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# Influence of Project Planning Practices on Project Performance. A Case of Rwanda Dairy Development Project in Burera District, Rwanda

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## Abstract

The purpose of this study is to determine the influence of project planning procedures on the performance of the RDDP in the Burera District. The research specifically analyzed the influence of scope planning practices on RDDP performance in Burera District as well as the influence of cost planning practices on RDDP performance in Burera District. Determine the influence of risk management practices on RDDP performance in the Burera District. The population of this study was 117, including Burera District staff, Burera Dairy staff, RAB staff, MINICOM staff, Rwanda National Dairy Platform staff, and Rwanda Veterinary Doctors Council staff. The Solvin formula is used to figure out the size of the sample because it is a simpler way to figure out sample sizes. When this formula is applied to the above sample, the researcher gets a sample size of 91. The documentary study, interviews, and questionnaires were used to gather data for the project. The researcher used the statistical approach generated by the Statistical Package for Social Sciences (SPSS) to assess the collected data. In this strategy, the researcher used descriptive and correlational analysis. The model summary shows the value of R 0.795 and the value of R Square (0.631) represents the coefficient of determination. It indicates that 63.1% of the variance in performance can be explained by project planning practices. The coefficient results indicate that project scope planning, project cost planning, and project risk planning practices all have a statistically significant influence on the performance of the RDDP in Burera District. Project scope planning ( $\beta_1 = 1.301$ ) has a positive and significant effect on project performance ( $p < 0.05$ ). Project cost planning ( $\beta_2 = 1.112$ ) has a positive and significant effect on project performance ( $p < 0.05$ ). Project risk planning ( $\beta_3 = 0.821$ ) has a positive and significant effect on project performance ( $p < 0.05$ ). These findings support the alternative hypotheses formulated in the study, suggesting that project planning practices have a meaningful influence on the performance of the RDDP in Burera District. Management is recommended putting emphasis on comprehensive scope planning for the RDDP in Burera District and ensuring that scope changes are carefully managed and communicated to minimize project disruptions.

## 1. Introduction

Inadequate planning and contract management are just two of the problems that have come up during the execution of public projects in Rwanda. All of these problems have hurt national projects like building projects in a big way (OAG, 2014).

According to the budget execution report from the Ministry of Finance and Economic Planning, public project management in Rwanda still faces significant difficulties. This report highlights a number of issues, including the country's heavy reliance on foreign aid (which accounts for 40% of the national budget) and insufficient studies, particularly in the construction industry, which result in unexpectedly high payments to contractors for extra work that wasn't factored into the original budget ( MINECOFIN , 2014).

Gahigana (2019) looked at the factors that affect the success of a project. Samuel (2018) looked at the link between how an NGO manages a project and how it turns out. Kobusingye et al. (2017) looked at the same topic in the context of agricultural projects. Semigabo (2000) was one of the few to look at the topic in the context of public sector projects.

The effects of scope planning, cost estimation, and risk planning on project performance were not examined in the aforementioned research. Therefore, there is a gap in knowledge on the influence of project planning practices on project performance in the Rwanda Dairy Development Project (RDDP) in Burera District. In this view, the current study aimed to fill the gaps in knowledge.

### 1.2 Objectives of the Study

The following were the objectives of the study, namely general objectives and specific objectives.

#### General objective

The objective of this research is to find the influence of project planning practices on performance of RDDP in Burera District.

#### Specific objectives:

- i. To assess the influence of scope planning practices on the performance of RDDP in Burera District.
- ii. To find out the influence of cost planning practices on the performance of RDDP in Burera District.
- iii. To determine the influence of risk planning practices on the performance of RDDP in Burera District.

### 1.3 Research Hypotheses

The followings are the null hypotheses of the study formulated based on research objectives:

**Ho1:** There is no significant influence of scope planning practices on performance of RDDP in Burera District.

**Ho2:** There is no significant influence of cost planning practices on performance of RDDP in Burera District.

**Ho3:** There is no significant influence of risk planning practices on performance of RDDP in Burera District.

## 2. Literature review

Various articles by various academics and researchers are discussed in this section, many of which touch on the topic of how project planning techniques affect project outcomes. It provides a comprehensive analysis of the literature relevant to the study's aims.

### 2.1 Theoretical Review

This section of theoretical review discussed on Agency Theory, Theory of Change, Theory of Constraints and Results Based Management Theory. Researcher used Theory of Change by assessing how project scope planning, project cost planning and risk planning affect to project performance.

#### 2.1.1 Agency Theory

The concept of agency was developed to explain the difficulties that arise when many people working together have conflicting objectives and roles. To be more precise, the principal-agent relationship is the center of agency theory. This is when one or more people (the principal(s)) hire another person (the agent) to act on their behalf. In agency theory, principals and agents are both supposed to be economically rational, self-interested maximizers. As a consequence, when authority is delegated to a third party, the agent may make choices that aren't optimal for the principal, and the principal will have to pay more money (called agency costs) to have the agent behave properly (Kostalova & Tetrevova, 2014).

Jensen and Meckling proposed this concept in 1976. Two distinct forms of agency problems have been found. The first involves friction between investors and corporate leaders, while the second centers on rifts between stock and debt holders. Due to managers' lack of entire ownership, conflicts with shareholders are inevitable. The second form of disagreement occurs when equity and debt holders compete for the same investment capital. As the notion goes, when given free reign, asset project managers should prioritize the needs of their superiors. This means the whole project has to be executed in a way that benefits the owners (Lan, 2010).

Multiple parties, including the government, financial institutions, the project's workforce, and the project's end users, all contribute to the final product. The principals, or those who stand to gain the most from the project's success, are the people who stand to directly benefit from it, while the agents, or those responsible for ensuring the project's success, are the project managers. Human resource planning and stakeholder plan management are examples of activities that have strong ties to agency theory since they need coordination among stakeholders for the sake of maximizing everyone's returns on investment (Bojesson, 2015).

#### 2.1.2 Theory of Change

The Aspen Institute Roundtable on Community Change created this in the 1990s so that they could model and evaluate all the possible things that might be done via a network. A Theory of Change is an all-encompassing picture that explains why and how a certain outcome is expected to occur. Because when you plan, you decide what you want to alter or accomplish, how you'll do it, and by when. It's imperative that you take the ToC into account at every stage

of the project planning process. You can measure the success of your project by how well it changes the things you set out to change at the start.

Even when you know exactly what you want to accomplish and have all the information you need to get there, project management may be challenging. A Theory of Change may help you map out the actions you need to take to go from where you are now to where you want to be. ToC is a framework for understanding the factors that lead to a certain change taking place and why. It articulates the assumptions that underpin the rationale for a certain intervention and describes the chain of events that leads to immediate, intermediate, and long-term consequences (the outcomes route).

There is both a process and a result to the Theory of Change. A Theory of Change should consider the most important changes that the project wishes to make, the various paths that those changes could take, and the reasons for choosing one path over another. Theorizing how the change we want may occur in a dynamic external setting is made easier with the aid of a theory of change. It aids in prioritizing and arranging what can be accomplished given the constraints of the current world and the available resources. As a result, the theory of change is intrinsically linked to the processes of planning and executing a project, as the former involves the development of strategies that will be used to bring about the latter.

### **2.1.3 Theory of Constraints**

Dr. Moshe Eliyahu Goldratt, an Israeli physicist, initially articulated the TOC's underlying principles in his 1984 book *The Goal: Excellence in Production*, which provided end-to-end strategies for optimizing manufacturing operations. Concentration, or zeroing in on the most pressing concerns, is one of the three tenets of the Theory of Constraints (TOC). This implies that all procedures and jobs need to be overseen, while those that aren't vital may have more freedom. Tasks that are most important from a system-wide perspective should be prioritized. The primary objective of every business is to maximize profits. For those who hold this perspective, limitations are what stand in the way of businesses reaching their full potential. In other words, a restriction is anything that prevents the desired outcome from occurring, in this case, the generation of additional money. Locating the bottleneck is the first step in optimizing manufacturing processes. Simply recognizing all hazards and risks associated with the project is insufficient; appropriate strategies must be implemented to handle concerns that might impact project performance, and this approach must be taken into account throughout the planning phase (Trojanowska & Dostatni, 2017).

Managers of projects must strategize how to deal with the triple restrictions if they want to see successful results. Constraints and problems, when identified early, allow for more informed decision-making on how to proceed with the project, ensuring that it maintains its competitive edge in spite of any obstacles. Muchelule (2018) explains that each of the three project constraints (scope, budget, and schedule) may have a considerable effect on the final product, but the interdependence of these factors means that changes to any one of them will likely have a larger effect on the others (Muchelule, 2018).

### **2.1.4 Results Based Management Theory**

In the mid-1980s, the Australian government pioneered the concept of RBM, which gained prominence in the 1990s thanks to the efforts of the OECD. The term results implies that this approach is focused on improving outcomes. As noted by the Results Based Management Group (RBMG), Public Sector Management in the 1960s, Program Management by Activity

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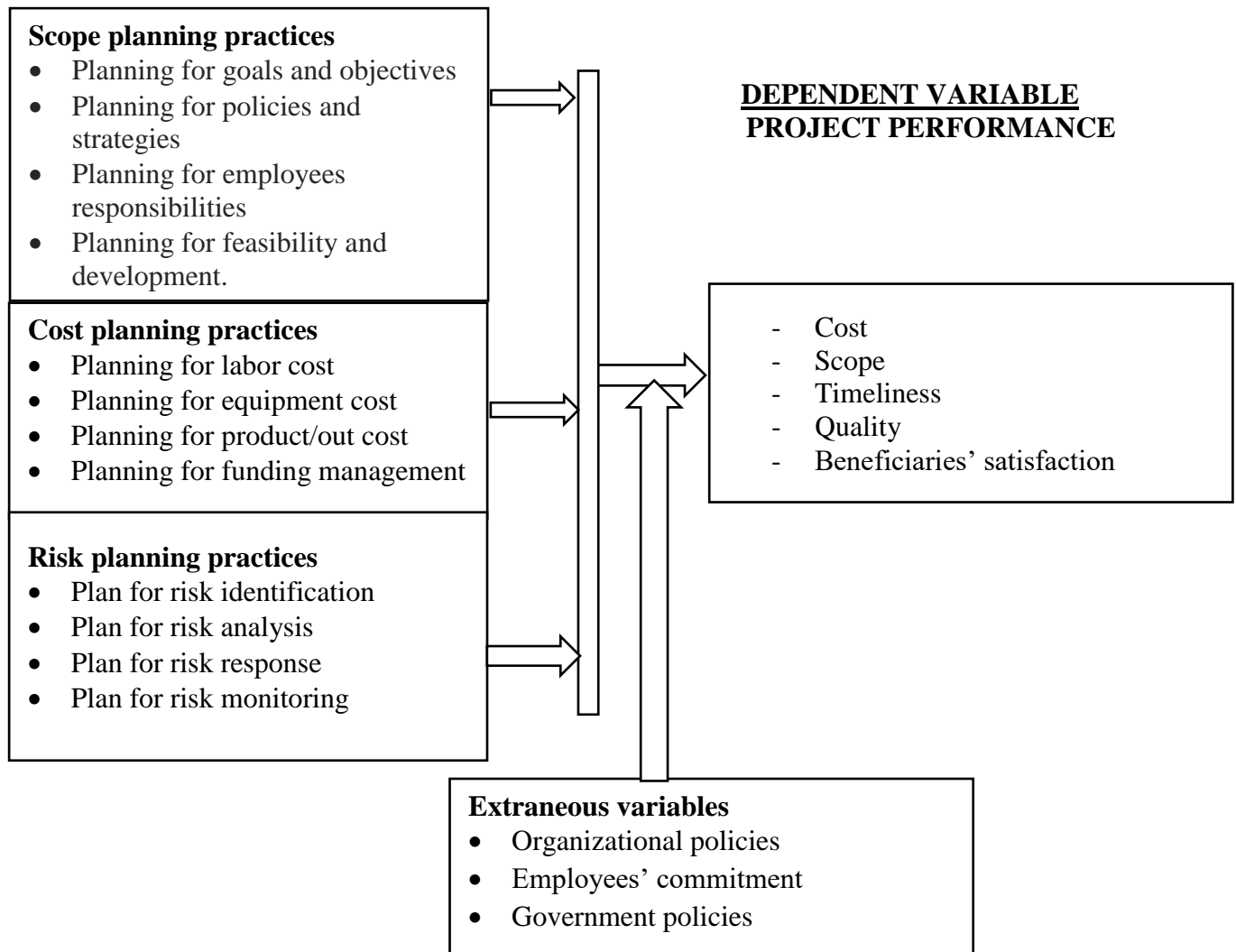
in the 1970s and 1980s, MBO and the Logical Framework Approach in the mid-1970s, and NPM and TQM in the 1980s all contributed to the development of the results-based theory.

One such management technique is called RBM. All on-the-ground players who work directly or indirectly to accomplish certain development outcomes make sure that their procedures, goods, and output all help get us closer to that goal. Management by responsibilities (RBM) with well-defined roles and responsibilities It sets out the desired results and requires keeping track of and evaluating the work done to reach those goals over time (Crawford and Bryce, 2013).

Starting with the basics of thorough planning which includes things like developing the framework tools based on results RBM is a continuous method whose major features all strengthen M & E elements. Once a plan is in place to achieve a set of outcomes via a programme, implementation can begin; monitoring has evolved into a crucial step to ensure these outcomes are achieved in a sustainable manner. Since RBM is an ongoing process, it's important for participants to give feedback often (UNDP, 2012).

In their explanation of the RBM model, Hwang and Lim (2013) emphasized the importance of monitoring throughout the duration of a program or project. They defined monitoring as an ongoing, systematic taxation process predicated on stakeholder participation, replication, criticism, data grouping, analysis of definite performance (using indicators), and regular reporting. Protecting the establishment of information management and the regular collection of data is crucial to efficient monitoring. Statistics are gathered at the start of a program or project to provide a benchmark for future comparisons (Valadez and Bamberger, 2012).

**2.2 Conceptual framework**  
**INDEPENDENT VARIABLE**  
**PROJECT PLANNING PRACTICES**



Source: Researcher, conceptualization 2023

Figure 1: Conceptual framework

**3. Research methodology**

The research strategy was descriptive and correlational, utilizing a mixed method (quantitative and qualitative). The descriptive research design aims to explain the event as it exists within project planning processes and project performance, whereas the correlation research design seeks to determine the link between the study's independent and dependent variables.

The population of this study was 117 including Burera District staff, Burera Dairy staff, RAB staff, MINICOM, Rwanda National Dairy Platform staff and Rwanda Veterinary Doctors Council staff.

The Solvin formula is used to calculate sample size, the researcher gets the sample size of 91. Purposive sampling was utilized for selecting participants for the study. This data collected by documentation, interview, and administering self-administered questionnaire. The Statistical Package for the Social Sciences (SPSS) used to analyse the data.

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#### 4. Research findings

The researcher provides, analyzes, and interprets the findings on t specific objectives in this chapter. To supplement the findings, quantitative and qualitative analyses were used. All 91 questionnaires provided to respondents were completed and returned, showing that all questionnaires distributed were answered and collected, and none went missing.

**Table 1: Correlation matrix**

		Project scope planning	Project cost planning	Project risk planning	Project performance
Project scope planning	Pearson Correlation	1	.661**	.588**	.684**
	Sig. (2-tailed)		.000	.000	.000
	N		91	91	91
Project cost planning	Pearson Correlation		1	.721**	.728**
	Sig. (2-tailed)			.000	.000
	N			91	91
Project risk planning	Pearson Correlation			1	.679**
	Sig. (2-tailed)				.000
	N				91
Project performanc e	Pearson Correlation				1
	Sig. (2-tailed)				
	N				91

\*\* . Correlation is significant at the 0.01 level (2-tailed).

Source: Field data, July 2023

Based on the correlation matrix presented in Table 1 interpret the correlation coefficients between the variables of project planning practices (scope planning, cost planning, risk planning) and project performance of the Rwanda Dairy Development Project (RDDP) in Burera District. The correlation coefficients indicate the strength and direction of the relationship between these variables.

The correlation coefficient between project scope planning and project performance is 0.684. The correlation is positive, indicating a moderate to strong positive relationship between project scope planning practices and project performance. The correlation is statistically significant at the 0.05 level ( $p < 0.05$ ), suggesting that there is a meaningful association between project scope planning and project performance.

The correlation coefficient between project cost planning and project performance is 0.728. The correlation is positive, indicating a moderate to strong positive relationship between project cost planning practices and project performance. The correlation is statistically significant at the 0.05 level ( $p < 0.05$ ), indicating a meaningful association between project cost planning and project performance.

The correlation coefficient between project risk planning and project performance is 0.679. The correlation is positive, indicating a moderate to strong positive relationship between project risk planning practices and project performance. The correlation is statistically significant at the 0.05 level ( $p < 0.05$ ), suggesting a meaningful association between project risk planning and project performance.

The findings are in line with Jones (2020) evaluated the effects of including risk management experts in construction projects. The study's findings imply that active participation in the matter has a variety of positive outcomes. The study emphasizes the importance of incorporating risk management experts into building undertakings to reduce potential hazards, manage expenses, and ensure successful project completion. The findings of this study



emphasize the importance of integrating risk management expertise into the construction sector in order to achieve superior project results.

The correlation matrix reveals that there are positive and significant relationships between all three project planning practices (scope planning, cost planning, risk planning) and project performance of RDDP in Burera District. This indicates that better implementation of project planning practices tends to be associated with higher project performance. The findings provide evidence to reject the null hypotheses formulated in the study. These findings emphasize the importance of project planning practices in achieving successful outcomes for the RDDP.

**Table 2: Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.795 <sup>a</sup>	.631	.619	8.72978

a. Predictors: (Constant), Project risk planning, Project scope planning, Project cost planning

Source: Field data, July 2023

The Model Summary table (Table 2) provides information about the overall fit of the regression model that examines the influence of project planning practices (scope planning, cost planning, risk planning) on the performance of the Rwanda Dairy Development Project (RDDP) in Burera District.

The value of R (0.795) represents the correlation coefficient between the predicted values of the dependent variable (performance) and the observed values. It indicates the strength and direction of the linear relationship between the predictors (project risk planning, project scope planning, project cost planning) and the performance of RDDP. The value of R Square (0.631) represents the coefficient of determination. It indicates the proportion of the variance in the performance variable that can be explained by the predictors in the model. In this case, approximately 63.1% of the variance in performance can be explained by project planning practices.

In line with Eric (2021) investigated the Huguka Dukore Akazi Kanoze Project in Nyabihu District to evaluate how better planning could raise the project's chances of success. R-square (correlation coefficient) values of 82.4%, 81.9%, and 78.3%, respectively, suggest a statistically significant association between project scope, cost, and human resource planning and project performance. According to the findings of the study, in order to keep the project running well, project staff should emphasize the necessity of beneficiaries learning to take responsibility for their own health.

These findings suggest that project planning practices play a significant role in influencing the performance of the RDDP. The null hypotheses formulated in the study can be rejected, indicating that project-planning practices have a meaningful influence on the performance of RDDP in Burera District.

**Table 3: ANOVA<sup>a</sup>**

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	11351.770	3	3783.923	49.652	.000 <sup>b</sup>
	Residual	6630.187	87	76.209		
	Total	17981.956	90			

a. Dependent Variable: Project performance

b. Predictors: (Constant), Project risk planning, Project scope planning, Project cost planning

Source: Field data, July 2023

The ANOVA table (Table 3) results indicate that the regression model, which includes project planning practices as predictors, is statistically significant. The F-value of 49.652 is greater than the critical value, and the p-value is less than the significance level ( $p < 0.05$ ). These findings suggest that the predictors (scope planning, cost planning, risk planning) significantly contribute to explaining the variation in the performance of the RDDP in Burera District.

The findings are not far for Dufitumukiza (2022) examined the impact of project planning on the sustainability of educational programs in Rwanda using a case study of the Rwanda Education Assistance Project. Because the significance criterion for the F-test is 0.000a, the positive result of 44.622 is statistically significant at the 5% level. As a result, the researcher advised that all efforts prioritize planning in order to assess their immediate, intermediate, and long-term implications for sustainability.

Therefore, the null hypotheses formulated in the study can be rejected. This indicates that there is a meaningful influence of scope planning practices, cost planning practices, and risk planning practices on the performance of the RDDP in Burera District.

**Table 4: Coefficients**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4.726	4.225		1.119	.266
	Project scope planning	1.301	.372	.310	3.495	.001
	Project cost planning	1.112	.337	.342	3.303	.001
	Project risk planning	.821	.316	.250	2.598	.011

a. Dependent Variable: Project performance

Source: Field data, July 2023

The Coefficients table (Table 4) provides information about the regression coefficients for the analysis model that examines the influence of project planning practices (scope planning, cost planning, risk planning) on the performance of the Rwanda Dairy Development Project (RDDP) in Burera District.

The constant term ( $\alpha$ ) represents the intercept of the regression model. In this case, it is 4.726. Project scope planning: The coefficient for project scope planning ( $b_1$ ) is 1.301. Project cost planning: The coefficient for project cost planning ( $b_2$ ) is 1.112. Project risk planning: The coefficient for project risk planning ( $b_3$ ) is 0.821.

Coefficient (Beta) represents the change in the dependent variable (performance) in standard deviation units associated with a one-standard deviation increase in the predictor variable. One-standard deviation increase in project cost planning is associated with a 1.301 increase in project performance. One-standard deviation increase in project scope planning is associated

with a 1.112 increase in project performance. One-standard deviation increase in project risk planning is associated with a 0.821 increase in project performance.

The coefficient results indicate that project scope planning, project cost planning, and project risk planning practices all have a statistically significant influence on the performance of the RDDP in Burera District. Project scope planning has a positive and significant effect on project performance ( $p=0.001$ ). Project cost planning has a positive and significant effect on project performance ( $p=0.001$ ). Project risk planning has a positive and significant effect on project performance ( $p=0.011$ ). These findings support the alternative hypotheses formulated in the study, suggesting that project planning practices have a meaningful influence on the performance of the RDDP in Burera District.

## 5. Conclusion

The objective of this study was to examine the influence of scope planning practices on the performance of the Rwanda Dairy Development Project (RDDP) in Burera District. The research findings revealed a positive and significant relationship between project scope planning and project performance. This suggests that better implementation of scope planning practices is associated with higher project performance. The results indicate that scope planning practices have a meaningful influence on the RDDP's performance in Burera District.

The objective of this study was to determine the influence of cost planning practices on the performance of the RDDP in Burera District. The research findings indicated a positive and significant relationship between project cost planning and project performance. This implies that effective implementation of cost planning practices is associated with improved project performance. The results highlight the importance of cost planning practices in influencing the RDDP's performance in Burera District. The objective of this study was to assess the influence of risk planning practices on the performance of the RDDP in Burera District. The research findings demonstrated a positive and significant relationship between project risk planning and project performance. This suggests that robust implementation of risk planning practices is associated with enhanced project performance. The results underscore the significance of risk planning practices in shaping the RDDP's performance in Burera District.

This research aimed to examine the influence of project planning practices on the performance of the Rwanda Dairy Development Project (RDDP) in Burera District. The findings indicated positive and significant relationships between project scope planning, cost planning, and risk planning with project performance. The results suggest that effective implementation of these planning practices is associated with improved performance of the RDDP. Therefore, this study provides evidence that project planning practices play a meaningful role in influencing the RDDP's performance in Burera District. These findings emphasize the importance of incorporating comprehensive scope planning, cost planning, and risk planning strategies to achieve successful outcomes for the RDDP and similar projects.

## 6. Recommendations

RDDP need to identify potential risks and uncertainties, assess their potential impact, and develop proactive mitigation plans. Regularly review and update risk assessments to address emerging risks and ensure effective risk management throughout the project lifecycle.

Encourage strong collaboration and communication among project stakeholders involved in the RDDP in Burera District. Establish effective channels for sharing information, promoting transparency, and facilitating timely decision-making. Foster a culture of open communication to address challenges, resolve conflicts, and ensure alignment of project goals.

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