EFFECT OF OPERATION RISK MANAGEMENT PROCESS ON PROJECT SUCCESS IN RWANDA; A CASE STUDY OF CONGO NILE RIDGE FOOTHILLS INTEGRATED ENVIRONMENTAL MANAGEMENT PROJECT IN MUHANGA DISTRICT

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Abstract: **The general objective of this study was to analyze the effect of operation risk management process on project success in Rwanda. This study used descriptive research design. The target population of this study equaled to 151 respondents. To collect primary data, Focus Group Discussions and questionnaires were used. Based on the information drawn from findings the researcher concluded that the effect of risk management process on success of project is significant. It was found out that the project could not perform without effective risk efficiency and effective risk identification process. The positive coefficient of determination of .862 indicates that there is positive correlation between operation risk identification and success of Ridge Foothills Integrated Environmental Management Project. The study further demonstrated that there is a strong relationship between the operation risk assessment and success of Ridge Foothills Integrated Environmental Management Project. The study found operation risk treatment to have a great effect on success of Ridge Foothills Integrated Environmental Management Project. The researcher recommended the project owners and managers should perform effective risk identification process since the study findings revealed that poor identification of operation risk led to poor performance and success of Congo Nile Ridge Foothills Integrated Environmental Management Project, the project implementation team together with the project managers should put much emphasis in operation risk assessment process since it has proven to have a very high impact on success of Congo Nile Ridge Foothills Integrated Environmental Management Project and finally the project managers and funders should always adopt effective risk treatment measures so as to ensure the success of the project they implement since the findings revealed that ineffective operation risk treatment measures adopted negatively affect the success of Congo Nile Ridge Foothills Integrated Environmental Management Project.**

Keywords: **Risk, Operation risk, Operation Risk management, Project Success.**

1. INTRODUCTION

To be successful, project should be committed to address risk management plan proactively and consistently throughout the project. A conscious choice must be made at all levels of the organization to actively identify and pursue effective risk management during the life of the project. Risk exists the moment a project is conceived. Moving forward on a project without a proactive focuses on risk management increases the impact that a realized can have on the project and potentially lead to project failure. To increase the chances of a proposed project succeeding, it is necessary for the project

to have an understanding of potential risks, to systematically and quantitatively assess these risks, anticipating possible causes and effects, and then choose appropriate methods of dealing with them (Mulcahy, 2003). To ensure that potential risks are managed effectively, the risk process needs to be explicitly built into the decision-making process. Risk management is thus an important tool to cope with such substantial risks in projects by assessing and ascertaining project viability; analyzing and controlling the risks in order to minimize loss; alleviating risks by proper planning; and avoiding dissatisfactory projects and thus enhancing profit the chance for success(Olsson, 2007).

2. STATEMENT OF THE PROBLEM

The Congo Nile Ridge Foothills integrated environmental project was set up to enhance environmental protection measures and build climate resilience. It is also improving lives of Muhanga residents. For example, 670 young people are employed to manage nurseries and prepare seedlings for planting along Nyabarongo River to help prevent erosion and atop silt from entering the river. In addition, 293 water tanks are being installed across the project area, including 193 at public institutions. According to the quarterly report year 3, October- December 2017; the report highlights the main ongoing and completed activities and some milestones achieved under each output; but there are also some activities planned not completed like the targeted beneficiaries who did not benefited from the activities of the project like distribution of cows to beneficiaries, reforestation (replacement of Punis by Carbutus); change of types of bananas to be planted by beneficiaries which was failed. This poor performance of the project to extend its activities to all project beneficiaries may be linked to ineffective operation risk management process. Hence this study, sought to analyze the effect operation risk management process on project success in Rwanda.
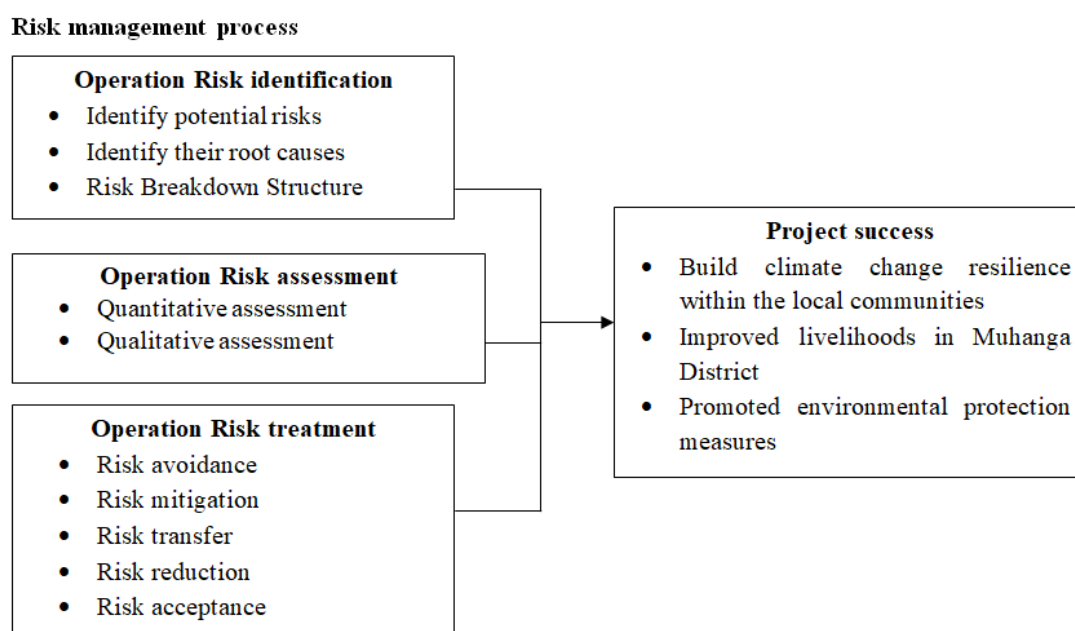
3. OBJECTIVES OF THE STUDY

The general objective of this study was to analyze the effect of operation risk management process on project success in Rwanda.

The study was anchored 3 specific objectives:

1. To determine the effect of identification of Operation risk identification on success of Congo Nile Ridge Foothills Integrated Environmental Management Project
2. To establish the influence of Operation risk assessment on success of Congo Nile Ridge Foothills Integrated Environmental Management Project
3. To assess the effect of Operation risk treatment on success of Congo Nile Ridge Foothills Integrated Environmental Management Project

4. CONCEPTUAL FRAMEWORK OF THE STUDY

Risk management process

Operation Risk identification
- Identify potential risks
- Identify their root causes
- Risk Breakdown Structure

Operation Risk assessment
- Quantitative assessment
- Qualitative assessment

Operation Risk treatment
- Risk avoidance
- Risk mitigation
- Risk transfer
- Risk reduction
- Risk acceptance

Project success
- Build climate change resilience within the local communities
- Improved livelihoods in Muhanga District
- Promoted environmental protection measures

5. METHODOLOGY

- **Research Design**: The researcher used descriptive research design

- **Target Population**: The target population of this study equaled to 151 respondents

- **Sample Size:** it can be not easy to collect the information from all the target population, the researcher preferred to calculate the sample size by using the Yamane Formula stated below; $n = \frac{N}{1+N\,(e)^{2}}$Then; $n = \frac{151}{1+151(0.05)2} = 110$ Respondents.

- **Data Collection Instruments:** To collect primary data, Focus Group Discussions and questionnaires were used.

6. SUMMARY OF RESEARCH FINDINGS

Table1: Descriptive Statistics on determination of the effect of risk identification on success of Congo Nile Ridge Foothills Integrated Environmental Management Project

Indicators	N	Mean	Std. Deviation
Potential risks	110	1.31	.617
Root causes for potential risks	110	1.32	.557
Elaboration a clear risk breakdown structure	110	1.35	.549
Valid N (list wise)	110		

Source: Field Data (2018)

From Table1, the mean values for all statements are respectively rounded off to2 the code for Agree. The standard deviation for all statements are above 0.5 meaning that respondents' answers on these statements were far different from the mean, in other words their answers to the statement were heterogeneous. To mean those respondents' views to the above statements were varied.

Table2: Descriptive Statistics on establishment of the influence of operation risk assessment on success of Congo Nile Ridge Foothills Integrated Environmental Management Project

Indicators	N	Mean	Std. Deviation
Risk assessment using direct judgment	110	1.36	.570
Risk assessment using ranking options	110	1.44	.796
Risk assessment using comparing options	110	1.36	.646
Risk assessment using descriptive analysis	110	1.48	.810
Risk assessment using probability analysis	110	1.64	.713
Risk assessment using sensitivity analysis	110	1.77	.738
Risk assessment using scenario analysis	110	1.73	.619
Risk assessment using simulation analysis	110	1.52	.502
Valid N (list wise)	**110**		

Source: Field Data (2018)

From Table 2, the mean values for first, second, third and fourth statements are respectively 1.36; 1.44 and 1.48 which are rounded off to 1 the code for strongly agree and the mean values for fifth, sixth, seventh and eightieth statements are respectively 1.64, 1.77, 1.73 and 1.52 which are rounded off to 2 the code for agree. The standard deviation of all statements is greater than 0.5 meaning that respondents' answers on these statements were far different from the mean, in other words, their answers to the statement were heterogamous it implies that respondents' views on the above statements were varied.

Table 3: Descriptive Statistics on assessment the effect of operation risk treatment on success of Congo Nile Ridge Foothills Integrated Environmental Management Project

Indicators	N	Mean	Std. Deviation
Risk avoidance strategy	110	1.19	.395
Risk mitigation strategy	110	1.68	.703
Risk transfer strategy	110	1.23	.421
Valid N (list wise)	110		

Source: Field Data (2018)

According to Table3, the mean values for the first and third statements are approximately equal to the code of strongly agree and their standard deviation are less than 0.5 meaning that respondents' answers on these statements were not far different from the mean, in order words, their answers to the statement were homogeneous.

Table 4: Descriptive Statistics on success of Congo Nile ridge Foothills Integrated Environmental Management project

Indicators	N	Mean	Std. Deviation
Climate resilience	110	1.45	.500
Improving livelihoods	110	1.78	.415
Promoting environmental	110	1.22	.415
Valid N (list wise)	**110**		

Source: Field Data (2018)

From Table4, the mean values for managing to build climate resilience within the local communities and promoting environmental protection measures are respectively 1.45 and 1.22 which are rounded off to 1 the code for strongly agreeand the mean value for improving livelihoods in Muhanga district isrespectively 1.78 which is rounded off to 2 the code for disagree. The standard deviation of all statements is less than 0.5 meaning that respondents' answers on these statements were not far different from the mean; in other words, their answers to the statement were homogeneous.

Table 5: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.717[a]	.514	.501	.354

Source: Field Data (2018)

a. Predictors: (Constant), Independent variables

b. Dependent variable: Management Project

From the table5 AnR^2 = 0.717, indicates that 71.7% of risk identification, risk assessment and risk treatment can be explained by the Congo Nile Ridge Foothills Integrated Environment Management project leaving only 28.3% of the variation in the dependent variable being explained by the error-term or other variables other than project success.

Table 6: ANOVA[a]

Model	Sum of Squares	Dif	Mean Square	F	Sig.
Regression	14.026	3	4.675	37.412	.000[b]
Residual	13.247	106	.125		
Total	27.273	109			

Source: Field Data (2018)

a. Predictors: (Constant), Independent variables

b. Dependent variable: Management Project

The table6 shows that predictors: risk identification, risk assessment and risk treatment have an effect on dependent variable which project success of Congo Nile Ridge Foothills Integrated Environment Management project. This is statistically significant with a p-value (.000).

Table 7: Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	.494	.114		4.324	.000
Risk identification	.260	.126	.320	2.059	.042
Risk assessment	.727	.113	.829	6.424	.000
Risk treatment	.260	.147	.205	1.773	.009

Source: Field Data (2018)

a. Dependent Variable: Project Success

The results indicate that risk identification, risk assessment and risk treatment have statistically significant effect on project success with a positive coefficient of determination of 0.717 indicates that there is a strong positive correlation between risk identification, risk assessment and risk treatment. The coefficients of independent variables $\beta_1, \beta_2 \text{ and } \beta_3$ are respectively 0.260; 0.727 and 0.260 with a statistically significant ($p = 0.00$). Therefore, the model equation derived is: $y = 0.494 + 0.260x_1 + 0.727x_2 + 0.260x_3 + e$. The positive coefficient further demonstrates that a 1% increase in the risk identification is attributed to 0.260% improvement in success of project and the t-statistic value (2.059) indicates the effect is statistically significant at 95% confidence level. An increase of 1% on risk assessment will increase success of project given by 0.727 % at the t-statistic value (6.424) indicates the effect is statistically significant at 95% confidence level while a positive coefficient demonstrates that 1% increase in risk treatment an increase of 0.260 on success of project with t-statistic value (1.773) indicates the confidence level of 95% the effect is statistically significant. This demonstrates that success of project exhibited in terms of risk identification, risk assessment and risk treatment and executed excellently.

7. CONCLUSIONS AND RECOMMENDATIONS OF THE STUDY

7.1 Conclusions

Based on the information drawn from findings the researcher concluded that the effect of risk management process on success of project is significant. It was found out that the project could not perform without effective risk efficiency and effective risk identification process. The positive coefficient of determination of .862 indicates that there is positive correlation between risk identification and success of Congo Nile Ridge Foothills Integrated Environmental Management Project. The study further demonstrated that there is a strong relationship between the risk assessment and success of Ridge Foothills Integrated Environmental Management Project. The study found risk treatment has a great effect on success of Ridge Foothills Integrated Environmental Management Project. Finally; study concluded that there is a significant relationship between risk control measures and project performance. Statistically the increase of 1% in the performance of project in term of operational risk identification is attributed to 0.332 % improvement in success of Congo Nile Ridge Foothills Integrated Environmental Management Project and the high t-statistic value (3.370) indicates the confidence level of 95% on operational risk management process is statistically significant. The results indicate that risk identification, risk assessment and risk treatment have statistically significant affect project success with a positive coefficient of determination of 0.717 indicates that there is a strong positive correlation between risk identification, risk assessment and risk treatment and project success in Rwanda.

7.2 Recommendations

After analysis and interpretation of data, the researcher came up with the following recommendations:

i. The project owners and managers should perform effective risk identification process since the study findings revealed that poor identification of operation risk led to poor performance and success of Congo Nile Ridge Foothills Integrated Environmental Management Project.

ii.   The project implementation team together with the project managers should put much emphasis in operation risk assessment process since it has proven to have a very high impact on success of Congo Nile Ridge Foothills Integrated Environmental Management Project.

iii.   The project managers and funders should always adopt effective risk treatment measures so as to ensure the success of the project they implement since the findings revealed that ineffective operation risk treatment measures adopted negatively affect the success of Congo Nile Ridge Foothills Integrated Environmental Management Project.

8.3   Suggestions for further research

Referring on the findings of this study, the researcher suggests that future studies to be carried out in the following areas:

 i. Factors affecting success of community projects in Rwanda,

 ii. Effect of risk monitoring practices on performance of community development projects and

iii. Effect stakeholder involvement on risk prevention funded by NGOs in Rwanda

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