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## The Effect of Planning for Risk Mitigation on Project Effectiveness in Affordable Housing Project in Rwanda

**Dr. Patrick Mulyungi**

Lecturer, Department of Agriculture and Technology,  
Jomo Kenyatta University, Kenya

**Egide Ruhumuriza**

Student, Department of Masters in Science in Project Management,  
Jomo Kenyatta University of Agriculture and Technology, Kenya

### **Abstract:**

*The purpose of this research was to assess the effect of risk mitigation on project effectiveness in affordable housing project with following objectives; to assume /accept risks, to avoid risks and to control risks in the projects. The reviewed literature related to risk management and project effectiveness and found out that planning for risks mitigation facilitates project effectiveness. Descriptive research design was used the population of the study was 110 employees of affordable housing development project in Rwanda and the sample size was 52 respondents selected using purposive and simple random sampling techniques. Data collection tools were questionnaires and interviews while validity and reliability of research instruments was done through pretesting. Data was processed using SPSS program. The results showed that 98% contacted respondents agreed that planning for risk mitigation contributes to project effectiveness because it facilitates having analyzing risk, its possible causes and how best the project can control such risks, hence promoting effectiveness. The study concluded that the factors that planning for risk mitigation contribute to project effectiveness in affordable housing project are identifying causes of risks, documenting risks, breaking down risks and that being risk prepared. Consequently, it is recommended that risk assessment for affordable housing project and sound policy and procedures, in terms of resources and budgeting should be in place before the commencement of any housing project in Rwanda.*

**Keywords:** Project risk, project, risks management

### **1. Introduction**

In order to promote the chances of a prospective projects succeeding, it is necessary for the projects over the world to have an understanding of potential risks, to systematically and quantitatively assess these risks, anticipating possible causes and effects, and then choose appropriate methods through which they can be addressed. To ensure that any potential risks are managed effectively, the risk process needs to be explicitly built into the decision-making process (Ahsan & Guawan, 2010).

Globally, beyond basic security fundamentals, the concepts of risk management are very important though complex part of the information security and risk management domain. It is necessary for the candidate to understand all the core concepts of risk management like risk assessment methodologies, risk anticipating, and safeguard selection criteria and objectives (Hwang & Ng, 2013).

Applying principles of risk management supports the quality improvement and improves cost estimation as well as identifying and mitigating potential risks before a project commence activities. Risk management puts processes in place to ensure management receives organized risk information early enough to apply corrective actions that will allow realistic schedule and cost estimates and assure successful completion of the project. Risk management principles promote team involvement by providing a mechanism for the reporting of potential problems and promoting the team's stake in the overall success of the project. Project risk management in project is very crucial in facilitating the project to attain objectives for which it was established (Alzahrani and Emsley, 2013)

The lessons learned aim to improve the company production cycles and project management methods and cross-referencing of management experiences for the project. The easiest way to assess risks is to analyze and draw a conclusion from projects which failed in the past. To make sure that the project objectives are met, the portfolio of risks associated with all actors across the project life cycle should be considered (Aronson and Patanakul, 2013). The RBS should be used in conjunction with analysis methods to determine potential sources of risk. The elementary causes of risk stem from the bottom of the tree. Risk management in project planning is normally implemented in the different development sectors; without doubt these policies allow the reduction of risks. These efforts involve important advances in searching the project success (Caron, 2013).

Risk management plans contribute to project success by establishing a list of internal and external risks. This plan typically includes the identified risks, probability of occurrence, potential impact and proposed actions. Low risk events usually have little or no impact on cost, schedule or performance. Moderate risk causes, disruption of schedule or degradation of performance. Increased risks events are likely to cause a significant promote in the budget, disruption of the schedule or performance problems (Hwang & Ng, 2013).

The aim of this Affordable Housing Project Development in Rwanda is to produce affordable housing for low- and medium-income earners, specifically Government employees with priority given to professionals in Government. A huge difference between housing demand and housing supply levels arising from the falling levels of public funding, insufficient incomes, the sheer scale of population growth and the huge rates of urbanization has obliged the concerned administration to seek innovative alternative ways to attempt to address such demanding issues. It is therefore important to properly identify and manage project risks, as well as applying effective control methods with the participation of company structures in those project events that require solving of risks. Affordable housing development project considers its improved success in the risk management systems in place that have helped the project mitigate risks and be in position to meet its intended objectives.

However, the researcher could not confirm this without sufficient research hence the need for the researcher on the effect of planning risks mitigation on project success.

## 2. Problem Statement

In Rwanda, the construction industry is one of the growing segments in the Rwandan economy. It provides jobs for almost 13% of all employees and construction investments contribute 8% percent to the country's GDP in 2013 (MINICOFIN, 2014).

Project effectiveness is important for the attainment of project objectives, all projects therefore devise means and ways of ensuring that they improve their operations and activities so as to improve and promote the chances of success and effectiveness, planning risks mitigation is one of the strategies for project success. Projects with improved risk management strategies in place have been able to become effective and attain the objectives through improved performance positions. However, in some projects planning risks mitigation in place are either weak or poorly implement or this is reducing chances of success in such projects. Some of the reason for this situation in project is limited understanding on lack of enough knowledge on how project management contributes to project effectiveness. This necessitates the research on how planning risks mitigation systems contribute to project effectiveness. It is against this problem that the researcher carried out this research on the effect of planning for risks mitigation on the project effectiveness in affordable housing project.

## 3. Literature Review

The review of literature related the effect of risk management systems on project effectiveness. The review of literature was done in relation to the study objectives and the researcher therefore looked at the contribution of risk identification practices on effectiveness of projects, the effect of risk analysis on effectiveness of projects and the influence of planning for risk mitigation on effectiveness of projects.

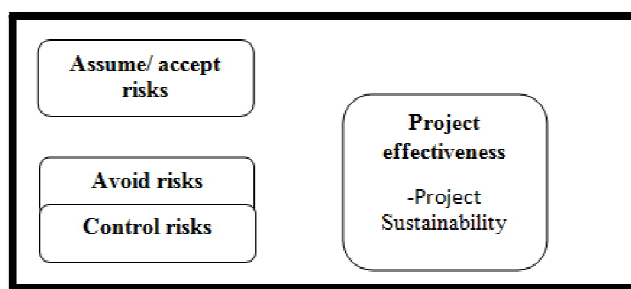


Figure 1: The Conceptual Framework

### 3.1. The Influence of Planning for Risk Mitigation on Effectiveness of Projects

Project risk management has a prominent position in the framework of project management theory and methodology. The reason is that unexpected events will usually occur during a project. Given the importance of project risk management in project management functioning, the efficiency of risk management is expected to significantly influence project performance (Aronson and Patanakul, 2013)

Risk often varies in the likelihood of its occurrence and its impacts from one project another and risk changes its nature during the project life cycle. A lack of project information, particularly in the early stage of a construction project, always leads to a higher degree of risk associated with cost, time and quality. The level of risk, however, may decrease with the project. When risks are being realized as the project progresses, the level of certainty reduces the level of risk in the project. Project risks often tend to be interrelated, but they can sometimes be considered in isolation. Risks can not only affect the achievement of project objectives but also influence the occurrence of one another (Maduka & Udejaja, 2016). In order to reduce and control these risks successfully, project risk management policies and strategies have been developed and implemented in organizations. The effectiveness of risk management in construction project management has been questioned in the past 10 years. Although there is a well-developed, designed and implemented processes of project RM such as risk management planning, risk assessment, risk analysis and risk response planning, A government

report in America demonstrates that over 80 percent of house development projects have failed in whole or in part due to ineffective poor risk management (Caron, 2013).

If risk events are not handled and managed properly, consequences like promoting the financing cost, changing the capital structure, delay the building or facility operation, overrun budget, lost the cash inflow, lead to liquidated damages claim, produce poor quality end product, involve rework after completion might occur (Hwang & Ng, 2013).

Risk avoidance is a risk response strategy whereby the project employees act to eliminate the threat or protect the project from its impact. It usually involves changing the project management plan to eliminate the threat entirely. The project manager may also isolate the project objectives from the risk's impact or change the objective that is in jeopardy. Examples of this include extending the schedule, changing the strategy, or reducing scope. The most radical avoidance strategy is to shut down the project entirely. Some risks that arise early in the project can be avoided by clarifying requirements, obtaining information, improving communication, or acquiring expertise (Maduka & Udeaja, 2016).

Risk transference is a risk response strategy whereby the project employees shifts the impact of a threat to a third party, together with ownership of the response. Transferring the risk simply gives another party responsibility for its management, it does not eliminate it. Transferring does not mean disowning the risk by transferring it to a later project or another person without his or her knowledge or agreement. Risk transference nearly always involves payment of a risk premium to the party taking on the risk. Transferring liability for risk is most effective in dealing with financial risk exposure. Transference tools can be quite diverse and include, but are not limited to, the use of insurance, performance bonds, guarantees. Contracts or agreements may be used to transfer liability for specified risks to another party. For example, when a buyer has capabilities that the seller does not possess, it may be prudent to transfer some work and its concurrent risk contractually back to the buyer. In many cases, use of a cost-plus contract may transfer the cost risk to the buyer, while a fixed-price contract may transfer risk to the seller (Caron, 2013).

Risk mitigation is a risk response strategy whereby the project employees acts to reduce the probability of occurrence or impact of a risk. It implies a reduction in the probability and/or impact of an adverse risk to be within acceptable threshold limits. Taking early action to reduce the probability and/or impact of a risk occurring on the project is often more effective than trying to repair the damage after the risk has occurred. Adopting fewer complex processes, conducting more tests, or choosing a more stable supplier are examples of mitigation actions. Mitigation may require prototype development to reduce the risk of scaling up from a bench-scale model of a process or product. Where it is not possible to reduce probability, a mitigation response might address the risk impact by targeting linkages that determine the severity. For example, designing redundancy into a system may reduce the impact from a failure of the original component (Ahsan & Guawan, 2010).

Risk acceptance is a risk response strategy whereby the project employees decides to acknowledge the risk and not take any action unless the risk occurs. This strategy is adopted where it is not possible or cost-effective to address a specific risk in any other way. This strategy indicates that the project employees has decided not to change the project management plan to deal with a risk, or is unable to identify any other suitable response strategy. This strategy can be either passive or active. Passive acceptance requires no action except to document the strategy, leaving the project employees to deal with the risks as they occur, and to periodically review the threat to ensure that it does not change significantly. The most common active acceptance strategy is to establish a contingency reserve, including amounts of time, money, or resources to handle the risks (Aronson and Patanakul, 2013).

#### **4. Methodology**

The researcher highlighted the research design, study population, sample size, sampling techniques and data collection methods, validity and reliability. The researcher further presents the methods that were used to present and analyze the collected data as well as ethical considerations. The population of this research was 110 employees of affordable housing development project, the sample size of the study was therefore 52 randomly responded from the project.

#### **5. Results and Findings**

This chapter presents, analyzes and interprets the findings of the study in relation to the effect of planning for risk mitigation on the project effectiveness. Tables were used to present the collected data that was later analyzed and interpreted based on percentages and frequencies as well as SPSS program.

According to table 1, respondents contacted strongly agreed that defining assuming/accepting risk contribute to project effectiveness (35%), while 35% of respondents agreed and 28% of respondents neither agreed nor disagreed. Only 2% of respondents disagreed. When asked to give reasons for their answers, respondents said assuming/accepting risk facilitates the project to know that risks are part of businesses and should be handled.

This led the researcher to the understanding that assuming/accepting risk facilitates project effectiveness in affordable housing project.

Extent	Frequency	Percent
Strongly agree	18	35
Agree	18	35
Neither agree nor disagree	14	28
Disagree	2	2
Strongly disagree	0	0
Total	52	100.0

*Table 1: The Extent to Which Respondents Consider Assuming/Accepting Risk to Contribute to Project Effectiveness*  
Source: Primary Data, 2019

According to table 2, respondents contacted strongly agreed risks avoidance play a major role in the project's effectiveness (47%) while 23% of respondents agreed and 28% of respondents neither agreed nor disagreed. Only 2% of respondents disagreed. When asked to give reasons for their answers, respondents said avoid risks play a major role in the project effectiveness. This led the researcher to the understanding that avoid risks is an effect of project risk management on project effectiveness.

Extent	Frequency	Percent
Strongly agree	24	47
Agree	12	23
Neither agree nor disagree	15	28
Disagree	1	2
Strongly disagree	0	0
Total	52	100.0

*Table 2: The Relationship between Planning for Risk Mitigation and Project Effectiveness*

According to Table 3, there is positive relationship between two variables where by  $r=.892$  which implies planning for risks mitigation have got positive effect on project effectiveness in affordable housing project, the effectiveness of projects depend on planning for risks mitigation. Whereby planning for risks mitigation are independent variables and project effectiveness is dependent variables.

Correlations			
		Planning for risks mitigation	Project effectiveness
Planning for risks mitigation	Pearson Correlation	1	.892
	Sig. (2-tailed)		.543
	N	52	52
Project effectiveness	Pearson Correlation	.892	1
	Sig. (2-tailed)	.543	
	N	52	52

*Table 3: The Extent to Which Respondents Consider Risks Control to Be an Effect of Risk Management on Project Effectiveness*

According to table 4, respondents contacted strongly agreed that control risks to be an effect of risk management on project effectiveness (52%), while 41% of respondents agreed and 5% of respondents neither agreed nor disagreed. Only 2% of respondents disagreed. When asked to give reasons for their answers, respondents said risks control to be an effect of risk management on project success. This led the researcher to the understanding that risks control to be an effect of risk management on project success facilitates project effectiveness leading to better performance.

Extent	Frequency	Percent
Strongly agree	27	52
Agree	21	41
Neither agree nor disagree	3	5
Disagree	1	2
Strongly disagree	0	0
Total	52	100.0

*Table 4*

Source: Primary Data, 2019

## 6. Conclusions and Recommendations

### 6.1. Conclusion

The study concluded that the attributes of risk planning and mitigation that contribute to effectiveness of projects are assuming/Accepting risk, controlling risks and avoid risks. Improved performance to be an effect of risk management on project success and that improved performance to be an effect of risk management on project success facilitates project effectiveness leading to better performance.

### 6.2. Recommendations

The research made the following recommendations that should be put into consideration in relation to the effect of planning risks for mitigation on the effectiveness of projects. In addition, risk assessment practices, should be enhanced in the project so as to promote effectiveness of affordable housing development project. Further, the study recommends that risk analysis should be conducted before onset of housing projects to ensure effectiveness of affordable housing. Indeed, planning for risks mitigation should be made apriority in projects so as to promote effectiveness.

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