EdinBurg Peer Reviewed Journals and Books Publishers
Journal of Entrepreneurship & Project Management
Vol. 3||Issue 2||pp 36-53||November||2023
Email: info@edinburgjournals.org||ISSN: 2789-2115

Impact of Project Planning on Performance of Agriculture Projects at Holland Greentech, Rwanda

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How to cite this article: TUYISENGE, M., & KABANDA, R. (2023). Impact of Project Planning on Performance of Agriculture Projects at Holland Greentech, Rwanda. *Journal Entrepreneurship and Project Management, 3*(2), 36-53.

Abstract

Most agriculture projects have been spending more resources, time, and budget associated with different risks which affect the performance of those projects. This study intended to find out the impact of project planning on the performance of agriculture projects at Holland Greentech-Rwanda. Hypotheses tested for significance analysis. The target population was Forty-six (46) respondents. The population was small in size a non-probability sampling (Purposive) was used. Collection of primary data using a closed-ended structured questionnaire. The data was coded and entered for analysis using SPSS version 22. A linear regression model was used to relate the study variables at a significance level of 0.05. The results of the study were presented using tables. The findings revealed that project planning has a significant impact on the performance of agriculture projects. It indicated that project planning impacted the performance of agriculture projects with R^2 .825. The study found that resource planning has a significant effect on project performance with sig .004. it also found that scheduling has a significant effect on project performance with sig .035. It revealed that budget planning has a significant effect on project performance with sig .006. The study found that risk planning has a significant effect on project planning with sig .015. The fitted model Y=1.95 means that an increase of one unit of resource planning, scheduling, budget planning, and risk planning increases project performance by 1.95. The study concluded that project planning has a significant impact on the performance of agriculture projects as a recommendation to agriculture companies to conduct project planning properly and continuously to improve the performance of agriculture projects.

Keywords: *Agriculture, Budget planning, Holland Greentech, Project performance, Project planning, Resource planning, Risk planning, Scheduling*

1.0 Introduction

Project planning is at the center or the heart of the project life cycle, it tells everybody involved where and how you are going to achieve the project goals or objectives. Project planning has different processes including scope management, work breakdown structure preparation, scheduling, resource management, budget planning, procurement strategies, risk management, quality management, and communication planning (APM, 2008). Project performance refers to the capability of completing the project with the required specifications, within the promised schedule, and specified budget while keeping the stakeholders as well as customers satisfied (Lisa, 2013). It conceptualized that the organizations with effective project planning process

records have better performance than those that have not, performing various steps in the project planning process expected to improve the performance of the projects (Kevin, 2001).

Agricultural project performance or success is measured in terms of effectiveness by five major component factors which are Customer Satisfaction, Learning and Exploitation, Stakeholder Objectives, User Satisfaction, and Operational Assurance (Takim et al., 2009). according to FAO (2012) report agriculture holds the key to community development for poverty reduction as the International Fund for Agricultural Development (IFAD) estimated that 70% of the world's poor still live in rural areas and depend on agriculture as many of the rural poor work directly in agriculture their incomes can be boosted by proper measures such as ensuring fair access to water for irrigation, proper farming assets, right inputs, and others agriculture services to promote their income and sustainability. In Africa agriculture sector produces more than 60% of employment as reported by the Africa Economic Report (2014) and the African Development Bank, the Organization for Economic Co-operation and Development with UNDP, and the World Bank estimated great potential in African agriculture and agribusiness that can worth $1 trillion in 2030 however to make it happens the improvement in irrigation, electricity, smart business, and trade policies have to be improved. The contribution of Agriculture in Africa to the Gross Domestic Product (GDP) of many countries is very large and it gives many jobs to more than half of rural communities across the continent despite the positive effect of agriculture across the continent where many smallholders in rural areas still do subsistence agriculture, which associated with many risks or uncertainty including poor technology, low education climate change, and access to opportunities pose a great threat to their source of income (Heifer I, 2021). Agriculture always plays more role in East Africa in general in the region with rapid growth but some factors are still a barrier including inadequate infrastructure reducing productivity growth of agriculture. Measures to be taken to improve productivity in farming like the availability of agricultural land, training farmers to adopt technologies, innovation and facilitating trade globally or at a regional level, and addressing barriers in international trade for farmers (Agriculture in East Africa [ADBG], 2010).

Rwanda initiated PRICE project to increase farming performance by providing access to infrastructure, inputs, tools and equipment, technical training, and providing support to farmers in developing business plans to get capital from financial institutions or grants for their enterprises, also through the collaboration of World Bank and MINAGRI the Sustainable Agricultural Intensification and Food Security Project (SAIP) implemented intending to increase the productivity of agriculture products, accessibility of markets and ensuring food security in all regions of the country (MINAGRI, 2018). Rwandan Agriculture is at the center of the economy giving around 29% of the total GDP while 66.5% of the population works and engages in agriculture and its related activities. The first sector employs many people and the second sector contributes to Rwandan GDP after Services, a broad sector that includes the government. Despite their huge contribution Producers struggle with an over-dependence on rain-fed production systems, inefficient farming practices, poor production techniques, and low post-harvest processing and value-addition capacity issues which reduce productivity and a high chance of shocks from climate change (NISR, 2017). Agriculture in Rwanda plays a key role in the economy of the country by providing the basic needs for sustainable growth of the economy and higher contribution to poverty reduction many agricultural programs like crop intensification, irrigation, animal husbandry, and infrastructures initiated to facilitate farmers to increase production and commercialization of agriculture products (MINAGRI, 2019).

In 2015 Holland Greentech rooted in the Netherlands registered in Rwanda as an agriculture company with the target of increasing food production and food safety, efficient use of

resources to increase sustainability, and making a profit mainly in commercial horticulture including the seeds sector, pest control, irrigation projects, fertilization, greenhouses construction projects, soil analyzes, advisories and extension services (Maarten, 2018). Pearce & Robinson's (2013) findings recommended that companies should have a plan for project resources to overcome competitors and to be able to survive in the end study of project planning on project performance. This research will focus on resource planning; budget planning; scheduling and risk planning because they are very important in agriculture projects' success or failure. Research conducted by Kiiza Williams (2022) on the influence of the project planning process on the performance of a food sustainable initiative project in Rwanda. The study included examining how time influences the performance of a food sustainable initiative project in Rwanda, determining the effect of project execution on performance of a food sustainable initiative project in Rwanda, and determining the influence of cost and performance of a food sustainable initiative project in Rwanda. Results from findings indicated that the project cost influences the project Performance. Also, Karangwa *et al.* (2020) carried out a study on the role of project management practices in agriculture project performance in Rwanda and came up with findings that showed that project management practices have a great role in the Performance of agriculture projects and implying a strong positive and significant relationship between project management practices' role and performance of agriculture projects. The research proved that there is a positive relationship between the role of project management practices on the performance of agriculture projects to a very high extent. Schedule planning is like the more challenging jobs in project management as a result, knowing exactly what activities must be completed to complete the project, as well as their cost and length parameters, is extremely difficult, if not impossible, at the original planning stage (Kelly, 2013).

Another study by Armstrong & Murlis (2014) on the effects of human resource planning practices on organization performance. This research used a descriptive research design and the findings were analyzed through descriptive, correlation, and inferential analysis. According to Telsang (2014) in a study of the project planning process and its effect on performance of the project using descriptive research design the study targeted projects in India. The study mentioned that planning defines the actions as well as activities, targets of cost and time, and milestones of performance, which will bring about successful project implementation as well as project objectives achievement. The study also mentioned that the plan must make an indication of the human resources, equipment, materials, facilities, and other resources that are essential to ensure project completion. However, PMBOK (2014) studied the influence of cost planning on project performance with descriptive research design by surveying project managers. The study found that project cost planning practices affect project performance. In addition, Akpan & Chizea (2012) studied the determinants of time planning systems in the construction firms on failed projects in Nigeria. The findings revealed that the time planning system, execution of a project refers to the actualizing of a project plan and at the same time, tracking the effectiveness of the plan in the achievement of the set goals and this could be defined for project control in action. The study did not establish the effects of time planning on project performance. As Mervat (2017) studied the risk management components' impact on the success of projects by considering the time dimension of the project of Jordanian Ministry of Environment found that risk management affected the success of projects in their dimensions as project costs are linked to the schedule prepared in partnership with stakeholders based on past and current financial information. Additionally, Nasser (2020) studied the Impact of Risk Management Practices on the Performance of Construction Projects.

The findings revealed that practicing risk management improves performance significantly. another study on project planning practices and performance of construction projects using descriptive statistics to determine the effects of human resource planning practices, financial resource planning practices, use of material planning practices, and schedule planning on construction project performance in Kenya. The findings indicated that human resource planning, time management, material resource planning, and financial resource planning positively and significantly contributed to performance of the construction projects (Ndavi, 2019). However, *Nalianya et al.* (2018) studied the Influence of project planning and implementation on the performance of agricultural projects by community-based organizations in Bungoma County, Kenya using descriptive and explanatory research designs. The findings indicated that project planning influences performance of agriculture projects. Also study by Godfrey Z. (2015) Assessed the effect of project planning process on the performance of NGOs funded projects in Rwanda using descriptive survey research to find out how defining the tasks and their deliverables affects performance of projects, to find out how estimating the resources required to perform the task affect performance of projects, to find out how identifying the anticipated and known risks in executing the project affects performance of projects and to find out how defining the process to be used to ensure quality affects performance of projects. The findings revealed that project planning process has a direct effect on performance of NGOs-funded Projects.

Werner and Simone (2016) studied the influence of human resource planning on organizational performance. The study targeted human resource managers using an inferential research design. Studies showed that planning human resources can help companies in the prediction of how changes in their strategy will affect the needs of their human resources. The recommendation from that study is that planning the labor force needs of any organization can play a very important role as well as critical particularly in the rapid changes in the demands of the market. The study concentrated on human resource needs and how they affect organizational performance, but it failed to address the issue of human resource planning. Another study by Lloyd (2013) on time planning functions effects on performance of construction projects showed that projects were not completed on time and the respondents were project managers and sponsors. The study mentioned that function is defined as the prior planning of the project at any time based on present certainties as well as revised prospects. The study also found that this is reasonable since the constraints as well as even the objectives of the project can change during the process of implementation. The study considered time factor but it did not study other factors that affect project performance and it addressed construction projects only. In addition, Batt (2002) studied the relationships between practices of human resources and project performance in the service sector using descriptive study the findings confirmed that firms put effort into highly skilled labor, participation of the employee in decision-making, and teams and incentives of human resource like employment security and high relative pay, have higher performance and lower quit rates, sales growth. The study carried out on the service sector, especially on human resources as an asset cannot be applied to different sectors. Another study carried out by Guoli (2010) on the influence of budgeting on the performance of project using descriptive research design in projects that stalled revealed that professionalism in budgeting projects favor better project cash flow. The study also found that insufficient cash flow consequence in a project frequently increases delays and too many extra costs, since it can promote discontinuation of the entire project. The study failed to give a maximum contribution of budgeting on performance of a project. So this research will focus on assessing the influence of project planning (resources, schedule, budget, and risks) on project performance to cover the gaps in past studies' findings.

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1.1 Problem statement

OAG (2021) reported that there were Weaknesses in implemented agriculture projects because some were not complete and defects were found in constructed irrigation scheme projects which threatened their productivity and sustainability in Rwanda while Rwanda Agriculture Board (RAB) heavily invested in the construction of irrigation projects in various region across the country. Also, an investigation carried out by Rwandatoday, (2021) reported that different agricultural projects initiated in Eastern province of Rwanda failed due to changes in the cost of basic machinery and its accessories which rose and became less affordable. In addition, Kennedy (2016) found that many project managers spend most of their time figuring out how to meet the goals or project objectives they are doing, many projects are not completed within the expected time, and the main challenges faced by project managers come from resources especially human capital and financial resources, the majority of the project managers put more effort on financial resources and time in handling the immediate problems thus unable to anticipate and prepare for the next issues. Also, Musekura (2011) found that GADP project did not achieve its goals due to failure to identify the needs of beneficiaries, poor communication with stakeholders, overuse of budget, and inefficient resource use. Furthermore, MINAGRI (2022) reported that in the implementation of PSTA4 different agricultural companies in Rwanda were involved in different projects related to agriculture but some contractors' companies failed to accomplish the goals. As reported by Maarten (2022) Holland Greentech increased its market share with a 10% profit margin achieved through proper planning by engaging Young enthusiastic expert teams, good service, quality inputs, and services for farmers. This research therefore aimed to assess the impact of project planning on performance of agriculture projects at Holland Greentech, Rwanda. From the mentioned information this study evaluates the impact of project planning on the performance of agriculture projects at Holland Greentech Limited, Rwanda. The specific objectives were to examine the influence of resource planning, scheduling, budget planning, and risk planning on project performance.

2.0 Material and Methods

This study followed the descriptive research design to assess the impact of project planning on performance of agriculture projects by taking 46 regular staff and employees of Holland Greentech-Rwanda. The study uses an entire population which is non-probability sampling mainly purposive sampling where the total population is examined who have the same characteristics (Laerd, 2012). The study will use a non-probability sampling technique (purposive) by taking the entire population because the size of the population is small all 46 staff and employees of Holland Greentech, Rwanda participated in the research process. The research used questionnaires as primary data tools and documentation as a secondary source of information. The questionnaire was in English with three parts: Part One which included general information questions (demographic data: Academic qualification, occupation, age, and gender) of respondents, Part Two which included questions on project planning (Section A: resources planning; Section B: scheduling; section C: budget planning and section D: risks planning) and Part three contained questions on agriculture project performance. The secondary data is to be obtained by reading published journals, textbooks, reports, and other sources from different websites.

Quantitative data was collected using structured questionnaires and analyzed using the SPSS software. There are two broad types of statistics to use in the study: descriptive statistics and inferential statistics. The study used the frequency distributions, means, and standard deviations for summarizing the information present in the collected questionnaire. The study

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used a linear regression model as follows; $Y= B_0+B_1X_1+B_2X_2+B_3X_3+B_4X_4+E$ Where: Y= represents Performance of agricultural projects; B_0= Constant; B_1, B_2, B_3 and B_4= represent regression coefficient; X_1= represents Resources planning; X_2= represents Scheduling; X_3= represents Budget planning; X_4= represents risk planning; E= represents Error term.

3.0 Results and Discussion

Data was collected from 46 respondents at Holland Greentech-Rwanda. The researcher measured four predictor variables including resources planning, Scheduling, Budget planning, and Risk planning. The outcome variable was agriculture projects performance of Holland Greentech-Rwanda. All these variables were measured using five-point Likert scales developed by the researcher. Respondents were required to fill out the Likert scales after which scores for each variable were computed. These means scores were used in the regression analysis. Multiple regression analysis was conducted to determine the best linear combination of resource planning, Scheduling, Budget planning, and Risk planning determining the outcome variable which was the agriculture projects performance of Holland Greentech-Rwanda.

Part one: General information

This part represented the general data of respondents by showing their qualifications, occupation, age, and gender. The findings of the study relied on this general information about respondents' responses.

Table 1: Level of Education

Qualification	Frequency	Percentage
Masters' holder	1	2.2
Bsc holder	26	56.5
Diploma's holder	17	37.0
Other	2	4.3
Total	46	100.0

Table 1 above shows that 1 respondent (2.2%) has a master's degree, 26 respondents (56.5%) have a bachelor's degree, 17 respondents (37%) have a Diploma holder, and 2 respondents have other qualifications. The highest number of respondents have a bachelor’s degree followed by Diploma holders.

Table 2: Occupation

Title	Frequency	Percentage
CEO	1	2.2
Manager/Assistance manager	4	8.7
Head of a department	4	8.7
Finance/Office admin	2	4.3
Seeds/Pest control tech	12	26.1
Greenhouse/Irrigation tech	11	23.9
Support/Other	12	26.1
Total	46	100.0

Table 2 above shows that 1 of the respondents (2.2%) is CEO, 4 respondents (8.7%) are managers or assistance managers, 4 respondents (8.7%), 2 respondents (4.3%) are finance officer/office admin, 12 respondents (26.1%) are seeds/pest control technicians, 11 respondents (23.9%) are Greenhouse/Irrigation technicians and 12 respondents (26.1%) do Support/other.

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Table 3: Age of respondents

Years	Frequency	Percentage
Below 25 years old	2	4.3
Between 26 to 35 years old	22	47.8
Between 36 to 45 years old	20	43.5
Above 46 years old	2	4.3
Total	46	100.0

Table 3 above shows that 2 respondents (4.3%) are below 25 years old, 22 respondents (47.8%) are between 26-35 years old, 20 respondents (43.5%) are between 36-45 years old and 2 respondents (4.3%) are above 46 years old.

Table 4: Gender

Sex	Frequency	Percentage
Male	35	76.1
Female	11	23.9
Total	46	100.0

Table 4 above shows that 35 respondents (76.1%) are male and 11 respondents (23.9%) are female.

Part two: Project planning

This part analyzed the project planning including resources planning, scheduling, budget planning, and risks planning, and the extent adhered to.

Section A: Resources planning

Table 5: Human resources allocation with qualified personnel

Rating	Frequency	Percentage
No extent	0	0
Small Extent	1	2.2
Moderate Extent	5	10.9
Large Extent	26	56.5
Very Large Extent	14	30.4
Total	46	100.0

Table 5 above indicates the respondents' extent to project resources planning on Human resources allocation with qualified personnel at 30.4% which was a very large extent, 56.5% which was a large extent, 10.9% which was a moderate extent, and 2.2% which was a small extent.

Table 6: Right material and equipment use

Rating	Frequency	Percentage
No extent	0	0
Small extent	0	0
Moderate Extent	13	28.3
Large Extent	28	60.9
Very Large Extent	5	10.9
Total	46	100.0

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Table 6 above indicates the respondents' extent to project resources planning on Right material and equipment used at 10.9% which was a very large extent, 60.9% which was a large extent, and 28.3% which was a moderate extent.

Table 7: Enough financial resources availability

Rating	Frequency	Percentage
No extent	0	0
Small extent	0	0
Moderate Extent	15	32.6
Large Extent	29	63.0
Very Large Extent	2	4.3
Total	46	100.0

Table 7 above indicates the respondents' extent to project resources planning on Enough financial resources availability at 4.3% which was a very large extent, 63% which was a large extent, and 32.6% which was a moderate extent.

Section B: Scheduling

Table 8: Developing task schedules

Rating	Frequency	Percentage
No extent	0	0
Small Extent	2	4.3
Moderate Extent	8	17.4
Large Extent	29	63.0
Very Large Extent	7	15.2
Total	46	100.0

Table 8 above indicates the respondents' extent to project scheduling on Developing tasks schedules at 15.2% which was a very large extent, 63% which was a large extent, 17.4% which was a moderate extent, and 4.3% which was a small extent.

Table 9: Estimation of activities duration

Rating	Frequency	Percentage
No extent	0	0
Small Extent	1	2.2
Moderate Extent	17	37.0
Large Extent	23	50.0
Very Large Extent	5	10.9
Total	46	100.0

Table 9 above indicates the respondents' extent to project scheduling on Estimation of activities duration at 10.9% which was a very large extent, 50% which was a large extent, 37% which was a moderate extent, and 2.2% which was a small extent.

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Table 10: Monitoring of project time frame

Rating	Frequency	Percentage
No extent	0	0
Small Extent	2	4.3
Moderate Extent	14	30.4
Large Extent	29	63.0
Very Large Extent	1	2.2
Total	46	100.0

Table 10 above indicates the respondents' extent to project scheduling on Monitoring of projects time-frame at 2.2% which was a very large extent, 63% which was a large extent, 30.4% which was a moderate extent, and 4.3% which was a small extent.

Table 11: Controlling projects time-frame

Rating	Frequency	Percentage
No extent	0	0
Small extent	0	0
Moderate Extent	15	32.6
Large Extent	28	60.9
Very Large Extent	3	6.5
Total	46	100.0

Table 11 above indicates the respondents' extent to project scheduling on Controlling project time-frame at 6.5% which was a very large extent, 60.9% which was a large extent, and 32.6% which was a moderate extent.

Section C: Budget planning

Table 12: Developing projects budget

Rating	Frequency	Percentage
No extent	0	0
Small extent	0	0
Moderate Extent	11	23.9
Large Extent	27	58.7
Very Large Extent	8	17.4
Total	46	100.0

Table 12 above indicates the respondents' extent to project budget planning on Developing projects budget at 17.4% which was a very large extent, 58.7% which was a large extent, and 23.9% which was a moderate extent.

Table 13: Estimation of project resources requirements

Rating	Frequency	Percentage
No extent	0	0
Small extent	0	0
Moderate Extent	13	28.3
Large Extent	28	60.9
Very Large Extent	5	10.9
Total	46	100.0

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Table 13 above indicates the respondents' extent to project budget planning on Estimation of project resources requirements at 10.9% which was a very large extent, 60.9% which was a large extent, and 28.3% which was a moderate extent.

Table 14: Controlling project budget and analysis of cost

Rating	Frequency	Percentage
No extent	0	0
Small extent	0	0
Moderate Extent	19	41.3
Large Extent	22	47.8
Very Large Extent	5	10.9
Total	46	100.0

Table 14 above indicates the respondents' extent to project budget planning on Controlling project budget and analysis of cost at 10.9% which was a very large extent, 47.8% which was a large extent, and 41.3% which was a moderate extent.

Section D: Risk planning

Table 15: Identification of project risks

Rating	Frequency	Percentage
No extent	0	0
Small Extent	1	2.2
Moderate Extent	11	23.9
Large Extent	27	58.7
Very Large Extent	7	15.2
Total	46	100.0

Table 15 above indicates the respondents' extent to project risks planning on Identification of project risks at 15.2% which was a very large extent, 58.7% which was a large extent, 23.9%which was a moderate extent, and 2.2% which was a small extent.

Table 16: Analysis of project risks

Rating	Frequency	Percentage
No extent	0	0
Small Extent	4	8.7
Moderate Extent	17	37.0
Large Extent	24	52.2
Very Large Extent	1	2.2
Total	46	100.0

Table 16 above indicates the respondents' extent to project risks planning on Analysis of project risks at 2.2% which was a very large extent, 52.2% which was a large extent, 37% which was a moderate extent, and 8.7% which was a small extent.

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Table 17: Monitoring of project risks

Rating	Frequency	Percentage
No extent	0	0
Small Extent	2	4.3
Moderate Extent	21	45.7
Large Extent	19	41.3
Very Large Extent	4	8.7
Total	46	100.0

Table 17 above indicates the respondents' extent to project risks planning on Monitoring of project risks at 8.7% which was a very large extent, 41.3% which was a large extent, 45.7% which was a moderate extent, and 4.3% which was a small extent.

Table 18: Controlling project risks

Rating	Frequency	Percentage
No extent	0	0
Small Extent	4	8.7
Moderate Extent	18	39.1
Large Extent	21	45.7
Very Large Extent	3	6.5
Total	46	100.0

Table 18 above indicates the respondents' extent to project risks planning on Controlling project risks at 6.5% which was a very large extent, 45.7% which was a large extent, 39.1% which was a moderate extent, and 8.7% which was a small extent.

Part three: Agriculture Projects Performance

This part established how respondents perceived agriculture project performance including increased sales, increased income and sustainability, and increased customer satisfaction.

Table 19: Increase sales

Rating	Frequency	Percentage
No extent	0	0
Small extent	0	0
Moderate Extent	15	32.6
Large Extent	25	54.3
Very Large Extent	6	13.0
Total	46	100.0

Table 19 above indicates the respondents' extent to agriculture project's performance on Increase sales at 13% which was a very large extent, 54.3% which was a large extent, and 32.6% which was a moderate extent.

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Table 20: Increase income and sustainability

Rating	Frequency	Percentage
No Extent	1	2.2
Small Extent	4	8.7
Moderate Extent	23	50.0
Large Extent	17	37.0
Very Large Extent	1	2.2
Total	46	100.0

Table 20 above indicates the respondents' extent to agriculture projects performance on Increase income and sustainability at 2.2% which was a very large extent, 37% which was a large extent, 50% which was a moderate extent, 8.7% which was a small extent, and 2.2% which was no extent.

Table 21: Improve customer satisfaction

Rating	Frequency	Percentage
No extent	**0**	0
Small Extent	9	19.6
Moderate Extent	24	52.2
Large Extent	13	28.3
Very large extent	0	0
Total	46	100.0

Table 21 above indicates the respondents' extent to agriculture projects performance on Improved customer satisfaction at 28.3% which was a large extent, 52.2% which was a moderate extent, and 19.6% which was a small extent.

Table 22: Descriptive Statistics

Variables	Mean	Standard Deviation	N
Agriculture projects performance	3.3913	.39318	46
Resources planning	3.8986	.29706	46
Scheduling	3.7391	.37623	46
Budget planning	3.8188	.40189	46
Risks planning	3.5978	.41991	46

Table 22 above represents descriptive statistics of variables including mean and standard deviation. It shows that agriculture projects performance has a mean of 3.39 and a standard deviation of 0.39, resources planning with a mean of 3.89 and a standard deviation of 0.29, scheduling with a mean of 3.73 and a standard deviation of 0.37, Budget planning with a mean of 3.81 and standard deviation of 0.4, and risks planning with mean of 3.59 and 0.41. As shown in Table 23 above resources planning has the highest mean of 3.89 with the lowest standard deviation of 0.29 which means that it contributes more than other variables.

Multiple Linear Regression

Multiple linear regression was analyzed to determine how project planning (Resources Planning, Scheduling, Budget planning, and Risks planning) predicted agriculture projects' performance.

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Table 23: Model summary

Model	R	R square	Adjusted R square
1	.909[a]	.825	.808

a. Predictors: (Constant), Risks planning, Resources planning, Budget planning Scheduling.

Table 24: ANOVA Regression model

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	5.742	4	1.435	48.448	.000[a]
Residual	1.215	41	.030		
Total	6.957	45			

The ANOVA for the regression model presented in Table 24 above shows that the regression model comprising resources planning, scheduling, budget planning, and risk planning was significant in predicting project performance. since F (4,41)=48.448, p=<.001) There is a significant linear relationship between resource planning, scheduling, budget planning, risk planning, and agriculture project performance.

Table 25: Multiple linear regression for predictors of agriculture project performance

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig
	B	Standard. Error	Beta		
(Constant)	-.921	.366		-2.514	.016
Resources planning	.345	.112	.261	3.075	.004
Scheduling	.231	.106	.221	2.184	.035
Budget planning	.278	.097	.284	2.868	.006
Risks planning	.289	.114	.309	2.545	.015

Note R^2 =.825 F(4, 41)= 48.448, p<0.001 *p<.05

Table 25 above shows a summary of the multiple linear regression model with four predictors as follows; resources planning, scheduling, budget planning, and risk planning, and the outcome variable which is agriculture project performance. The analysis showed that resource planning could significantly predict project performance (β1=.261*t1(3.075)=.8 p=.004). Scheduling significantly predicted project performance (β2=.22*t2(2.184)=.48 p=.035). Budget planning significantly predicted project performance (β3=.284*t3(2.868)=.81 p=.006) and risks planning also predicted performance (β4=.309*t4(2.545)=0.786 p=.015). Thus the agriculture projects performance (Y)= -.921+.8+.48+.81+.786+E (0)=1.95. The adjusted R square (R^2) value of .825 (F, 41)=48.448, p<0.001 produced to predict agriculture project performance. This means that combining resource planning, scheduling, budget planning, and risk planning accounted for approximately 82.5% of the variance in agriculture project performance which is a great effect (Cohen, 1988). Table 26 shows the beta coefficients

mentioned that Resources planning contributed the most in the prediction of agriculture project performance followed by Budget, Risk planning, and scheduling respectively. To measure the role of every independent variable in predicting agriculture project performance, the Beta standardized values of the independent variables compared where Risk planning contributed the most with a beta standardized value of .309 followed by Budget planning which had a beta standardized value of .284, Resources planning with a beta standardized value of 0.261 and Scheduling contributed the least with beta standardized value of .221 while Y equal to 1.95 as fitted model which means that resource planning, scheduling, budget planning and risk planning significantly influence agriculture project performance at Holland Greentech-Rwanda. Also, it shows that increasing one unit of resource planning, scheduling, budget planning, and risk planning increases Y by 1.95.

Discussion of Findings

Resources planning and performance of agriculture projects

The study found out the influence of resource planning on project performance. The study found that resource planning an aspect of project planning had the first effect on project performance (Table 25). The findings were also confirmed by many previous studies Armstrong & Murlis (2005) studied the effects of resource planning practices on organization performance and found that an increase in resource planning significantly leads to an increase in project performance. Also, Godfrey's (2015) findings on the project planning process on project performance found that there is a significant correlation between resource estimation as part of the project planning process and project performance. Also, Erik & Clifford (2001) found that resource management in project planning has a higher chance to influence project performance positively in different projects, it emerged that resource management an aspect of planning projects positively affects project performance. The study revealed that project performance is better when the owners of a project estimated comprehensively the resources required for the project. As shown in Table 25 summarizing the multiple regression model shows that the resources planning made a statistically significant to project performance with sig. value of .004 which is <0.05 which gives strong evidence to reject null hypothesis one (H01) and accept the alternative.

Scheduling and performance of agriculture projects

To find out the influence of scheduling on project performance. Scheduling is the second part of project planning to be examined. The results showed that of the four factors examined, scheduling was the fourth most important after resources planning, budget planning, and risks planning. The study found a significant influence of scheduling as a part of project planning and agriculture project performance presented in Table 25. The results confirmed by Ndavi C. (2019) found that time management positively and significantly affects project performance. It also confirmed by Lloyd Gary (2015) agrees with this study that time planning ought to be sufficiently detailed to make control possible and this significantly increases the project's performance. Furthermore, Akpan & Chizea (2012) findings agree with the current study that time planning significantly affected the project's performance. Another study by Kiiza Williams (2022) on the influence of the project planning process on project performance of a food sustainable initiative in Rwanda concluded that time influences the performance of that project in Rwanda. As presented in Table 25 the summary of the multiple regression model shows that scheduling made a statistically significant to project performance with sig. value of .035 which is <0.05 which shows that there is enough evidence to reject H02 and accept the alternative.

Budget planning and performance of agriculture projects

The study determined the influence of Budget planning as part of project planning on agriculture projects' performance. Budget planning was the second most important after resource planning to influence the agriculture project performance. As presented in Table 25, the results of this study show that budget planning has a significant influence on agriculture project performance. The study agrees with PMBOK (2014) report on the investigation of the influence of cost planning on performance of a project. Another study found that project cost planning practices including the cost budgeting as well as cost estimating process positively affect project performance. Furthermore, Guoli (2010) findings on the influence of budgeting on project performance found that professionalism in budgeting projects favors better project cash flow. The third hypothesis: There is no significant influence of budget planning on project performance, as indicated in Table 25 a summary of multiple linear regression models of budget planning made a statistically significant to project performance with sig. value of .006 which is <0.05, therefore H03 rejected and accept the alternative.

Risk planning and performance of agriculture projects

The study found that risk planning as a part of project planning had a third effect on project performance compared to resource planning, budget planning, and scheduling. The findings showed that Risk planning positively influenced agriculture project performance (table 25), and showed that risk planning affects agriculture project performance. The results were confirmed by other researchers as Norman & Henrik (2001& 2011) found that risk planning affects project performance. However, Mervat (2017) findings on a study of risk management components influenced the success of the project of Jordanian Ministry of Environment, it found that risk management had a positive effect on the project's success. Nasser A. (2020) studied the Impact of Risk Management Practices on the Performance of projects the findings revealed that practicing risk management improves the construction project performance significantly. Table 25 represents the summary of multiple regression model, the risk planning made a statistically significant project performance with a sig value of .015 which is <0.05, therefore H04 rejected and accepted the alternative.

4.0 Conclusion

The research aimed to find out the influence of project planning and agriculture project performance at Holland Greentech-Rwanda. The project planning is composed of four (4) elements including resource Planning, Scheduling, Budget planning, and risk planning, and how they influence the agriculture project performance. Based on the study findings some conclusions were made. The study concludes that resource planning plays the greatest role as an aspect of project planning in improving agriculture projects' performance. From the results, the study concludes that resource planning should be focused in line with the overall goal. The study concludes that resource planning has a significant contribution to Agriculture projects' performance. The findings conclude that scheduling has a positive and significant effect on project performance. The study concludes that budget planning has positively and significantly affected agriculture Projects' performance. The study concludes that budget planning has a significant influence on agriculture project performance. The study findings conclude that risk planning has a high significance on project performance as an aspect of project planning. The study found that project planning has a positive and significant influence on agriculture project performance.

5.0 Recommendation

Based on the results of the study objectives, different recommendations were made.

1. The study recommendation on agriculture companies is that more effort in resource planning including qualified personnel, use of the right material and equipment, and financial availability should be made to improve project performance. Also, the study recommendation on agriculture companies is that there is a need to understand the prerequisites of the project team members to address them.

2. In addition, the study recommends agriculture players to improve scheduling to get higher project performance based on findings it can be carried out properly, to develop accurate and attainable schedule tasks. Schedule plan with proper control can be useful to agriculture companies to avoid time wastage as early as possible which can increase project performance

3. Another recommendation from the study is that agriculture companies should put effort into budget planning as the study mentioned that project budget planning is a critical part of project planning and it has a major influence on project performance.

4. Finally, the findings from the study recommend that risk planning should be a focus of agriculture companies or actors as proper risk planning can improve project performance. Companies should increase project planning as it can be a competitive advantage to others in the sector.

This study carried on project planning and agriculture project performance at Holland Greentech-Rwanda. The study suggests that further research to be done on agriculture projects in different areas of the country to find how agriculture project performance can be improved. The study considered four independent variables (resource planning, scheduling, budget planning, and risk planning) which according to the findings contribute to 82.5% of agriculture project performance, also similar study to be conducted in other agriculture companies to reflect the entire situation across the country.

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