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INFLUENCE OF PROJECT RISK MANAGEMENT ON PERFORMANCE OF AGRICULTURAL PROJECTS IN NAKURU COUNTY; KENYA

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ABSTRACT

This study sought to examine the influence of project risk management on performance of agricultural projects in Nakuru County. The study was guided by the following specific research objectives; to determine the influence of project risk identification practices on performance of agricultural projects in Nakuru County; to examine the influence of project risk assessment practices on performance of agricultural projects in Nakuru County. The theories that were used in this study are the Queuing theory and contingent theory. Descriptive research design was used to guide this study. The sample size composed of 116 agricultural projects drawn from the 11 sub-counties in Nakuru County. Respondents from each stratum were picked on a random basis using the simple random method in order to eliminate bias as the method gives each member a fair chance of selection. This study used Cronbach's Alpha coefficient to test the reliability of the research questionnaires. After data was collected from the field, the questionnaires were checked for completeness and hence calculate the response rate of the questionnaires. The data was coded and entered into statistical package for social sciences (SPSS) for analysis. Both descriptive and inferential statistics was used in meeting the study objectives. The entire data analysis was presented by the use of tables and pie charts. This study contributes to the world of literature in the subject of project management which was the basis of future researchers and academicians in this area. An excellent response rate of 93.97 percent was realized. It was established that most of the project risk management indicators have positive impact on performance of the agricultural projects. The study further adopted a regression analysis to determine the relationship between the variables at 5 percent confidence level of significance. The study findings showed that the variables had a significant influence on performance of the agricultural projects. The study recommended that a similar research should be conducted with an aim of investigating the determinates of project risk management on the performance of agricultural projects with other variables or of other firms in other sectors, including other counties in Kenya. The findings showed that 31.7 percent of the performance is explained by the four variables while 30.6 can be accounted by other factors captured by the standard error.

Key Words: *Project Risk Identification, Project Risk Assessment, Project Risk Management, Performance*

Background of the Study

Performance of agricultural projects is critical to project managers and other stakeholders (Yabi & Afari-Sefa, 2009). Project managers are appraised based on the performance of the agricultural project they manage (Ghani & Mahmood, 2015). Good performance is the main goal of any project. Performance of agricultural project refers to the success level of agricultural projects in achieving their objectives in an efficient, timely and cost effective, and sustainable manner (Theuvsen, 2013). It relates to the ability of an agricultural project to provide value for money in the investment. It may also be measured in terms of adherence to timelines of project deliverables, efficiency in utilization of project resources and stakeholder satisfaction through goal achievement (Nkirimpai, Magadi, & Koima, 2017). Agricultural projects on the other hand are temporary endeavors undertaken within the agricultural sector (Irungu& Makori, 2016).

However, agricultural projects face diverse risks across the world that necessitates risk management practices. In Germany, Broll, Welzel, & Wong (2013) indicate that agricultural projects face diverse risks due to challenges such as price volatility of inputs and outputs, challenges with climatic conditions, international trade dynamics, and dynamic conditions in food safety standards amongst others. In Chile, Toledo & Engler, (2011) indicated that agricultural project risks can be categorized into five components including productive risk, marketing risks, financial risks, human risks and environmental risks. These are the risks that are prevalent in those respective areas such as production, marketing, finances, human power and environmental considerations. Toledo & Engler, (2011) noted that amongst the risks associated with prices include product and direct cost variability aspects. The human risks aspects included challenges in sustainable labour and the necessary skills required for the laborers. In Laos, Ramkumar (2015) noted while discussing rice production projects that two risks aspects are prevalent when discussing agricultural projects; that is fragility of the production system and stakes involved in harvest aspects. In this context, (Ramkumar, n.d.) notes that fragility of the system refers to the susceptibility of the production systems to environmental variations while harvest stakes relates to the consequences of the low yield aspects.

According to Murtaja & Al-Wattar (2016) the concept of risk management first emerged around 2100 BC mainly dealing with ships that were lost with cargo while at sea. This system was later replaced with what was referred as the first age of risk management in the 1960s and 70s when insurance firms urged organizations to implement safety measures at workplaces to reduce potential insurance claims. Murtaja & Al-Wattar (2016) further notes that the second age of risk management emerged around the 1970s and 80s with the conceptualization of quality assurance mechanisms amongst firms on diverse components such products and processes. Finally, the third age of risk management started in 1995 with the emergence of the standard and universal risk management standards. These standards were conceptualized by standards Australia and Canada's standards and adopted worldwide (Murtaja & Al-Wattar, 2016).

To ensure that agricultural project deliver to meet its set objectives, proper project management is important. Project management refers to practice of initiating, planning,

executing, controlling, and closing the work of a team to achieve specific objectives over a specified period. It involves practices such as project risk identification practices, project risk assessment practices, project risk mitigation practices and project risk monitoring strategies. Risk identification refers to establishing the area with high risk and breaking down risk according to their magnitude assisted in project performance aspects (Nkirimpai, 2017). Risk assessment refers to the overall process or method of analyzing and evaluating the level of risk associated with that hazard (Wanyonyi, 2015). Risk mitigation on the other hand refers to practices to minimize risks. These measures may include ensuring that safety systems are available, using contingency plans and quality assurance measures (Nkirimpai, 2017). Risk monitoring refers to aspects such as regular reporting of risks to the management, continuous staff training on risk management, ensuring execution of risk plans, evaluation of effectiveness of risk plans, and monitoring of residual risks (Barare, 2014).

Focusing on European countries, Theuvsen (2013) noted that agricultural projects face diverse risks in those countries including inability of the sector to attract qualified labour, production related risks such as diseases outbreaks and pests, political risks such as agricultural policies changes, and market related risks such as price volatility aspects.

In Nepal, Asian Development Bank (ADB) (2017) found out that monitoring of risk on financial aspects improved performance of agricultural projects, financial monitoring such as tracking financial transactions, monitoring fund flow, compliance to procurement acts as well as adopting accounting practices that produces transaction trail. Agricultural projects in Nepal delayed in execution, had cost overruns while others completely failed.

Focusing on risk assessment in crop growing in Brazil, Havemen (2014) established that growing of beans, corn, rice, soy and wheat was faced by low yields, low market prices and high risks. Havemen (2014) further established that low yields and low profitability was as a result of poor risk evaluation and mitigation practices. Other risks that were found to affect Brazilian cash crop growing included production and yield risks, market and price risks, social and legal risks, human resource risks such as labor, contractors, and management team and also technological risks such as change and obsolescence.

The understanding of the concept of risk is critical in understanding risk management. In South Africa, Cass, (2009) indicated that various risks are prevalent within the context of maize farming. These risks include production risks, price risks, institutional risks, and human risks such as labour challenges. Madembu & Namusonge (2017) in Malaysia define risk as the uncertainty of outcomes in respect to a particular aspect. Mohammadreza, Arman, Alireza, & Seyedeh Zahra (2013) in Malaysia indicated that risk management involved the assessing, and controlling of risks that emerge during undertaking of diverse organizational activities.

Focusing on SMEs in Cameroon, Mamai & Yinghua (2017) indicates that risk management is the process through which organizations methodologically assess the inherent risks present in their activities while mitigating those risks and hence achieving sustainable and optimum benefits from their activities. Tabi (2016) indicated that the areas that were critical in risk identification in construction firms in Ghana included identifying the area with high risk and

breaking down risk according to their magnitude assisted in project performance aspects.In Rwanda, risk identification during the planning stages of the projects was noted to influence the project performance (Gitau, 2015). This is because the early identification of risks enables the project managers to factor their consequences into the project planning aspects.

Risk management is critical to the project performance aspects. According to Ogero (2014), risk management relates to the ability of the project to meet its objectives and diverse preset performance standards relating to time, quality, and cost efficiency amongst others. The risk management aspects have also been undertaken within the context of project undertaking. In this context, Musyoka (2012) notes that project risk management involves the identification, understanding, and addressing the potential unsatisfactory outcomes that are likely to influence the outcome of projects.

Diverse aspects have been used to measure project performance such as; meeting of project objectives, stakeholder satisfaction, and efficiency of resources utilization (Jumba, 2013); meeting budget constraints, timeliness, and quality aspects (Ogero, 2014); project relevance, effectiveness, influence, efficiency, and project sustainability (Mungai, 2014); and customer satisfaction, operations efficiency, and timeliness (Njogu, 2016). The risk management aspects that have been found to influence project performance include risk identification, risk assessment practices, risk mitigation, and risk monitoring aspects.

Risk assessment has diverse influences on the project performance aspects. Kinyua, Ogollah, & Mburu (2015) indicated that the risk assessment aspects influencing project performance included time availability for risk assessment, effective communication amongst team members on risk aspects, and assessment of the occurrence of diverse risks.

Nkirimpai (2017) indicated that the importance of risk assessments on project performance lay in threats identification, identification of potential dangers or losses, management evaluation of risks, and estimation of the likelihood of the project risks materializing.

The risk mitigation practices is critical pillar of project performance aspects. In this context, Wanyonyi (2015) indicated that amongst the aspects of risk mitigation that influences project performance include risk mitigation meetings, safety systems available, using contingency plans and quality assurance measures. Both Barare (2014) and Theuri (2014) indicated that risk mitigation practices that are of importance to project performance include risk avoidance, risk reduction, risk retention and risk transfer aspects.

The risk monitoring plays an important aspect on the project performance. Nkirimpai (2017) notes that risk monitoring aspects that are important to project performance include regular reporting of project risks to the management, continuous staff training on risk management, ensuring execution or risk plans, evaluation of effectiveness of risk plans, and monitoring of residual risks. Matere (2013) indicated that the risk monitoring aspects were important in detecting mistakes at early stages. These aspects lead to improvement in project performance.

Statement of the Problem

Agricultural projects play an increasingly important role in terms of employment, food security, wealth creation, and the development of innovation in an economy. It is the

backbone of nation's economy. According to the ministry of Agriculture (2018), 79.2% of all the projects implemented exhibited some degree of failure. For example in 2017, Cassava Value Chain Upgrading for secure food, nutrition, income and resilience of smallholder farmers in the ASALs of Nakuru County (CVCU) was started but two years down the line, this project is yet to be accomplished. Another project was that of Enhancing Access to High Quality Seed Potato for Improved Productivity and Income of Smallholder Farmers in Nakuru County (HQSPIPI) which was initiated in 2017 but till date, the farmers are yet to benefit from the project.

The fact that 70% of Nakuru County land is highly agriculturally productive means that adopting good agricultural projects can transform agriculture into profitable and commercially oriented enterprise (Nakuru County government, 2020). However that is not the case. The findings of study done by (Kenya Agricultural Research Institute, 2015) on an assessment of agricultural projects showed that only five out of thirty six project in Nakuru County were active, representing a mere 14% success rate. According to a research conducted by Havemen (2017), the increasing project failure in agricultural sector is attributed to inadequate risk management among others. Some sources of risk in the agricultural industry are changes in the weather and the incidence of pests and diseases (Havemen, 2014).

Despite agricultural projects being risky venture, they are potentially profitable situations and therefore needs to be managed as carefully as possible. Good risk management involves anticipating potential problems and planning to reduce their detrimental effects (Hezell, 2017). Inspite of its manifest importance, risk management in agriculture is an under-researched topic. Although a number of scholars have explored project risk management in projects, as yet, there does not appear to be any study that has considered the influence of project risk management on performance of agricultural projects. Ngugi and Mwangi (2018) studied the Risk Management Practices and Performance of Construction Projects in Nairobi City County Government, Kenya. Kahungura (2017) sought to establish the influence of project management practices on the performance of mobile money transfer in Kenya, a case of Orange Money. Musyoka (2010) looked at the project risk management practices and success of capital projects in Kenya. According to the above there is no study that delves the influence of project risk management on performance of agricultural projects in Nakuru County, Kenya; this study there sought to fill this gap.

Objectives of the Study

(i) To assess the influence of project risk identification practices on performance of agricultural projects in Nakuru County, Kenya
(ii) To examine the influence of project risk assessment practices on performance of agricultural projects in Nakuru County, Kenya

LITERATURE REVIEW

Theoretical Review

Queuing Theory

Queuing theory has its origins in research by Agner Krarup Erlang in 1909. This is a mathematical study of waiting lines or queues. The theory enables mathematical analysis of several related processes, including arriving at the back of the queue, waiting in queue (a storage process) and being served in front of the queue (Xie, Cao & Ong, 2016). The theory permits the derivation and calculation of several performance measures including the average waiting time in the queue or the system, the expected number waiting or receiving service, and the probability of encountering the system in certain states such as empty, full, having an available server or having to wait a certain time to be served (Iman & Borimnejad, 2017).

The existing methodologies to independently optimize facilities layout design and material handling systems are mainly based on minimizing the costs (Hill, 2014). This is despite the fact that the inherent variability causes an accumulation of work- in- progress at the various stages of production which eventually affects competing strategies of an enterprise such as time, cost and quality. Therefore, an integrated methodology that incorporates the manufacturing variability and concurrently optimizes the layout designs and materials handling is essential (Xie, Huang & Ong, 2016).

Queuing model can be utilized to model the planning system variations, identifying risks and genetic algorithm can be implemented to solve the integrated optimization problem. It is also demonstrated that the proposed optimization approach can significantly improve a production system with respect to total travelling time, total work-in-progress in the system, utilization and quantity of material handling equipment and required area. In this study, the queuing theory is used to explain the association between project risk identification and the performance of agricultural projects.

Contingency Theory.

The theory was instituted by Lawrence and Lorsch in 1967 who set up that the adjustments in the outer condition that in all respects has enormous effect on the performance of associations. The contingency theory indicates that there is no single way to organize and lead a corporation or make management decisions in relations to the corporation. The theory notes that the optimum course of action depends on the internal and external situation (Ghani & Mahmood, 2015). These internal and external environments do present certain risks to the organizations that must be mitigated. The internal environment present risks emanating from inside the institution such as challenges with employees, challenges in internal operational environment, and challenges with information technology systems amongst other aspects (Tadayon, Jaafar, & Nasri, 2012).

The external environment present challenges such as political challenges, regulatory environment, and market environment amongst other challenges. According to the theory, the main response an organization should take towards both external and internal challenges is to mitigate risks without necessary emphasizing on how to do it (Theuri, 2014). Contingency

theory guided the current study concerning the influence of risk mitigation on project performance such as agricultural projects.

Conceptual Framework

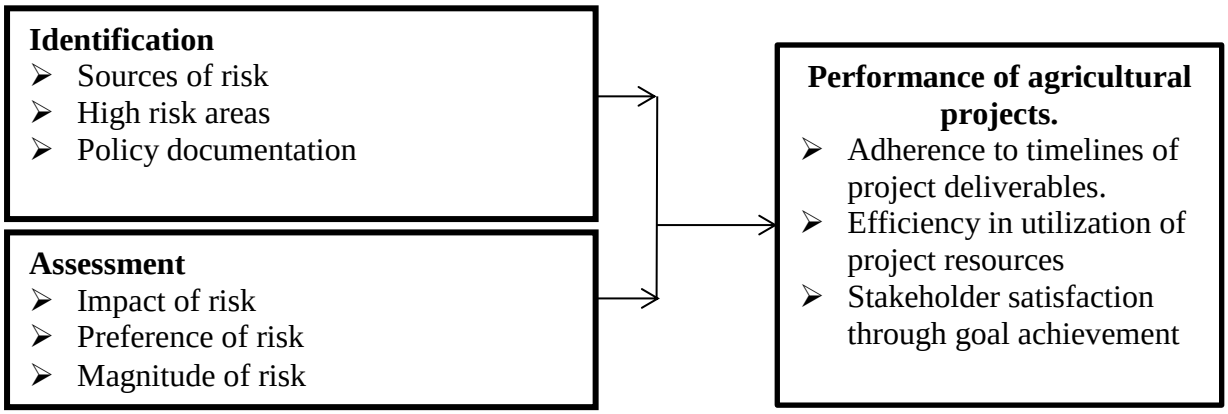

Figure 1: Conceptual Framework

Risk Identification Practices and Project Performance

Risk identification is very crucial in project planning and may determine the level of project performance. The risk identification was conceptualized by Matere (2016) as ranking of risks according to their severity. According to Musyoka (2012), it entails the use of various techniques to gain an understanding and determine potential unsatisfactory outcomes that have the likelihood of affecting the project. In this context, risk identification has been noted to ensure that there is effective risk management and forms a basis for its analysis and control (Gitau, 2015). Among the risks that have been noted in construction projects include poor scope definition, poor budget estimates and incomplete information pertaining to the projects. According to Gitau (2015), risk identification in the construction projects is done during the planning stages of the construction projects. Tabi (2016) noted that risk identification is usually done before the construction projects are undertaken. The procedures used in risk identification include meetings with project managers and stakeholders, identifying the area with high risk, breaking down risk according to their magnitude and putting across ways to mitigate the risks.

Various aspects of risk identification have been noted to influence financial performance of projects. These include incorporation of internal auditors, external auditors, senior employees and middle and lower level employees in the consideration of a range of risks affecting the project from both internal and external sources (Matere, 2016). The level of involvement of auditors in identification of risk in the agricultural projects can therefore be used to predict the performance of these projects.

Identification of unproductive farm departments or activities that do not improve the agricultural yield can also influence the performance the projects. Failure to establish these unproductive farm departments or activities may result to risk on the performance of the agricultural projects. Timely identification of these issues leads to timely corrective

measures. However, there must be mechanisms put in place to evaluate the performance of different departments and individuals in execution of agricultural projects (Barare, 2014).

The budget estimates have also been noted to influence project performance (Gitau, 2015). Involvement of professionals in the budget development process ensures that the anticipated budget is sufficient and feasible for completion of various works of the projects. Having correct budget estimates also ensures that there are favorable relations between the contractors, consultants and the project managers thus unnecessary delays in the project progress or incomplete projects due to poor financial schedules are minimized. When the budget estimates are correctly done, funds are available during the full project implementation phase, which ensures that the project is completed in a timely manner and improves the project's performance.

The ability of project managers to break down risk according to level of severity can greatly influence the performance of the project (Matere, 2016). The severity of risk can be identified through risk analysis. The analysis assists the project managers to develop risk management strategies by sorting the risks according to their importance, which aids in the efficient allocation of resources. It also enables the projects to focus on the low frequency and high severity risk.

The identification of high-risk areas is another aspect that has been noted to assist in project performance aspects (Tabi, 2016).The breakdown of risks according to their magnitude can be done by determining the numerous impacts that could possibly be brought by the risk. This ensures that the risks are regulated by putting across ways to mitigate the risks as well as ways to reduce the period of effect and financial intensity on the project should the risk occur. This ensures that there is successful delivery of the project.

Risk Assessment Practices and Project Performance

The risk assessment has also been noted to influence project performance in diverse ways. The risk assessment has been conceptualized in terms of identification of threats, identification of potential damage or loss, and management's evaluation of the risks. Aspects of risk assessment that have been found to influence project performance include time availability for risk assessment, effective communication amongst team members on risk aspects, and assessment of the occurrence of diverse risks (Kinyua, Ogollah, & Mburu (2015). Other aspects include identification of potential dangers or losses, management evaluation of risks, and estimated of the likelihood of the project risks materializing (Nkirimpai, 2017).

An assessment of the likelihood of occurrence of risks by project managers can be used to predict the performance of the project (Kinyua, Ogollah, &Mburu (2015). For this to done, project managers need to have a deep understanding of the business environment. The risks that might occur include budget risks and uncertainties like market changes, weather changes, and governmental changes. The risk evaluation enables the projects to correctly understand and manage the current and future risk exposure by identifying the risks to be mitigated. The project performance is therefore maximized and project success is achieved.

Effective communication amongst team members on risk aspects is also used as a measure of risk assessment (Kinyua, Ogollah, & Mburu, 2015).The goal of risk communication is to ensure that all team members have a common understanding of the processes and assumptions used in risk assessment. In this context, understanding the information should allow team members to make an informed decision on the appropriate risk management actions to take when they identify a risk and about how their decision impacts the agricultural project.

Risk assessment can also be measured in terms of professional help to assess risk potentials of the project (Kaliti, 2015). In this context, project managers may seek assistance from agricultural professionals to evaluate the expected loss in the event that a risk occurs. The professionals are also able to quantify loss potential of various actions they might take thus help the agricultural projects in project planning aspects.

Another aspect that can affect the performance of an agricultural project is setting time to evaluate the risks that are involved different phases of project execution. If the management team sets time to evaluate the various risks that may be involved in different phases of project implementation, the agricultural project is likely to perform better. Calculating the amount of risk when the risk occurs may also affect the level of performance of the projects. Timely and accurate calculation of the risk may inform on the correct measures to take to mitigate the risks and therefore affect the performance of the project.

Project performance

Performance of the project is considered as a source of worry to both open and private segment customers, it remains a noticeable issue in extend conveyance everywhere throughout the world (Njogu, 2016). The failure of any project is primarily identified with the issues and disappointment of the project administration. Viable administration of undertakings is probably going to be effectively overseeing communications to meet customer, client and other partner necessities (Upagade et al, 2012).

According to Odipo (2013), the relationship between project managers and project clients within a project can be the main attributing factor to success or failure, thus the overall project performance. Hence high quality relationship between project stakeholders will in a great way positively impact the performance of a project. PPE parameters are correspondence, time, cost, quality, wellbeing, claims and issues determination, condition, contract relations (ibid). Elisante (2012) reports that while no contention exists amongst performance and results pointers, and keeping in mind that powerful observing and assessment project management frameworks fundamentally track both–no bringing together standards apply to guarantee their synchronicity either.

Empirical Review

This section reviews relevant literature from past studies in order to identify research gaps that this current study sought to fill. This section is guided by the research objectives.

Risk Identification and Project Performance

Gitau (2015) carried out a study to examine the effects of risk management at planning phase of construction projects in Rwanda. The study used both descriptive and explanatory research designs. A sample size of 161 employees of construction projects and 10 construction professionals was used. Questionnaires and face to face interviews were used to collect data. The study found out that 92.5% of respondents agreed that there was risk identification during the planning stages of the construction projects.

From Ghana, Tabi (2016) carried out a study on risk identification and analysis in construction firms in Ghana. The study used both qualitative and quantitative approach to obtain its data from a sample of 55 respondents. The study used questionnaires that were both open and closed. The study found out that 96.15% of the respondents indicated that risk identification was a major consideration before carrying out the construction projects.

Risk Assessment and Project Performance

Kinyua, Ogollah, and Mburu (2015) examined the role of project risk assessment in relations to project performance with a focus on Information and Communication Technology projects amongst small and medium ICT enterprises in Nairobi. The study was based on descriptive research design and a sample size of 48 respondents that were purposively chosen. Using regression analysis, the study found that a unit increase in project risk assessment will lead to 0.883 increase in project performance due to a beta coefficient of 0.883. This result was found to be statistically significant at 5% level of significance due to a p value of 0.03.

Kaliti (2015) undertook a study that amongst other aspects examined the role of risk assessment on the performance of firms within hospitality industry. The study utilized a descriptive survey research design and a sample size of 73 tour operators that were purposively chosen for the study. Structured questionnaires were administered for the purposes of data collection. Using quality as the proxy for performance, the study found that risk assessment was positively and significantly correlated to the quality aspects at a correlation of 0.7612. Using regression analysis, the study found that a unit increase in risk assessment led to 0.035 increase in project quality due to a regression coefficient of 0.035. These results were significant at 5% level of significance to a p value of less than 5%.

RESEARCH METHODOLOGY

Descriptive research design was used to guide this study. Descriptive research design is methodological framework that gives in-depth details about a phenomenon under investigation in its natural setting (Orodho& Kombo, 2002). The target population for this study was 219 agricultural projects distributed across the 11 sub-counties in Nakuru County, Kenya.

According to Cochran's sample size formula From the target population of 219, a sample of 116 projects were selected. This proposed study utilizes structured questionnaires to obtain data for the study. The pilot study was carried out in 11 agricultural projects as per the recommendation of Orodho (2003) that the sample size for a pilot study should be equivalent to 10% of the sample size for the actual study.

The researcher coded and enter the data into statistical package for social sciences (SPSS) version 22 for analysis. Both descriptive and inferential statistics was used in meeting the study objectives. Inferential statistics was used to show the relationship between independent variable and dependent variable of the study. In this respect, multiple regression analysis was used.

RESEARCH FINDING

A total number of 116 questionnaires were administered and a total of 109 questionnaires were returned for analysis. This indicated a 93.97% response rate which according to Mugenda and Mugenda (2013), is excellent and sufficient for analysis.

Descriptive Analysis

Project Risk Identification

The respondents were asked to indicate the extent to which they agree with the following statements relating to project risk identification on a scale of 1-5, where 1 represents Strongly Disagree (SD=1), Disagree (D=2), Neutral (N=3), Agree (A=4), and Strongly Agree (SA=5). The results were presented in Table 1.

From the findings, majority of the respondents were moderate that the unproductive departments (or farming methods, or employees etc.) in the agricultural project are always identified as indicated by a mean of 3.25 and a standard deviation of 1.090. The respondents agreed on the statement that budget estimates for the agricultural projects are thoroughly scrutinized to identify any risk that may occur as shown by a mean of 3.69 and a standard deviation of 0.983. From the study, the respondents were in agreement with the statement the project managers always break down risk according to level of severity with a mean of 3.95 and a standard deviation of 0.843. The respondents strongly agreed that Auditors are always involved in identification of risk in the agricultural project as indicated by mean of 4.87 and standard deviation of 0.740. Concisely, majority of the respondents agreed that the there is constant identification of areas of high risk in the agricultural project with a mean of 3.79 and a standard deviation of 0.926. The risk identification was conceptualised by Matere (2016) as ranking of risks according to their severity. The study findings are tandem to that of Musyoka (2012), who suggest that the use of various techniques to gain an understanding and determine potential unsatisfactory outcomes that have the likelihood of affecting the project. In this context, risk identification has been noted to ensure that there is effective risk management and forms a basis for its analysis and control (Gitau, 2015).

Table 1: Descriptive analysis for Risk Identification Practices

Item	Mean	SD dev
The unproductive departments (or farming methods, or employees etc.) in the agricultural project are always identified	3.25	1.090
Budget estimates for the agricultural projects are thoroughly scrutinized to identify any risk that may occur.	3.69	.983
The project managers always break down risk according to level of severity	3.95	.843
Auditors are always involved in identification of risk in the agricultural project	4.87	.740

There is constant identification of areas of high risk in the agricultural project	3.79	.926

Risk Assessment

The respondents were asked to indicate the extent to which they agree with the following statements relating to the risk assessment on a scale of 1-5, where 1 represents Strongly Disagree (SD=1), Disagree (D=2), Neutral (N=3), Agree (A=4), and Strongly Agree (SA=5). The results were presented in Table 2.

From the findings, majority of the respondents agreed the project managers always assess the likelihood of occurrence of risks as shown by a mean of 3.55 and a standard deviation of 0.700. The respondents were in agreement with the statement that there is effective communication amongst team members on risk aspects of the agricultural project with a mean of 3.74 and a standard deviation of 0.736. The respondents were in agreement on the statement that the project managers frequently seek assistance from agricultural professionals to assess risk potentials of the project as shown by a mean of 3.82 and standard deviation of 0.832. The respondents were in agreement on the statement that the project always sets time for risk assessment in the agricultural project.by mean of 3.93 and a standard deviation of 0.710. Conclusively, the respondents agreed on the statement that once a risk occurs, the magnitude of loss caused is immediately calculated as shown by mean value of 3.85 and standard deviation of 0.775. In conclusion, the respondents neither agreed nor disagreed on the statement that the top management has the required knowledge for implementing a government funded electrification projects. This finding relates to that of Kinyua, Ogollah, and Mburu, (2015).Aspects of risk assessment that have been found to influence project performance include time availability for risk assessment, effective communication amongst team members on risk aspects, and assessment of the occurrence of diverse risks.

Table 2: Descriptive analysis for Risk Assessment

Item	mean	SD dev
The project managers always assess the likelihood of occurrence of risks.	3.55	.700
There is effective communication amongst team members on risk aspects of the agricultural project.	3.74	.736
The project managers frequently seek assistance from agricultural professionals to assess risk potentials of the project.	3.82	.832
The project always sets time for risk assessment in the agricultural project.	3.93	.710
Once a risk occurs, the magnitude of loss caused is immediately calculated.	3.85	.775

Inferential Statistics

These are the statistics used by the researcher to test the hypotheses about the independent and the dependent variables of the study.

Correlation Analysis

This section of the study sought to establish the significance, direction and strength of the linear relationship between performances of agricultural projects in Nakuru County that is the dependent variable and project risk identification, risk assessment, project risk mitigation and

project risk monitoring which are the independent variables. This was achieved through performing a Pearson's correlation analysis. Pearson's correlation values range from −1 to 1. -1 indicates a perfect negative relationship, 0 indicates that there is no relationship between the variables while +1 indicates a perfect positive relationship. Again an absolute Pearson's correlation value of 0.5 indicates a strong linear relationship between the variables while a value below 0.5 indicates a weak linear relationship. The sign of the Pearson's correlation coefficient value indicates the direction of the relationship. Finally, the resultant p-value less than 0.05 at 95% confidence level indicate that the linear relationship between variables of interest is statistically significant. Therefore, Pearson's correlation analysis was performed in this study and the findings were presented in Table 3.

The results in Table 3 indicated that typically, there was a strong positive significant linear relationship project identification and performance of agricultural projects, $r = 0.696$; $p = < 0.0001$. Risk identification is very crucial in project planning and may determine the level of project performance. The risk identification was conceptualised by Matere (2016) as ranking of risks according to their severity. According to Musyoka (2017), it entails the use of various techniques to gain an understanding and determine potential unsatisfactory outcomes that have the likelihood of affecting the project. In this context, risk identification has been noted to ensure that there is effective risk management and forms a basis for its analysis and control (Gitau, 2015).

The results indicated a strong positive linear relationship between performance agricultural projects in Nakuru Projects and risk assessment, $r = 0.635$; $p = < 0.0001$.The use of IT in project assessment improves better coordination and communication among project teams and participants. It increases the speed of communication and decreases documentation errors. Stake (2015) research on a budgeting process in a Korean company identifies (a) differences in budget estimations between the field and office (b) Incorrect calculations (c) Insufficient budget tracking are few of the reason related

Table 3: Correlation Analysis

		Performance of project	Risk identification	Risk assessment
Performance of projects	Pearson Correlation	1		
	Sig. (2-tailed)			
	N	109		
Risk identification	Pearson Correlation	.696**	1	
	Sig. (2-tailed)	.000		
	N	109	109	
Risk assessment	Pearson Correlation	.635**	.675**	1
	Sig. (2-tailed)	.000	.000	
	N	109	109	109

Regression analysis

A multiple linear regression analysis was performed with performance of agricultural projects as the dependent variable, and risk identification, risk assessment, risk mitigation and project risk monitoring as the independent variables. This aimed at establishing a linear relationship between the dependent variable and the independent variables. The results were presented in Tables 4, 5 and 6. Table 4 shows a model summary table which was used to test for the goodness of fit of the model.

The results in Table 4 shows that the independent variables explained 69.4% of the variation in performance of agricultural projects as indicated by a coefficient of determination (R^2) value of 0.683. Analysis of Variance was also performed to test for the significance of the whole model. The results were presented in Table 4.8. The results in Table 4.9 revealed that the model significantly predicted performance of the real agricultural projects, F=56.302; p= <0.0001.

Table 4: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.827[a]	.683	.657	.19043

Table 5: ANOVA (Analysis of Variance)

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	3.761	4	.940	56.302	.000[b]
	Residual	1.741	104	.0167		
	Total	5.501	108			

Table 6: Model Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	.016	.456		.034	.973
Risk identification	.343	.123	.374	2.789	.004
Risk assessment	.631	.190	.584	3.317	.001
a. Dependent Variable: Y					

Where, Y= Performance of agricultural projects, X1= risk identification; X2= risk assessment;

The results in Table 6 revealed that risk identification, risk assessment, significantly predicted performance of agricultural projects at 5% level of significance. This was indicated by significant p-values (p= 0.004, 0.002 respectively).

The model from Table 6 was as follows:

$$\mathbf{Y = 0.016 + 0.631\ X_2 + \ 0.343\ X_1}$$

Where **Y** = Performance of agricultural projects, X2 = risk assessment, $\mathbf{X_1}$ = risk identification.

Conclusion

First, in regard to risk identification, the regression coefficients of the study show that it has a significant influence on performance of agricultural projects. This implies that increasing levels of risk identification by a unit would increase the levels of performance of agricultural projects. This shows that risk identification has a positive influence on performance of agricultural projects.

Second in regard to risk assessment, the regression coefficients of the study show that it has a significant influence on performance of agricultural projects. This implies that increasing levels of risk assessment by a unit would increase the levels of performance of agricultural projects. This shows that risk assessment has a positive influence on performance of agricultural projects.

Recommendations

This study recommends the inclusion of risk management plan in the design of all Agricultural Projects. In addition, the study recommends close working relationship between the Project and Risk Management team. Furthermore, the study recommends that there should be continuous and regular trainings to improve project managers' skills and competencies around risk management. Further, both the private and public institutions within the agricultural sector should provide adequate and relevant training to project managers and team members who wish to further their education to improve their skills to enable them to identify potential risks at early stages. In addition, career advancement should be based on the requisite skills in project management especially certification with Project Management practitioners body.

The study found that Risk Assessment influences performance of agricultural projects. This study therefore recommends that all institutions within the agricultural sector, both private and public should adopt technology as a strategy for risk assessment. In addition, the study recommends training programs on technology related to risk assessment and that bidders for projects with relevant ICT and other technological skills be accorded preferential advantage in the agricultural works.

Areas for Further Research

Further research should be done in other sectors or any other county. Besides, a review of literature indicated that there has been limited amount of research on project risk management on the performance of agricultural projects in Kenya. Thus, the findings of this study serve as a basis for future studies on agricultural projects. Future research may be designed to compare the findings in this study with findings that relate to firms in other regions in Kenya and other countries using different variables. Concisely, the findings showed that 68.3 % of the agricultural projects performance is explained by the four variables while 31.7 can be accounted by other factors captured by the standard error**.**

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