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INFLUENCE OF RISK IDENTIFICATION ON PERFORMANCE OF AGRICULTURAL PROJECTS IN AHERO IRRIGATION SCHEME, KENYA

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Abstract: **An economy's ability to create jobs, ensure food security, generate wealth, and foster innovation is dependent on agricultural projects. Due to the numerous obstacles these projects must overcome and as a result, many projects fall short of their potential and do not perform as anticipated, and as a result, their contribution to the national economy is still comparatively small. Therefore, this study aimed at determining the effect of risk identification on performance of agricultural projects in Ahero irrigation scheme, Kenya. This study employed descriptive research design. This study was conducted in agricultural projects in Ahero irrigation scheme. The respondents were the project managers of the scheme. Project managers of the Ahero irrigation scheme that participated in study was selected through simple random sampling method. Data was collected using questionnaires. Quantitative data was analysed using descriptive statistics. The study also used inferential statistics to determine the influence of one variable to the other. The study examined that risk identification had a positive and significant influence on the performance of agricultural project in Ahero irrigation scheme in Kenya. The study concluded that risk identification is a continuous process that lasts the duration of the project. The study recommended that the project managers should conduct brainstorming sessions with the project team, analyze documents and historical flowcharts, assess risk lists, consider lessons learned from previous projects, and create risk checklists with risk categories and risks.**

Keywords: **Project Risk Identification, Project Performance.**

1. INTRODUCTION

Performance measurement is a great way to evaluate project performance and help organizations understand past project performance and failures, and use this information to plan for future improvements and improvements (Hwang, Tan & Sathish, 2015). In addition, project performance measurement plays an important role in enabling organizations to make comparisons. Based on the comparison of project performance, new plans can be created to reduce project duration, reduce project costs, and meet project scope. Dai and Wells (2017) state that in order to measure projects correctly, it is essential to classify them according to common project needs and characteristics and to enhance project performance.

According to Kerr (2018), the primary objective of any project is to achieve good results, and the success of an agricultural project is determined by its ability to achieve its objectives efficiently, on time, in a cost-effective manner, and in a sustainable manner. According to Oladele (2019), the objective of the agricultural project is to provide value for money (VFM) for the investment. Value for money is measured by the satisfaction of stakeholders through the achievement of objectives, compliance with project deliverable schedules, and efficient use of resources. For this reason, the success of agricultural projects should be a top priority for project managers and stakeholders.

Raymond and Syed, (2019) note that while Pakistan's water resource group of projects has achieved good results, there are major challenges in the reform process, and the transition to farmer-led irrigation and drainage management, which will affect the long-term sustainability and viability of the irrigation and drainage system. Similarly, Ahmed, Iftikhar and Chaudhry (2020) the main challenges were: lack of sustainability of developed infrastructure and institutions, lack of economic performance and lack of effective implementation due to startup delays. In addition, there has been a lack of consistent support across subsectors. For example, all subsectors need more stakeholder engagement to build synergies, and more sector-specific analysis is needed to support the logic behind different approaches.

Agricultural programs fund the majority of agricultural activities in Malawi. There are many government and developer funded projects that prioritize various important sectors. Most of these projects focus on raising revenue to reduce poverty. (Magomero & Park, 2016). However, according to a report by Chirwa, Kumwenda, Jumbe, and Chilonda (2018), Agricultural development policies and structural reforms have had little effect on economic growth, and poverty among the population is on the rise, with a large share of the population comprised of smallholder farmers who farm on less than one hectare.

The strategy to revitalize agriculture has highlighted the role of agricultural projects in combating poverty among rural households. One of the barriers to agricultural farm productivity in Kenya is that agricultural project practices are becoming less effective (Simiyu, 2018). According to Wangeci (2020), farmers can gain knowledge through agricultural projects, such as agricultural management, marketing strategies, new seed varieties, and crop price trends. The purpose of exposing farmers to these activities is to enhance their ability to make optimal use of their resources. As a result, if these projects are properly designed and executed, agricultural productivity will.

Project performance is the ability of a project to meet predetermined goals and objectives (Kotnour, 2017). Project performance measurement is the measurement of the effectiveness and efficiency of an action, according to Neely, Gregory, And Platts (2020). Performance is the outcome of an action. Performance is measured by measures. Project performance is the extent to which a significantly completed project meets its predetermined goals, objectives, and targets as a whole.

Project managers use project performance measurement data to control the project. In order to effectively manage the current project's performance, these controls need to be appropriate for the level of the organization that can quickly implement changes based on the information it learns (Dainty, Cheng & Moore, 2016). Grau, Back, and Prince (2019) claim that once identified, the performance enhancing elements are useful diagnostic tools to correct deviations by incorporating detection capabilities and enhance project performance and deliverables.

Project risk management involves plan development, risk identification, risk analysis, risk mitigation, and project risk control. The reality is that the risk management process needs to be well-planned in order to be effective (Project Management Institute [PMI], 2014). Risk management activities have a relationship to one another in some way or another and therefore need to be well-coordinated in order to be successful (Bakker et al., 2012). Agricultural project risks can be classified as market risks, production risks, financial risks or institution risks (OECD, 2016). Market risks are related to demand fluctuations and input prices versus outputs. Production risks are related to natural events such as droughts and farmer capacity. Risks classified as financial exposures include interest rate risk, currency risk, loss risk and liquidity dimensions. Institutional risks refer to changes in the political environment, agricultural policy and government decisions affecting farmers (OECD, 2016).

The role of context, risk identification, risk assessment, risk treatment, risk monitoring, and risk communication in risk management. This involves the systematic implementation of management policies, processes and procedures (Cooper, 2015). This is the foundation of understanding and managing risks within a project. To achieve optimal risk management performance, it is essential to understand and manage risks within a project and to gain greater control over the whole project, Smith, Merna, and Jobbling (2016) in a different perspective it means that risk management procedures should be continually refined throughout the life of the project.

Project risks must also be identified. Project risks are defined and their characteristics are documented. There are several steps involved in risk identification, including document review, data collection, checklists, hypothesis testing and analysis of strengths, weaknesses, opportunities and threats (SWOT) (PMI, 2013). According to Ernst & Young (2000, cited in Molnar, 2017), the main factors that can affect planting time, yield and quality of crops in agriculture are drought, economic collapse, government decision, flood, fire, disease, insufficient inputs. , input costs increase and often mechanical failure. Other factors include the deterioration of the economy and the loss of property, as well as the collapse of farm families. Molnar (2018) states that commodity prices pose a major risk to Australian agriculture.

Boonjing and Pimchangthong (2017) noted that risk identification for farm projects is an important element in the proper management of risks. This will improve the efficiency of the projects by reducing overall costs, which includes reducing future losses and damages. In addition, new agricultural investors will have a better understanding of the risks faced by farmers (Yeboah, Feng, Daniel & Joseph, 2015). Agricultural projects are designed to meet the needs of consumers and increase profitability, which is why you need to look for financing and capital. The sources of funding chosen for a project should reflect the risk exposures and therefore policies regarding finance should reflect the enterprise's risk exposures and mitigation strategies (Dobrota, 2017).

STATEMENT OF THE PROBLEM

Project risk management is essential in improving and sustaining project performance by building on the positive impacts or mitigating the negative impacts of project risks on project performance goals (PMI, 2018). Rice is the main crop cultivated under Ahero irrigation scheme. The scheme cultivates 22,000 MT rice per year. By December 2022, the Authority aims to increase the irrigation acreage under these schemes by 10,368 acres. They will produce 29,000 metric tonnes (MT) of rice. On the other hand, according to the statistics of the national irrigation board (2018), the overall performance of the agricultural projects in the irrigation scheme of Ahero is decreasing. Currently, the scheme produces an average of 200000 tonnes of rice per year, while the rice consumption in the region is 600,000 tonnes per year.

Levels of insurance, which is a measure of risk management, are not very common in the agricultural sector in Zimbabwe. Farmers who consider agriculture to be an economic activity don't consider insurance to be very important in mitigating risk, i.e. reducing the amount of losses suffered by farmers in the event of risks such as drought. It is possible that the farmers are not financially able to pay the premium in Zimbabwe. Agricultural insurance policies are typically purchased at times when agriculture is profitable (Tsikirayi, Makoni & Matiza, 2017). In Benue state (Nigeria), Asogwa, Abu and Ogene (2018), efficiency in agricultural production is strongly and positively linked to risk management strategies. In Uganda, Foreign Exchange Risk Management (FERM) at a moderate level of application is linked to a decrease in financial performance. However, for export-oriented Ugandan companies, FERM has a positive and significant relationship with performance (Mbabazize, Daniel & Ekise, 2016).

2. LITERATURE REVIEW

Theoretical Literature Review

Prospect theory is a model of risk that was first proposed by Tversky and Kahneman (1979). This paper presents empirical experimental data on risk taking. It argues that utility expectation theory might not be valid because project decisions are not always rational. This theory explains how to make decisions in the real world and not in an ideal world of rational thought. Prospect theory is based on four premises: Decision-making based on a reference point, attachment to loss or gain or loss sensitivity reduced and weighted by probability. The first premise is that utility comes from profit and loss, which is measured against a benchmark rather than the true level of wealth (Barberis, 2016). Secondly, you are expected to be more sensitive to losses than to gains of the same magnitude. Thirdly, Prospect theory is derived from the principle that the sensitivity to gain or loss decreases as the amount involved increases. Fourthly, It is not believed that results are determined by objective human probabilistic values, but rather by transformed probabilistic values (Barberis, 2016).

While the original version of this theory has been challenged by a number of researchers, its use in behavioral economics is beginning to gain traction (Barberis, 2016). Firstly, This theory has been criticised because it only applies to cases where there are no more than two possible outcomes (i.e., not zero). In addition, according to the theory, at some point, the dominant bets can be made. In addition, and contrary to what prospect theorists believe, when a person experiences losses that represent a large portion of their wealth, they become extremely vulnerable to additional losses later on (Barberis, 2013). Rosu (2019) also criticizes prospect theory. The process of finding the reference points and coding gains or losses is affected by the way prospects are presented and what the decision makers anticipate (Rosu, 2019).

It is difficult to find a weighting function according to prospect theory, according to Rosu (2019). Second, it is not clear how this theory can be applied to simple lotteries where the form differs from that for which it was first proposed. Third, Prospect theory's utility function can't be used directly to compare lotteries because you'll have to go through complex editing steps. One has to code, combine, segregate, cancel, simplify and detect dominant gambles (Rosu, 2019). Prospect theory plays an important role in this study, as it acknowledges that the approach taken by the project managers may influence the risk assessment and thus influence performance, as the types of risks assumed influence project performance. This theory acknowledges that the risks have an impact on project performance (Barberis, 2018).

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Empirical Literature Review

Juliane and Alexander (2018) analyzed the impact of risk management on business success in a UK IT company. Identify IT Project Portfolio - Risk analysis has a positive impact on performance. However, this study did not analyze the impact of identifying risks on the success of the farm. Pimchangthong and Boonjing (2017) examine the impact of risk management on the success of IT projects in Thailand in terms of process and product dimensions. It is reported that the identification of risks can affect the process efficiency and the performance of the products and the overall operation. However, this study did not analyze the impact of identifying risks on the success of the farm.

Bakker, Boonstra, and Wortmann (2018) used seven case studies to examine the risk management communication that determines the performance of an IT project. It is recognized that risk assessment has a significant impact on operational decisions. However, this study examines the opinions of respondents using statistical data to evaluate the effectiveness of risk management. It is difficult to evaluate this view objectively. Also, this study did not analyze the impact of identifying risks on the success of agriculture.

Didraga (2017) examines the impact of risk management on the success of IT knowledge through a literature review and literature review. Both goals and performance plans are considered. He said identifying risks leads to initiatives, building knowledge, sharing vision and commitment, sharing concerns and clear expectations, making the project successful. The study determined that the relationship between risk and performance (educational assessment) was not significant at the 5% significance level. In addition, it was noted that it did not have a significant effect in determining risks and cost overruns, identifying risks and schedule overruns, and identifying risks and work overruns. However, this study did not analyze the impact of identifying risks on the success of the farm.

Kinyua, Ogollah, and Mburu (2015) examine the impact of risk management strategies on the success of ICT businesses in Nairobi, Kenya. This study shows that identifying risks in a project has a good and positive impact on project success at the 5% significance level. The researchers said this may be because a clear understanding of the types of risks projects face before they impact performance can help guide mitigation measures to address those risks. However, this study did not analyze the impact of identifying risks on the success of the farm.

3. RESEARCH METHODOLOGY

This study employed descriptive research design. This study was conducted in agricultural projects in Ahero irrigation scheme. The respondents were the project managers of the scheme. Project managers of the Ahero irrigation scheme that participated in study was selected through simple random sampling method. Data was collected using questionnaires. Quantitative data was analysed using descriptive statistics. The study also used inferential statistics to determine the influence of one variable to the other.

4. FINDINGS

Table 1 displays the descriptive statistics results of risk identification.

Table 1: Risk Identification

Statements	**M**	**SD**
Documents for the project relevant for outlining risks are usually reviewed	4.08	0.92
Information about risks facing agricultural projects is usually gathered	4.05	0.95
Checklists for identifying risks using past information and past project knowledge are usually analysed	4.64	0.36
The validity of assumptions made in previous projects is usually explored	4.52	0.48
An in-depth project strength, weakness, opportunity and threat analysis is usually conducted	4.55	0.45
Aggregate Score	**4.37**	**0.63**

The respondents strongly agreed on the statement that checklists for identifying risks using past information and past project knowledge are usually analysed (M=4.64, SD=0.36), an in-depth project strength, weakness, opportunity and threat analysis is usually conducted (M=4.55, SD=0.45) and that the validity of assumptions made in previous projects is usually explored (M=4.52, SD=0.48). This is consistent with Bakkera, Boonstra, and Wortmann (2018), who used seven case studies to

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investigate the effect of risk management communication on IT project performance and found that risk identification has a large impact. performance.

The respondents agreed on the statement that documents for the project relevant for outlining risks are usually reviewed (M=4.08, SD=0.92) and that information about risks facing agricultural projects is usually gathered (M=4.05, SD=0.95). This result is consistent with Kinyua, Ogollah and Mburu (2015) who studied the impact of risk management strategies on project success of ICT companies in Nairobi, Kenya and found that risk identification in projects had a positive and significant impact on project success with a significant level of 5%.

Results of Inferential Statistics

Table 2: Correlation Analysis

		Risk identification	Project Performance
Risk identification	Pearson Correlation	1	
	Sig. (2-tailed)		
	N	54	
Project Performance	Pearson Correlation	.693**	1
	Sig. (2-tailed)	.000	
	N	54	54

The results in Table 2 show that the Pearson r correlation for risk identification is 0.693, which is close to 1, and the significance value is 0.00, which is less than 0.05. This suggests a close relationship between risk identification and project performance.

Results of Regression Analysis

Table 3: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.709[a]	.741	.735	.454

The results in Table 3 show that the adjusted R-squared value is 0.741 (74.1%), which indicates that risk identification variables determine the extent to which agricultural project performance in the Ahero Irrigation Program in Kenya. Therefore, the remaining percentages (25.9%) reflect other factors in the study.

Table 4: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	0.613	.321		1.909	0.000
	Risk identification	0.736	.057	4.256	12.912	0.002

The results in Table 4 show that when risk identification is held constant at zero, the coefficient of performance of an agricultural project in the Ahero Irrigation Scheme in Kenya is 0.613. The results also show that each unit increase in risk identification increases agricultural project performance by 0.736 for the Ahero irrigation projects in Kenya.

The final regression equation is described as follows:

Project performance = 0.613 + 0.736 (risk identification).

The results in Table 4 also show that risk identification has a positive and significant effect on the performance of the Ahero Irrigation Scheme agricultural project in Kenya with a beta value of 4.256 and a significance value of 0.002, which is less than 0.05.

5. CONCLUSIONS

The study concluded that identifying the risks is a continuous process which will continue for as long as the project takes. At the beginning of any project a first risk log shall be established. The project manager can discover new risks throughout the entire project by holding quick, five to ten brainstorming sessions in less than 5 minutes. According to the study, the objectives of the project are to protect the project from unexpected events, provide a safe and secure working environment for employees and customers, strengthen business operations while reducing legal liability, provide protection against events that are damaging to the company and to the environment, protect all stakeholders and assets from harm and help determine the organization's insurance needs to reduce unnecessary insurance costs.

6. RECOMMENDATIONS

According to the study, project managers should brainstorm with project teams, analyze documents and historic flowcharts, analyze risk lists, take into account lessons learned from past projects and create risk checklists (risk categories and risks). This will help you to identify project risks by identifying different project assumptions and testing their applicability. In order for them to be able to think about what they want to achieve with the project, all stakeholders need to be involved in the risk identification phase.

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