findings were reported in Table 11.

Table 11 Resource allocation

Statement	MeanStDev	CV
There are established resource allocation plans that guide resource allocations toward the execution of power distribution projects in the county.	3.591 1.414	0.394
There are established structures that have been laid down to guide the entire resource allocation process in the execution of power distribution projects in the county	3.505 1.414	0.403
There is always adequate and efficient allocation of resources needed in implementing power distribution projects in the county.	3.280 2.121	0.647
There is always stability in resource allocations as planned for all project activities throughout the entire duration of the projects in the county.	3.247 0.707	0.218
There is a timely allocation of resources needed in implementing power distribution projects in the county.	3.000 1.414	0.471

Source: Author (2024)

The research study results revealed that there were established resource allocation plans that guide resource allocations towards the execution of power distribution projects in Nairobi City County and that there were established structures that were already laid down to guide the entire resource allocation process in the execution of power distribution projects in Nairobi City County that highly affected Resource planning and performance of power distribution projects by Kenya Power within the County as displayed by a **mean of 3.591 and 3.505** respectively. The study also revealed that there was always adequate

and efficient allocation of resources that were needed in implementing power distribution projects in the county moderately affecting Resource planning and performance of power distribution projects by Kenya Power within Nairobi

City County as expressed by a higher than the rest, **coefficient of variance of 0.647.**

4.4.3 Team Work Management

The researcher sought to investigate the relationship between teamwork management and the project performance. The research findings were reported in Table 12:

Table 12 Teamwork management

Statement	**Mean**	**tDev**	**CV**
The teams in the projects act cohesively with a high level of cooperation	3.839	2.828	0.737
Team trust has led to working towards common goals	3.817	2.121	0.556
Trust has made team members work as a unit through motivation and high team spirit	3.774	2.121	0.562
Trust allows team members to make decisions and resolve problems that arise during project execution	3.796	2.828	0.745
There is mutual support from supervisors and top management	3.484	0.707	0.203
The competency of project leaders translates to project success	3.624	0.707	0.195
Participative leadership provides for early detection of problems, which ultimately leads to project success	3.710	0.707	0.191

Team members value their diversities and appreciate each other's professionalism	3.796	2.121	0.559
There is cohesion and unity among team members during the execution of project activities	3.882	2.828	0.729
Team members willingly make sacrifices in their time to ensure the project is completed on time.	3.871	2.828	0.731
There is good motivation of team members to boost team spirit and project performance	3.237	0.707	0.218
There is always a gratitude and appreciation to every team member after an achievement	3.151	2.121	0.673
Higher salaries and other benefits are used to motivate teams; as a way to achieve good project performance	2.484	0.707	0.285
Being a team player gives leverage in promotion and future engagements	2.935	0.707	0.241
Reward and recognition structure in projects takes recognition of team effort and individual performance.	2.914	0.707	0.243

Source: Author (2024)

The research study results revealed that there is cohesion and unity among the team members during the execution of project activities and that the teams in the projects acted cohesively with a high level of cooperation highly affecting Resource planning and performance of power distribution projects by Kenya Power within Nairobi City County which was displayed by **means of 3.882 and 3.839 respectively**. The study also revealed that the effect of higher salaries and other benefits were used to motivate teams; as a way

to achieve good project performance lightly affected Resource planning and performance of power distribution projects by Kenya Power within Nairobi City County which was conveyed by a **mean of 2.484**.

4.5 The Dependent Variable; Project performance

The project performance was studied as the dependent variable. The research study responses that were acknowledged by the respondents relative to this variable are summarized in Table 13:

Table 13 Project performance

Statement	Mean	StDev	CV
Adherence to project budgets during the implementation of power distribution projects.	3.624	1.732	0.478
Successful completion of power distribution on time.	3.140	0.577	0.184
Adherence to set quality standards and power distribution project specifications	3.742	2.121	0.567
Satisfaction with the power distribution projects among the residents in Nairobi City County	3.495	2.121	0.607
Power distribution projects have directly benefited the intended users.	3.602	1.414	0.393

Source: Author (2024)

The research study results revealed that adherence to set quality standards and power distribution project specifications and Adherence to power distribution project sustainability highly affected Resource planning and performance of power distribution projects by Kenya Power company within Nairobi City County which was displayed by

means of **3.742 and 3.634 respectively.** The study also revealed that successful completion of power distribution on time, lightly affects Resource planning and performance of power distribution projects by Kenya Power within Nairobi City County that was indicated by a **mean of 3.140.**

A multiple regression model was conducted to determine the exact relationship between the independent variables of Resource capacity, Resource Allocation, and Teamwork management against the dependent variable, Project performance. The collected data was run through SPSS and Microsoft Excel which eventually generated a statistical model referred to as a Multiple Regression Model and whose formula is as follows:

$$\mathbf{Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon.}$$

Where: Y = Performance of Power Distribution projects

$\mathbf{X_1}$ = Resource Capacity

$\mathbf{X_2}$= Resource Allocation

$\mathbf{X_3}$ = Team Work Management

$\boldsymbol{\varepsilon}$ = error term, $\boldsymbol{\beta_0}$

= Constant

$\boldsymbol{\beta_1, \beta_2, \beta_3, \beta_4}$ = Regression coefficients.

Table 14 Model summary

Regression Statistics	
Multiple R	0.749364669
R Square	0.561547407

Adjusted R Square	0.546768106
Standard Error	3.212455754
Observations	93
Indicators	Resource capacity, and Resource allocation, teamwork management

Source: Author (2024)

The model summary indicated that a value of **54.7%** of the variations in the performance of power distribution projects within Kenya Power in Nairobi City county were attributed to Resource Capacity, Resource Allocation, and teamwork management. The remainder of **46.3%** was an indication that could be attributed to other unexplained factors of this study research.

4.6 Inferential Statistics

Inferential statistics were used in research projects or papers to aid in or to make assumptions or deductions on an all-inclusive population through considering merely a sample of the population. This normally implied that the observable statistics derivative from the study samples populations, were to be used to interpret whether or not the populations were truthfully dissimilar thus arriving at conclusion or judgement from premises or evidence and not to prove (American Heritage Dictionary). Correlation essentially referred to the mutual association between two or more sets of data. Through engagement in statistics, bivariate data or two random variables are used to find the correlation between them. The Correlation coefficient is generally defined or interpreted as the extent of connection between the bivariate data which primarily signifies how much

two random variables are connected with each other. This was further implied that when *the correlation coefficient was 0, the bivariate data was said to be* ***not correlated*** *with each other. When the correlation coefficient was* ***-1 or +1****, the bivariate data was said to be* ***strongly correlated*** *with each other (****r = -1*** *denotes a* ***strong negative relationship*** *and* ***r = 1*** *denotes* ***strong positive relationship).***

$$R = \frac{n(\sum x_i y_i) - (\sum x_i)(\sum y_i)}{\sqrt{(n\sum x_i^2 - \sum x_i 2)(n\sum y_{2i} - (\sum y_i)2)}}$$

where, ***r*** *: Correlation coefficient*

x_i *: Values of the variable x.*

y_i *: Values of the variable y.*

n*: Number of samples taken in the data set.*

Numerator*: Covariance of x and y.*

Denominator*: Product of Standard Deviation of x and Standard Deviation of y.*

Averages for both dependent and independent variables were used to work out the Correlation coefficient as tabulated below

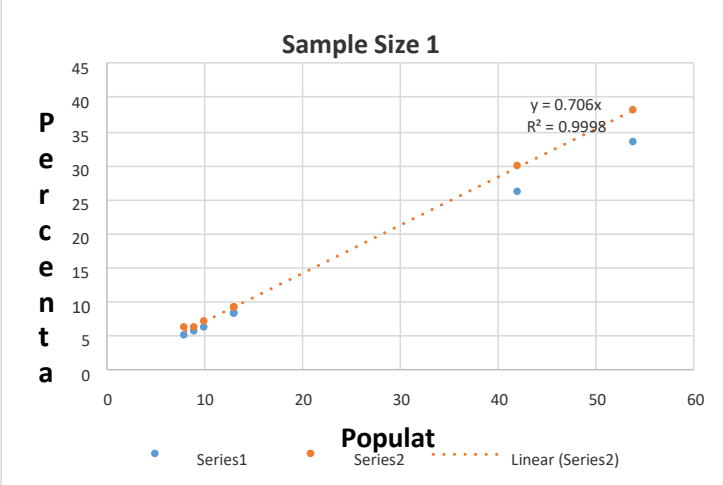


Figure 3 *Organization Position 1*

Source: Author (2024)

Table 15 Dependent and Independent variables correlation values 1

Correlation Co-eficicients	
XY1	**0.5095321**
XY2	**0.5944448**
XY3	**0.4460561**

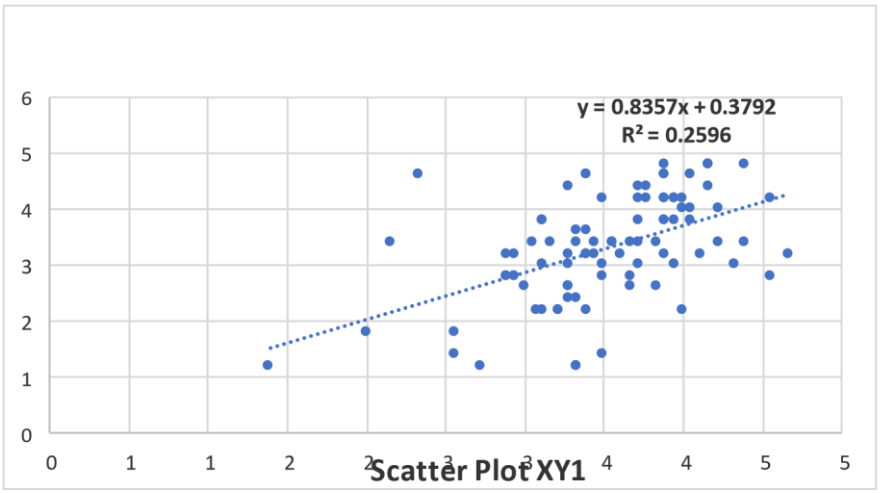
X and Y1 has Positive correlation coefficient.

X and Y2 has positive correlation coefficient.

X and Y3 has positive correlation coefficient

Source: Author (2024)

The scatter plot's main resolve was to demonstrate how variations in the independent variable transformed the dependent variable.

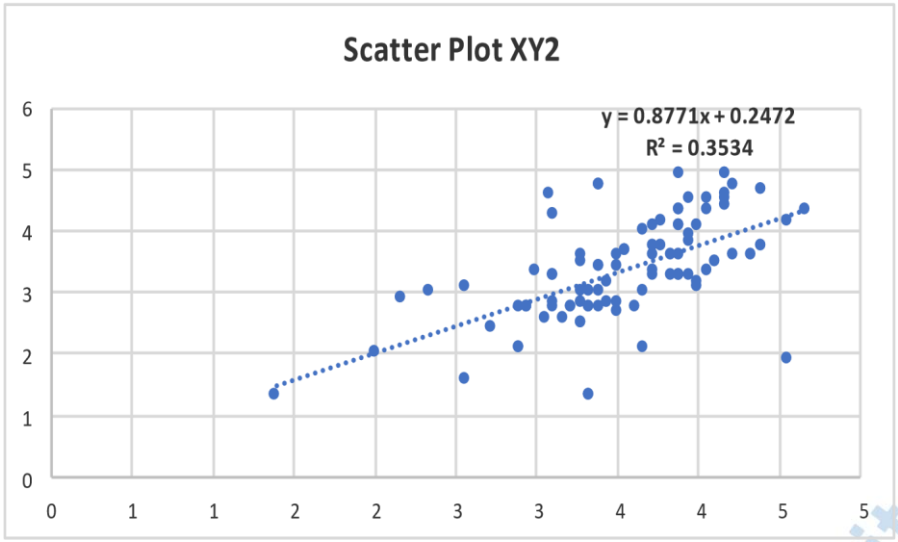


Whereas y = 0.8357x + 0.3792 is the line equation and R² = 0.2596 is the regression value

Figure 4 *Project Performance, (X) and Resource Allocation, (Y1) Scatter plot*

Source: Author (2024)

The scatter plot of this project data indicated a positive correlation between the Project performance (X) variable and the Resource allocation (Y1) as was portrayed by the same directional move during plotting. This was also supported by the impression that as the dependent variable, Project performance (X-values) increased (moved right), the independent variable, Resource allocation (Y-values) also increased (moved up) and that the variables were also falling along the regression line equation which is **y = 0.8357x + 0.3792 and R² = 0.2596 is the regression value**



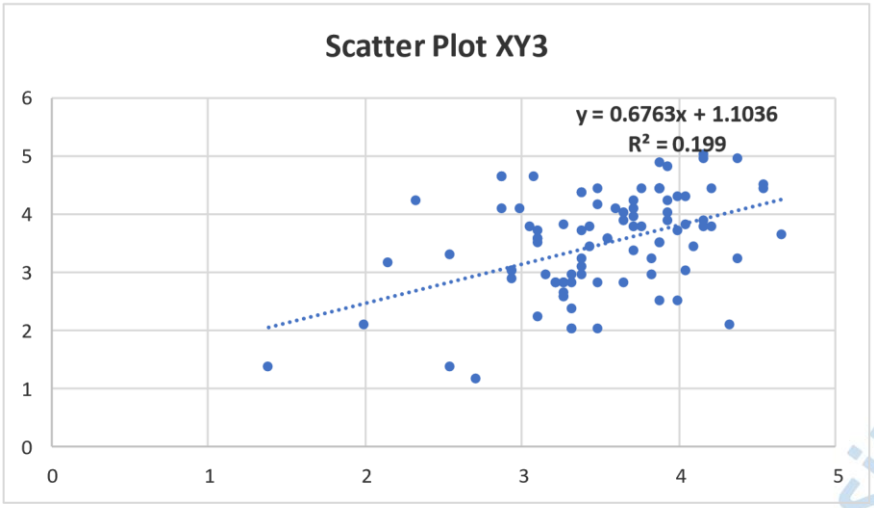
Whereas y = 0.8771x + 0.2472 is the line equation and R^2 = 0.3534 is the regression value

Figure 5 *Project Performance, (X) and Resource Capacity, (Y2) Scatter plot*

Source: Author (2024)

The scatter plot of this project data indicated a positive correlation between the Project performance (X) variable and the Resource capacity (Y2) seen through the same directional move during plotting. This was also supported by the imprint on the dependent variable, Project performance (X-values) that increased (moved right), the independent variable, Resource capacity (Y-values) also increased (moved up) and that the variables were falling along the regression line whose equation was

$y = 0.8771x + 0.2472$ and $R^2 = 0.3534$ is the regression value



Whereas y = 0.6763x + 1.1036 is the line equation and R² = 0.199 is the regression value

Figure 6 *Project Performance, (X) and Teamwork Management, (Y3) Scatter plot*

Source: Author (2024)

The scatter plot of this project data implied a **positive correlation** between the Project performance (X) variable and the Teamwork management (Y3) this was portrayed by the same directional move during plotting. This was also supported by the imprint on the dependent variable, Project performance (X-values) that increased (moved right), the independent variable, Teamwork management (Y-values) also increased (moved up), and that the plotted variables were falling along the regression line equation which was **y = 0.6763x + 1.1036 and R² = 0.199 is the regression value**

4.7 Summary of One-way ANOVA results

Table 16 ANOVA results

	df	*SS*	*MS*	*F*	*Significance F*
Regression	3	1176.327094	392.109	37.99553	6.67112E-16
Residual	89	918.4686053	10.31987		

Total	92	2094.795699	

Source: Author (2024)

The summary of the analysis of variance was that the regression relationship was highly significant since the **p-value = 0.000196356 <0.05** and **f calculated = 37.996<F** this indicated that *the regression relationship could be used to predict* how the performance of power distribution projects within Kenya Power in Nairobi City County involvement of resource capacity, resource allocation, and teamwork management justifying the researcher need to carry out this research study.

Table 17 Regression coefficients

	Coefficients	**Standard error**	**t Stat**	**Pvalue**	**Lower 95%**	**Upper 95%**	**Lower 95.0%**	**Upper 95.0%**
Intercept	5.8439	1.5041	3.8851	0.0002	2.8551	8.8326	2.8551	8.8326
X1 Resource Capacity	0.1349	0.0549	2.4582	0.0159	0.0286	0.2440	0.0286	0.2440
X2 Resource Allocation	0.2373	0.1255	1.8912	0.0619	-0.0120	0.4867	-0.0120	0.4867
X3 Teamwork Management	0.1155	0.0384	3.0103	0.0034	0.0392	0.1917	0.0392	0.1917

Source: Author (2024)

As per the statistical table generated by MS Excel above, the equation

($Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + Ɛ$.) becomes

$Y = 5.844 + 0.135X1 + 0.237 X2 + 0.116X3 + Ɛ$.

This multiple regression model implied that a unit change in 1.000 resource capacity value led to a 0.135-unit increase in the performance of power distribution projects. A 1,000-unit increase in resource allocation value led to a 0.237-unit increase in the performance of power distribution projects. A 1,000-unit increase in teamwork management led to a 0.116-unit increase in the performance of power distribution projects. The Regression Coefficients table 17 also indicated that there was *a highly significant relationship* **(with t static p-value between 0.01590 < 0.05)** between the independent variable, resource capacity, and dependent variable, performance of power distribution projects. In addition, there was an indication that there was a highly significant relationship **(with t static p-value between 0.0034< 0.05)** between teamwork management and the performance of power distribution projects. Lastly, there seemed to be a less significant relationship **(with t static p-value between 0.062> 0.05)** between resource capacity and performance of power distribution. The implication from this study results is that the multiple regression model of the variable Resource Capacity and Teamwork Management had a high positive influence on the project performance of power distribution, unlike Resource Allocation's influence on the project performance of power distribution projects outcome.

CHAPTER FIVE

SUMMARY OF FINDINGS AND RECOMMENDATIONS

5.1 Introduction

This chapter represents the deliberations on key data findings, conclusions that were drawn, and the recommendations thereafter. The discussions, conclusions, and recommendations were focused on the three research objectives in the research study. They were: to determine the influence of resource capacity; the effect of resource allocation and the influence of teamwork on the performance of power distribution projects by Kenya Power within Nairobi City County. The research study was undertaken at Kenya Power branches within key departments that oversaw major operations within Nairobi City County.

5.2 Summary of Findings

The study sought to establish the influence of resource planning on the performance of power distribution projects of Kenya Power within Nairobi County.

In this section, a summary of findings tracked the order of research objectives and the research data that was presented in the fourth chapter.

5.2.1 The Influence of Resource Capacity

The research study sought to find out from the respondents what various resource capacity statements related to the performance of power distribution. Their responses translated that they agreed to a great extent with the statements as the highest percentage value was **75.69892** and the lowest was **56.129** indicating that more than half **(50%)** of the study population was in agreement with the statements (an above-average figure).

Therefore, a higher proportion of respondents indicated that bottleneck resources, sequenced delivery, and generic roles of resource capacity had a greater influence on the performance of

Power Distribution Projects by Kenya Power within Nairobi City County. It was imperative to note that, the **majority of the respondents agreed** with the following statements on resource capacity; Materials such as cables and energy meters procured were of high quality; Duties were allocated promptly to the project teams and all members were aware of their specific duties in addition, Periodic evaluations were conducted to ensure that the project remains within the budget. The respondent **agreed to some extent** being neutral with the following statements; Training and educational programs were sufficient enough to improve the knowledge and skills of the project leader and the team; Processing and analyzing project data could only be done promptly through use of technology; The company had adequate funding to carry out project activities; Funding level was adequate for the company's activities; The company had capacity that was built on project funding. They however **disagreed to some extent** with the following statements; There was enough equipment to enable the company to carry on with the project activities and that the company had enough employees with adequate project management knowledge and skills. ***It was a finding from this research that the processing and analyzing of the projects' data could only be completed appropriately by engaging technology.***

5.2.3 The Effect of Resource Allocation

The research study sought to gauge the resource allocated in terms of established resource assignments, resource availability, and human skills as well as allocation plans, established structures, adequate and efficient resource allocation the stability of resource allocation, and prompt to run the distribution projects had a significant influence on the performance of power distribution projects with a percentage value for individual statements being a high of 71.8% and a low of 60%. The respondents **agreed strongly and agreed to** the following statements respectively; There are established resource allocation plans that guide resource allocations towards execution of power distribution projects in the county;

There are established structures that have been laid down to guide the entire resource allocation process in the execution of power distribution projects in the county; There was always adequate and efficient allocation of resources needed in implementing power distribution projects in the county; There was always stability in resource allocations as planned for all project activities throughout the entire duration of the projects in the county; There was timely allocation of resources needed in implementing power distribution projects in the county. However, the positive regression significance was not the case due to a higher p-value of **0.061851096>0.05** expected value for **positive significance**.

5.2.4 The Influence of Team Work Management

The research study sought to find out from the respondents what various teamwork management statements related to the performance of power distribution. Their responses translated that they **agreed to a great extent** with the statements as the highest percentage value was **75.69892** and the lowest was **56.129** indicating that more than half (50%) of the study population were in agreement with the statements, an above-average figure. Therefore, a higher proportion of respondents indicated that team cohesion, knowledge sharing, and collaboration had a greater influence on the performance of Power Distribution Projects by Kenya Power within Nairobi City County as indicated by a **p-value of 0.003395<0.05.**

5.3 Discussion Key of Findings

The research study findings were discussed by comparison to the reviewed literature in the second chapter of this study.

5.3.1 The Influence of Resource Capacity

It was important to recall that project planning defined all the stages of the project lifecycle, as outlined by the PMI (2013). It was principal to note that, in project planning, a project

manager or team leader, needed to factor in all the necessary components (resource capacity, the bottleneck resources, sequenced delivery, and generic roles included) to deliver the project in record time and with the available resources consequently affecting the overall project performance. ***According to Kerzner (2003), project planning involves pre-determining a specific course of action in a predictive environment.*** In addition, according to managementstudyguide.com, capacity is understood as an amount of the input resources available to produce relative output over some time. As a strategic process, resource capacity planning involved aligning the demands of the project with the available resources. The research study had discovered that increased resource capacity would boost the performance of power distribution projects. *The Pearson correlation analysis* discovered is that Project Performance was **positively correlated** with Resource Capacity with a **p-value of 0.01589989** being less than **0.05 value.**

5.3.2 The Effect of Resource Allocation

Project managers ought to gain a competitive advantage in effectively managing and utilizing the resources. The project managers based on the RBV theory, according to Almarri and Gardiner (2014), resource allocation was similarly significant for project managers since it enables them to spread out the available resources to align with strategy, determine the value of the resources, and determine the necessary competencies for the firm's success.

The study outcomes revealed that resource allocation had a is a slightly negative influence on the performance of power distribution projects as shown by a p-value of 0.061851096 thus indicating that *we could reject the null hypothesis*. In addition, changes in predictor values were not related to changes in the response variable to a large extent realized that

the key activities during execution had an impact on project outcome, *hence no significant influence on the performance of power distribution projects*.

5.3.4 The Influence of Team Work Management

The study results gave power to and were consistent with The Jay Galbraith Star team model that gives teamwork theory's stages, situations, and the environment meaning. The study found that knowledge sharing by various project stakeholders had a noteworthy positive effect on teamwork management performance, and that team cohesion had a substantial constructive effect on both team performance and knowledge sharing. The project or company workers with elevated team cohesion frequently displayed knowledge-sharing behaviors and brilliant team performance that resulted in better project performance. Project managers ought to had focus on team cohesion, knowledge sharing, and collaboration to deliver a project effectively and timely manner.

According to the model, effective team leadership was setting up the environment for team members to collaborate and share ideas to improve project performance. *This model/theory was more suited to direct this research since its essence is on qualities essential to managing teamwork*. To note is that there exists a positive significance of teamwork management on the performance of power distribution projects as indicated by a **p-value of 0.003395**

Consequently, project performance was greatly affected by these three interrelated elements which are *time, quality of project as well as project cost*. They form what is known as the Project Management Triangle. This denotes that any change in one element ultimately affected the other two. For one to reduce the project's completion time, as a project manager one had to upsurge the cost or the deliverables quality was condensed hence a need for proper balancing of all the elements was to be adhered to fully. A project manager ought to understand that

projects were multifaceted events that comprised several events hence carefully they were to understand the project dynamics to get a background for thoughtful and handling the numerous aspects that could influence project accomplishment.

5.4 Conclusions

The study will be expected to benefit Kenya Power by providing verifiable proof of the reasons why some projects were not finished by the anticipated performance requirements or deliverables. The project managers in many organizations will also benefit through the determination of the best course for enhancing project performance. The conclusions of the study will also be advantageous to other researchers by providing a source of verifiable secondary information.

Based on the research study findings foundations, various conclusions were arrived at recommending *the embracing and making use of current project management practices*. These outcomes decorated a picture of a remarkable link between the influence of resource planning on the performance of power distribution projects by Kenya Power within Nairobi City County and the project outcome of power distribution by Kenya Power Limited Company.

Additionally, from the study findings, it could be concluded that of the three independent variables, *Resource Allocation as part of resource planning influence, had the least influence on the performance of power distribution projects due to a higher* ***p-value of 0.061851096*** *whereas Resource Capacity with a value of* ***0.01589989*** *had the greatest stimulus as compared to Teamwork Management with a value of* ***0.003395232*** *respectively according to the regression model derived statistically.*

In conclusion, balancing time, cost, and quality was essential for successful project outcomes. By thoroughly understanding the Project Management Triangle and

implementing these strategies, one as a project manager or leader, could effectively manage projects and ensure they are completed or delivered on time, within the available set budget, and additionally meet the obligatory prominence standards that are acceptable by all the stakeholders participating in the implementation of the project.

5.5 Recommendations

This study makes the following recommendations or considerations

There is a need for effective application of project planning and initiation activities to all public sector projects. This is achievable by adopting and continuously enforcing project management best practices across the organizations along with emphasis being given to implementation events that will guarantee excellently accomplished plans to fully meet the set objectives.

Additionally, Kenya Power Company needs to embrace resource planning management practices by guaranteeing adequate resource capacity allocation and appropriate teamwork management to warrant greater satisfactory performance and timely delivery of power distribution projects.

Thorough consideration of all other crucial findings from the research study such as the effectiveness and efficiency of the process or the system approach to the performance of power distribution projects.

There is need for the introduction of effective monitoring and evaluation tools by the project managers or leaders; the training of staff and any other stakeholder on the use of the monitoring tools; the use of operative communication to convey necessary and motivate the staff in addition to better-quality reporting, and embracing proper documentation procedures and mechanisms to improve on the monitoring and control of the entire process.

The performance of the power distribution project evaluation should be from the customer acceptance and satisfaction perspective as the end user in addition to that of the business objectives of the organization.

5.6 Suggestions for Further Studies

The findings of this research study report, recommended carrying out further research in the neighboring Counties as the research study findings may possibly not only apply to Nairobi City County only in order to establish other underlying factors that attributed to 37% influence according to the regression model of the project outcome.

The research study moreover, to be done across all the government parastatals to give a glimpse of a broader generalization of the research outcomes.

The research study focused on the performance of Kenya Power Limited Company's power distribution process where the respondents were staff drawn from the company branches within Nairobi City County. The recommendation was that the topic can be investigated from the end user perspective who is the client or customer where clients institute the population sample.

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APPENDICES

Appendix I: Research tools

Dear Participant,

I invite you to participate in a research study entitled ***'RESOURCE PLANNING AND PERFORMANCE OF POWER DISTRIBUTION PROJECTS BY KENYA POWER WITHIN NAIROBI CITY COUNTY.'*** I am currently enrolled in the (**MASTER OF SCIENCE IN PROJECT MANAGEMENT AND PLANNING)** at Mount Kenya University and am in the process of writing my Master's project. The enclosed questionnaire has been designed to collect information on the ***'Influence of Resource Planning on Performance of Power Distribution Projects by Kenya Power Within Nairobi City County.'***

Your participation in this research project is completely voluntary. You may decline altogether, or leave blank any questions you don't wish to answer. There are no known risks to participation beyond those encountered in everyday life. Your responses will remain confidential and anonymous. Data from this research will be kept under lock and key and reported only as a collective combined total. No one other than the researchers will know your answers to this questionnaire. There are no direct benefits to you for participating in this research. However, you may find it interesting to talk about the issues addressed in the research and it may be beneficial to the field and to future clients or individuals who have experienced similar concerns.

If you agree to participate in this project, please answer the questions on the questionnaire as best you can. It should take approximately (10 min) to complete. Please return the questionnaire as soon as possible to enable me to complete the project report. Yours Faithfully

Anthony Richard Karani Gitari, GAH

Appendix II: Research Questionnaire

NB: Please respond by ticking your answer or writing as appropriate. Only one answer should be provided for each question.

Section A: Demographic Information 1. Gender

Male	□
Female	□

2. Age bracket

30 years & below	□
31- 40 years	□
41-50 years	□
Above 50 years	□

3. Education level

Postgraduate	□
Undergraduate	□
College Diploma	□
Certificate	□

4. Working Duration at Kenya Power

1 year and below	□
2-5 years	□
6-10 years	□
Above 10 years	□

5. Position in the organization

Top management	□
Middle level	□
Supervisory level	□

Section B: Resource Capacity

To what extent do you agree with the following statements on Resource Capacity? Kindly tick (√) appropriately. Use a scale of 1 to 5 where 5 = strongly agree 4= agree 3= Not sure 2= disagree 1 = strongly disagree

Statement	**5**	**4**	**3**	**2**	**1**
Materials such as cables and energy meters procured are of high quality					
Materials such as cables and energy meters procured are of high quality					
Materials such as cables and energy meters procured are of high quality					
Training and educational programs are sufficient enough to improve the knowledge and skills of the project leader and the team.					
Duties are allocated promptly to the project teams and all members are aware of their specific duties.					
Periodic evaluations are conducted to ensure that the project remains within the budget.					
Processing and analyzing project data can only be done promptly by using technology.					
The company has adequate funding to carry out project activities					
There is enough equipment to enable the company to carry on with project activities					
The funding level is adequate for the company's activities					
The company has enough employees with adequate project management knowledge and skills					
The company has a capacity that is built on project funding					

Section C: Resource Allocation

To what extent do you agree with the following statements on Resource Allocation?

Kindly tick (√) appropriately. Use a scale of 1 to 5 where 5 = strongly agree 4= agree 3=

Not sure 2= disagree 1 = strongly disagree

Statement	**5**	**4**	**3**	**2**	**1**
There are established resource allocation plans that guide resource allocations toward the execution of power distribution projects in the county.					
There are established structures that have been laid down to guide the entire resource allocation process in the execution of power distribution projects in the county					
There is always adequate and efficient allocation of resources needed in implementing power distribution projects in the county.					
Statement	**5**	**4**	**3**	**2**	**1**

There is always stability in resource allocations as planned for all project activities throughout the entire duration of the projects in the county.					
There is a timely allocation of resources needed in implementing power distribution projects in the county.					

Section D: Team Work Management

To what extent do you agree with the following statements on Team Work Management? Use a scale of 1 to 5 where 5 = strongly agree 4= agree 3= Not sure 2= disagree 1 = strongly disagree

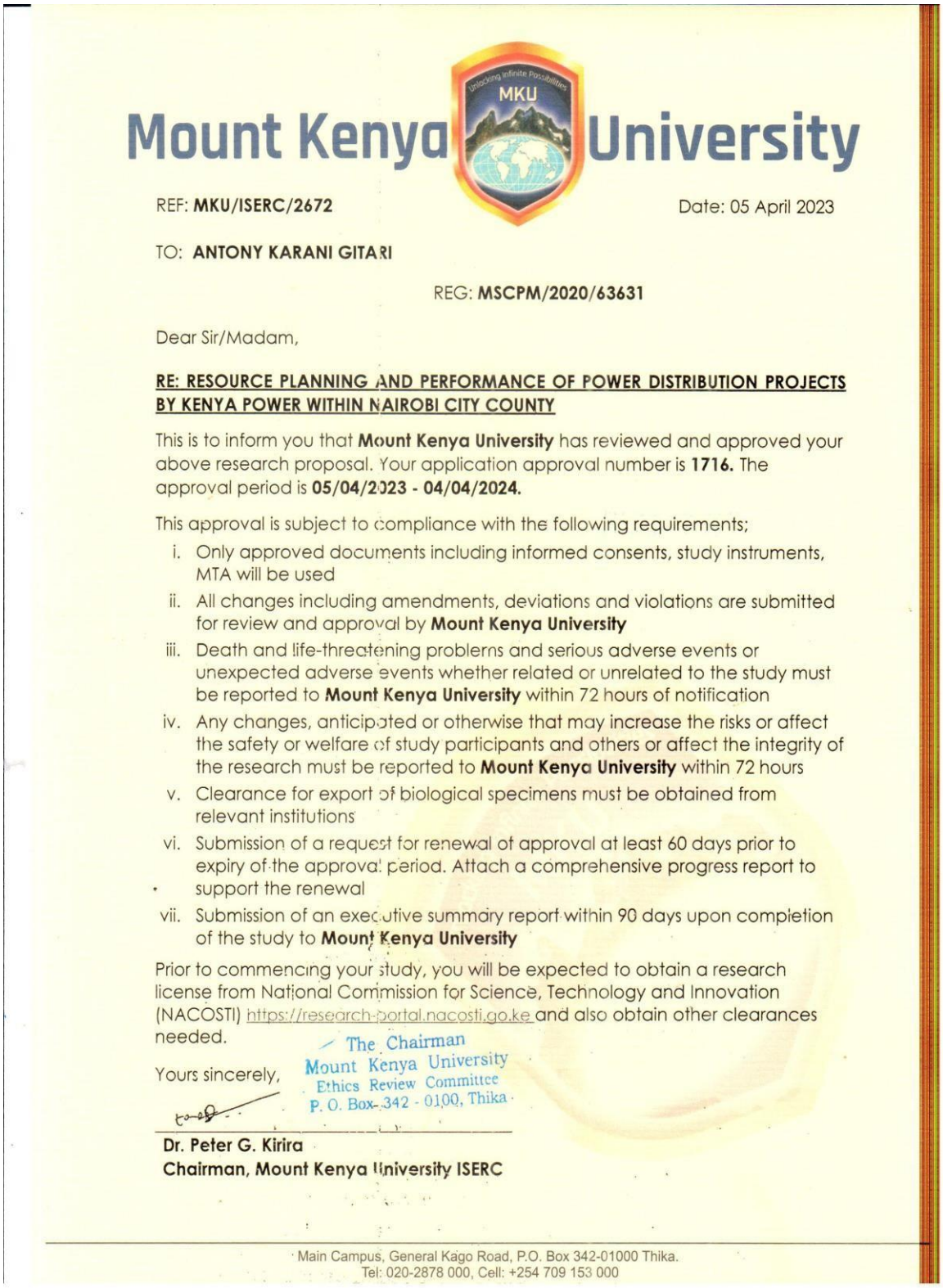
Statement	**5**	**4**	**3**	**2**	**1**
The teams in the projects act cohesively with high level of cooperation					
Team trust has led to working towards common goals					
Trust has made team members work as a unit through motivation and high team spirit					
Trust allows team members to make decisions and resolve problems that arise during project execution					
There is mutual support from supervisors and top management					
The competency of project leaders translates to projects success					
Participative leadership provides for the early detection of problems, which ultimately leads to project success					
Team members value their diversity and appreciate each other's professionalism					
There is cohesion and unity among team members during execution of project activities					
Team members willingly make sacrifices in their time to ensure the project is completed on time.					
There is good motivation of team members to boost the team spirit and project performance					
There is always a gratitude and appreciation to every team member after an achievement					
Higher salaries and other benefits are used to motivate teams; as a way to achieve good project performance					
Being a team player gives leverage in promotion and future engagements					
Reward and recognition structure in projects takes recognition of team effort and individual performance.					

Section E: Project Performance

To what extent do you agree with the following statements on Project Performance? Use a scale of 1 to 5 where 5 = strongly agree 4= agree 3= Not sure 2= disagree 1 = strongly disagree

Statement	**5**	**4**	**3**	**2**	**1**
Adherence to project budgets during the implementation of power distribution projects.					
Successful completion of power distribution on time.					
Adherence to set quality standards and power distribution project specifications					
Adherence to power distribution project sustainability					
Satisfaction with the power distribution projects among the residents in Nairobi City County					
Power distribution projects have directly benefited the intended users.					

Appendix II: ERC certificate



Mount Kenya University

REF: **MKU/ISERC/2672** Date: 05 April 2023

TO: **ANTONY KARANI GITARI**

REG: **MSCPM/2020/63631**

Dear Sir/Madam,

RE: RESOURCE PLANNING AND PERFORMANCE OF POWER DISTRIBUTION PROJECTS BY KENYA POWER WITHIN NAIROBI CITY COUNTY

This is to inform you that **Mount Kenya University** has reviewed and approved your above research proposal. Your application approval number is **1716.** The approval period is **05/04/2023 - 04/04/2024.**

This approval is subject to compliance with the following requirements;

i. Only approved documents including informed consents, study instruments, MTA will be used
ii. All changes including amendments, deviations and violations are submitted for review and approval by **Mount Kenya University**
iii. Death and life-threatening problems and serious adverse events or unexpected adverse events whether related or unrelated to the study must be reported to **Mount Kenya University** within 72 hours of notification
iv. Any changes, anticipated or otherwise that may increase the risks or affect the safety or welfare of study participants and others or affect the integrity of the research must be reported to **Mount Kenya University** within 72 hours
v. Clearance for export of biological specimens must be obtained from relevant institutions
vi. Submission of a request for renewal of approval at least 60 days prior to expiry of the approval period. Attach a comprehensive progress report to support the renewal
vii. Submission of an executive summary report within 90 days upon completion of the study to **Mount Kenya University**

Prior to commencing your study, you will be expected to obtain a research license from National Commission for Science, Technology and Innovation (NACOSTI) https://research-portal.nacosti.go.ke and also obtain other clearances needed.

Yours sincerely,

The Chairman
Mount Kenya University
Ethics Review Committee
P. O. Box 342 - 0100, Thika

Dr. Peter G. Kirira
Chairman, Mount Kenya University ISERC

Main Campus, General Kago Road, P.O. Box 342-01000 Thika.
Tel: 020-2878 000, Cell: +254 709 153 000

Appendix III: Introduction Letter from MKU

Mount Kenya University

DIRECTORATE OF GRADUATE STUDIES

MSCPM/2020/63631

20th April, 2023

National Commission for Science Technology & Innovation (NACOSTI)
Off Waiyaki, Upper Kabete
P.O Box 30623- 00100
NAIROBI, KENYA

Dear Sir/Madam

RE: ANTONY KARANI GITARI- REGISTRATION NO. MSCPM/2020/63631

The purpose of this letter is to introduce the above named student who is pursuing **Master of Science in Project Management and Planning** in the **Department of Management** in the **School of Business and Economics**

The title of the research is *"Resource Planning and Performance of Power Distribution Projects by Kenya Power within Nairobi City County."*

It has been cleared by the University's Ethics Review Committee (Certificate attached) and now has to proceed to the field to collect data between **April, 2023 and June, 2023.**

Any assistance accorded to the student will be highly appreciated.

Thank you.

Mount Kenya University
P. O. Box 342 - 01000, THIKA
Office of the Director
Graduate Studies

Dr. Samuel M. Karenga, Ph.D
Director, Graduate Studies
Enc.

Appendix IV: Nacosti Research License

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: **254784**

Date of Issue: **04/May/2023**

RESEARCH LICENSE

This is to Certify that Mr.. ANTHONY RICHARD KARANI GITARI of Mount Kenya University, 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: RESOURCE PLANNING AND PERFORMANCE OF POWER DISTRIBUTION PROJECTS BY KENYA POWER WITHIN NAIROBI CITY COUNTY for the period ending : 04/May/2024.

License No: **NACOSTI/P/23/25557**

254784

Applicant Identification Number

Director General
NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Verification QR Code

NOTE: This is a computer generated License. To verify the authenticity of this document, Scan the QR Code using QR scanner application.

See overleaf for conditions

Appendix V: Field entry / Research Authorization

Kenya Power

The Kenya Power & Lighting Co. Ltd.
Central Office – P.O. Box 30099 – 00100, Nairobi, Kenya.
Telephone – 254-02-3201000 – Telegrams 'ELECTRIC'
Fax No. 254-02-3514485
STIMA PLAZA, KOLOBOT ROAD

Our Ref: KP1/5C.1/6/EWO/eo

15th May 2023

TO WHOM IT MAY CONCERN

RE: RESEARCH APPROVAL –ANTHONY KARANI GITARI (REG NO. MSCPM/2020/63631)

The above named student from Mount Kenya University has been allowed to collect data for research project on **'Influence of Resource Planning on Performance of Power Distribution Projects by Kenya Power within Nairobi City County'.**

The data collection will be conducted between **16th May 2023** and **15th June 2023** within the Company.

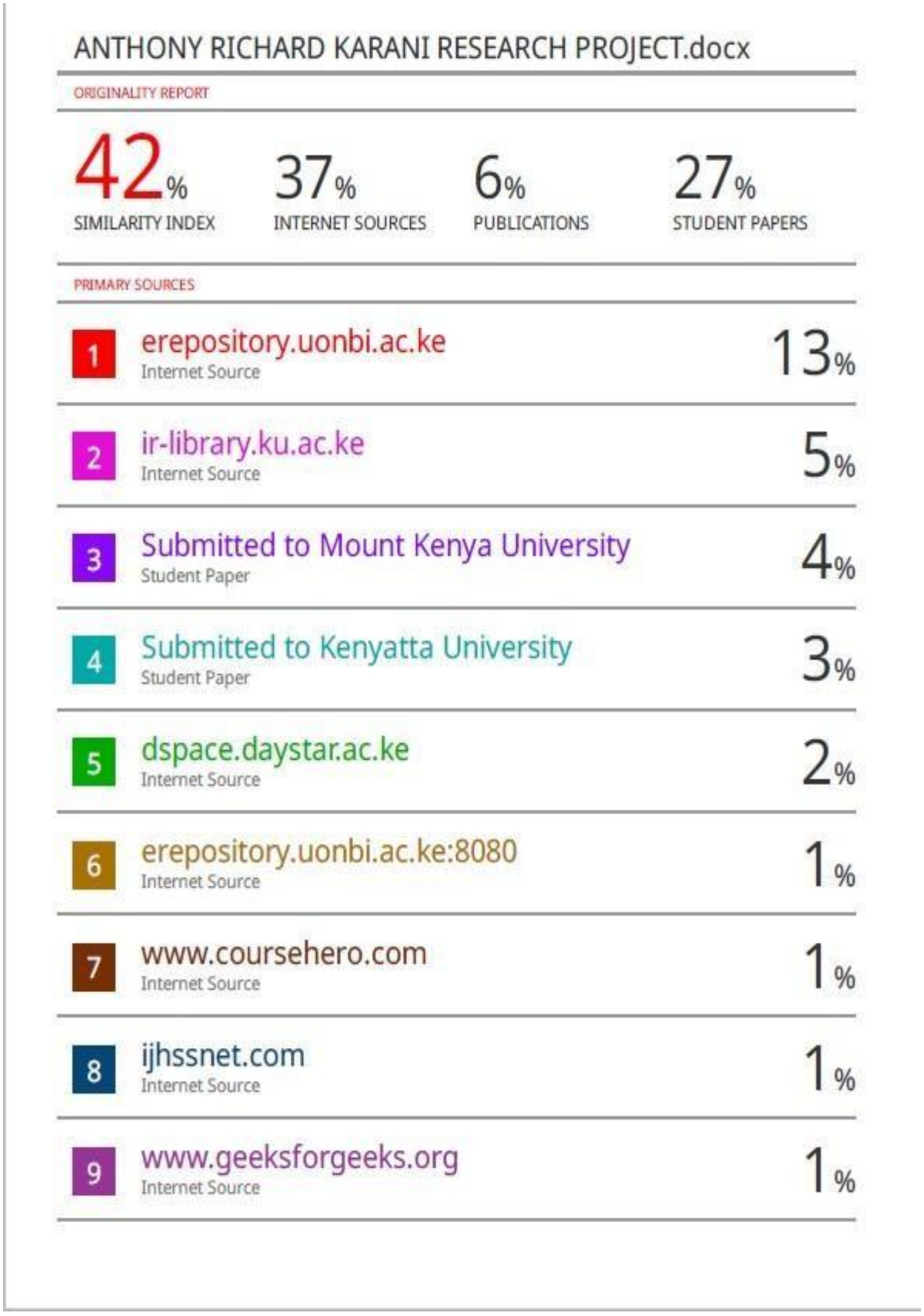
This is with the understanding that the student will exercise discretion in the use of company information and that this exercise will not disrupt normal working hours and Company's flow of work.

Yours faithfully,
For: **KENYA POWER & LIGHTING COMPANY PLC**

EDWARD W. ONONO
HUMAN RESOURCE OFFICER

THE KENYA POWER & LIGHTING COMPANY LIMITED
P. O. Box 30099 - 00100
NAIROBI

Appendix VI: Turnitin report



ANTHONY RICHARD KARANI RESEARCH PROJECT.docx

ORIGINALITY REPORT

42%	37%	6%	27%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

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3	Submitted to Mount Kenya University Student Paper	4%
4	Submitted to Kenyatta University Student Paper	3%
5	dspace.daystar.ac.ke Internet Source	2%
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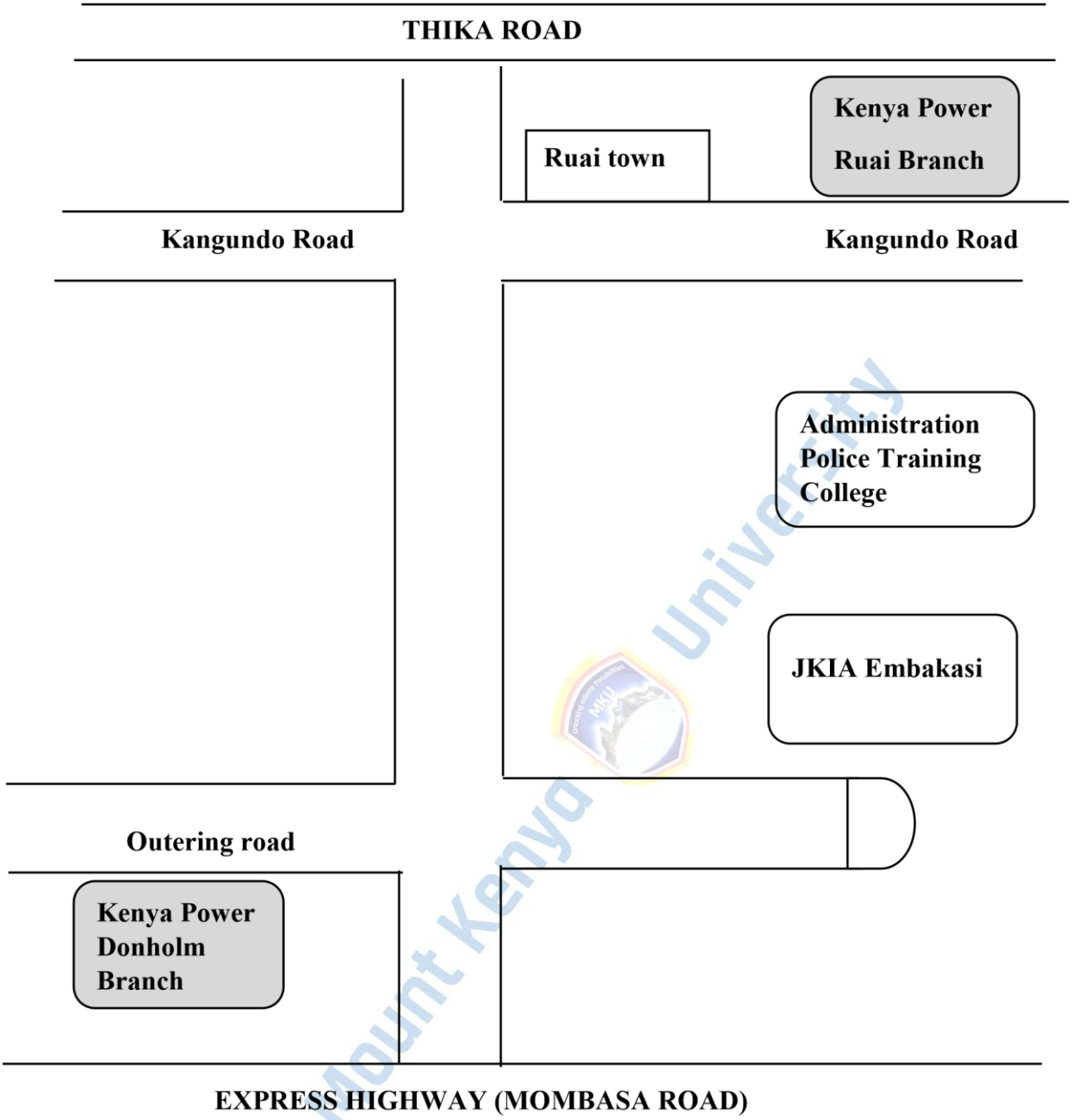
Appendix VII: Research site Map



B

Y

P

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S

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Key **(map not drawn to scale)**

Research area

Access road