



## **EFFECT OF PROJECT MANAGEMENT PRACTICES ON PROJECT SUCCESS. A CASE OF GICIYE III HYDROPOWER PLANT CONSTRUCTION IN NYABIHU DISTRICT, RWANDA**

1. Museminari J.

Research Scholar

Master in Business Administration, Project Management

School of Graduate Studies

University of Kigali, Rwanda

Email: museminarijerome@gmail.com

Phone: +250788610144

2. Dushimimana J.

Full Professor, PhD

School of Graduate Studies

University of Kigali, Rwanda

Email: jdushiminana@uok.ac.rw

Phone: +250787163675

### **ABSTRACT**

*The aim of this study was to assess the extent to which the success of Giciye III hydropower plant construction is affected by project management practices. The specific objectives of this study were to assess how project planning has affected the construction of the Giciye III hydro power plant, to identify the role of human resource factors on the success of Giciye III project, to assess the impact of monitoring and evaluation on the execution and success of the Giciye III and to determine how stakeholders contributed to the success of the Giciye III hydropower plant project. This study used descriptive research design to achieve these objectives. A Sample size of 90 respondents determined using Slovin's formula, was randomly extracted from from 832 people involved in Giciye III hydro power plant construction project employees. Structured questionnaire containing close-ended questions was used to collect primary data for this study. Analysis of*

*quantitative data was done using descriptive and inferential statistics with use of Statistical Package for Social Sciences version 28. The results indicate that all independent variables had a positive linear relationship with project success in general. The relationship was strongest because human resource management and project planning practices have influenced Giciye III success at the rate of 63.2% ( $r=.632$ ,  $sig=.028$ ) and 58.6% ( $r=.586$ ,  $sig=.079$ ) respectively. While both stakeholder's involvement and monitoring & evaluation practices had a weak positive correlation with the project success because they have contributed to the project success at the rate of 27.3% ( $r=.273$ ,  $sig=.028 <.05$ ) and 19.8% ( $r=.198$ ,  $sig=.005 <.05$ ) respectively. The model summary from multiple regression analysis shows that four predictors can explain 63.2% ( $r=.632$ ) of change in project success namely Project planning, human resource management, monitoring & evaluation and stakeholders' participation practices, an implication that the remaining 37.2% of the variation in  $v$  could be accounted for by other factors not involved in this research. This allow researcher to reject all formulated hypotheses of this research. From these findings, it was deduced that the Giciye III hydropower plant construction project were finished within the budgeted range and that they used the budget for all anticipated activities without deviations. The study suggests that project managers may plan ahead and allocate resources to the work and manage them well with the help of efficient human resource management. In addition, project planning should be done in a way that can effectively address the project's needs.*

**Key words:** *Effect; project management practices, project success and Giciye III hydropower plant*

## **1. Introduction**

### **1.1. Background of the study**

Rwanda's net electricity production in 2015 was 500 GWh, comprising fossil fuels, hydro, solar, and the electricity consumed was 419 GWh. This implies a loss of 16.2%. Furthermore, out of the estimated 313 MW hydropower potential, about 226 MW is realizable (72.1%). This aggregate is a combination of micro, mini, small, medium and larger hydropower plants already exploited in the country, which include resources shared with neighboring countries of Burundi, Democratic Republic of the Congo (DRC) and Tanzania (UNEP, 2016).

Application of best Project Management (PM) practices is of critical importance for organizations operating on power plant projects. Project Management best practices can be effectively adapted from international standards and Guidelines like International Standardization Organization (ISO),

American National Standardization Institute (ANSI), the International Project Management Association (IPMA) and the Project Management Institute (PMI, 2010).

In Uganda, for example, the Bujugali hydropower project in Uganda took 18 years to complete, having faced a number of environmental, social and economic challenges. The cost of the project escalated from USD 580 million at inception to USD 902 million at completion (World Bank, 2001).

In Rwanda, six tiny hydropower units that run at a reduced capacity or failed entirely have caused frustration. Mukungwa, which is anticipated to produce 2.5 MW, Nshili, 400 KW, Nyabahanga, 200 KW, Gashashi, 200 KW, Janja, and Nyirabuhombohombu, 500 KW are the six micro power plants that caught the attention of the parliamentarians. The projects' construction started in 2006, but none of them has been able to produce power to its full potential as of yet. According to reports, a number of initiatives fail primarily as a result of inadequate resource planning (MININFRA, 2017).

This study is taken to see how project management practices have played a leading role in the success of Giciye III hydropower plant construction in Nyabihu district of Rwanda.



## **1.2.Problem statement**

Six micro hydropower facilities in Rwanda have either failed completely or are only operating at a fraction of their potential. Mukungwa, which is anticipated to produce 2.5 MW, Nshili, 400 KW, Nyabahanga, 200 KW, Gashashi, 200 KW, Janja, and Nyirabuhombohombu, 500 KW are the six micro power plants that caught the attention of the parliamentarians. Although the projects' construction started in 2006, none of them have yet produced electricity at their maximum potential (MININFRA, 2017).

According to Amponsah (2012), a large number of project initiatives fail primarily as a result of inadequate resource planning and management. Resource management, effective workforce planning, and resource scheduling are all essential for a project to be successful. Where the same studies have been done as described below, none of the previous studies focused on the effect of project management on the success of Giciye III hydropower plant construction project.

Additionally, project monitoring, assessment, follow-up, evaluation, and feedback were not adhered to, which resulted in a less than ideal project implementation process

From the above, little research has been conducted to show the effect of project management practices on implementation of power projects in Rwanda. Sifa's (2015) limited her study on determination of Resource Factors Influencing the Project Completion in Rwanda: A Case of Nyabarongo I Hydro Power Plant Project in Muhanga District. And the findings revealed that NYHPP project was delayed by the information availability and poor planning. The conducted researches in this domain showed that the projects used to be delayed. They have not been achieved as expected, to date due to failures to meet planned schedules, planned budget. However, according to RMT (2021), Giciye III hydro power plant project started in 2018 was fully completed three months before the expected time. The purpose of this study is to demonstrate how project management practices affect overall project implementation and completion within the intended timeline and budget. What is the secret that caused this project to be fully completed three months before the expected time?

### **1.3.Objectives of the study**

#### **1.3.1. Main objective**

The general objective of this study was to assess the effect of project management practices on the success of Giciye III hydro power plant.

#### **1.3.2. Specific objectives**

The specific objectives of this study were set as follow:

1. To assess the effect of project planning on the success of the construction of the Giciye III hydro power plant.
2. To identify the effect of human resource planning factors on the success of Giciye III hydro power plant construction project
3. To assess the effect of project monitoring and evaluation on the execution and success of the Giciye III hydropower plant project
4. To determine the effect of stakeholder's management on the success of the Giciye III hydropower plant building project.

## 1.4. Hypotheses

For achieving the objectives set up, the following hypotheses were tested:

**H<sub>0</sub>**: Project management practices has no significant effect on project success.

**H<sub>01</sub>**: Project planning has no significant effect on the project success.

**H<sub>02</sub>**: Human resource management has no significant effect on the project success.

**H<sub>03</sub>**: Project monitoring and evaluation practices has no significant effect on the project success.

**H<sub>04</sub>**: Stakeholders management has no significant effect on project success.

## 2. Literature Review

### 2.1. Theoretical framework

There are many theories and literature on the variables for the subject under study. This section discusses the micro-foundations of how support can impact project success.

#### 2.1.1. The stakeholder theory

According to Freeman (1984) theory, the goal of an organization should be to manage the interests, needs, and opinions of its stakeholders. The organization is viewed as a group of stakeholders in and of itself. Any group or person that has the potential to influence or be affected by the accomplishment of an organization's goals is referred to as a stakeholder. Stakeholder management is typically handled by a company's managers. The definition of the organization is altered to reflect the concept of stakeholders. The concept primarily focuses on the conceptualization and potential of the organization. The managers must operate as the stakeholders' agents to secure the survival of the company and protect the long-term interests of each group while also managing the business for the benefit of its stakeholders in order to ensure their rights and involvement in decision-making. This theory demonstrates how stakeholder interaction creates the social qualities that make up an organization (Freeman, 1984).

For this study, the stakeholder theory points out the role of stakeholder's involvement in the implementation and the success of Giciye III ydropower plant construction project.

#### 2.1.2. Triple constraint theory

According to Assaf (2006), One of the most well-known and accepted methods for denoting the interaction of a project's major characteristics is the triple constraint. An essential part of the project manager's job and responsibility is to thoroughly understand its purpose and repercussions.

The triple constraint is not designed to be a burden but rather a tool in the project manager's toolbox. The Triple Constraint essentially depicts the major elements that must be successfully managed for the proper completion and closing of any project. The following list of the Triple Constraint's main characteristics is provided for thoroughness' sake (Assaf, 2006):

**Time** is the real amount of time needed to generate a delivery. In this instance, the number of requirements that are part of the final product, scope, and the quantity of resources committed to the project will all be directly tied to how long it takes to develop the deliverable. **Cost**, or estimated cost of the project, is the sum of money needed to finish it. Cost itself includes a variety of factors, including: resources, contractor labor rates, risk estimations, bills of materials, etc. **Scope**, these are the functional components that, when finished, make up the project's final product. To offer the project the best possibility of success, the scope is typically defined up front.

In this research, triple constraint theory reminds us that constraint time, cost and scope should be taken into account while implementing, monitoring and evaluation a project.

### **2.1.3. Resource Based Theory**

According to Jay B. Barney (2007), resources, such as money, equipment, individual employees' abilities, patents, funding, and talented managers, are inputs into a company's production process. Resources might be physical or abstract in nature. The range of resources at the disposal of the company tends to expand as effectiveness rises. Resources may not all contribute to a competitive advantage. Competitive advantages are created through the synergistic blending and integrating of several sets of resources. A project management theory that is frequently applied is the resource-based theory (RBT). It looks at how assets might lead to competitive advantage. This theory supports the study in showing the effect of monitoring and evaluation on the implementation of hydropower plant project and the effect of project planning on the success of hydro power plant projects in Rwanda.

## **2.2. Empirical review**

### **2.2.1. Project planning and project success**

Effects of Project Resource Planning Practices on Project Performance of the Agaseke Project were the focus of Mbabazize's (2015) study. The goal of the study was to prove that the performance of the Agaseke project is influenced by human resource planning procedures.

According to 74% of respondents, participants of the Agaseke project receive instruction in handmade creation. 83% of respondents said that performance tracking was done as a result of resource allocation in the project, and 80% of respondents said that training had an impact on project performance. While 87% of the project participants in the study believed that the project projected all revenues and costs, 88% of the respondents said that material resource planning had an impact on the project's performance. The majority of respondents (89%), thought that procurement was properly thought out and completed within the project budget.

### **2.2.2. Human resource management and project success**

The Human resource management includes the processes required to coordinate the human resources on a project. Such processes include those needed to plan, obtain, orient, assign, and release staff over the life of the project. Functions development of Human resource plan acquiring staff measuring the Performance of staff Release of staff at the end. The human resource plan supports staff planning, staff acquisition, allocating resources to staff, and supervising project specific training activities (Martin, 2013). The Project management schedule includes a summary of the effort by human resource category that will be required to perform defined work units, as well as the time frames during which the work units will be performed (Storey, 2001).

### **2.2.3. Project monitoring and Project-success**

Monitoring is important as a way to make sure you're focusing on the right goals or progress; Monitoring assists those involved with any type of project to determine if progress desired is being attained. In controlling if progress desired is being accomplished, in other words, is the project meeting its targets, Monitoring is also useful for asking, the right goals and targets (Muyuka, 2016).

### **2.2.4. Stakeholders management and project success**

Adan (2012) conducted a study in Isiolo North Constituency that examined the stakeholders' role influence on constituency development fund projects' performance. A descriptive research design was utilized. The role of project managers and government officials in implementing programs has led to better project performance in this study. The study focused on the part of stakeholders and also on proposals for electoral development funds. The current research was on the stakeholder's involvement in Care International's program Kenya's Women and Girls Economic Empowerment performance in Kiambu and Nairobi city counties.

Mandala (2018) studied the influence of stakeholders' involvement on management of project on the road construction projects performance in Bondo sub-county, Siaya, Kenya. The study showed a significant impact of stakeholders on the Bondo Sub County's construction works by implementing projects. Both descriptive research methodology and cross-sectional survey design were utilized in this research. The current study used a descriptive research design.

### **2.3. Research Gap**

To make our research more comprehensible and to determine whether there is a need that our research might serve, we have evaluated numerous theoretical and empirical themes associated with our subject matter: According to Mbabazize (2015) study of Kigali Rwanda on the effect of project resource planning practices on project performance of Agaseke project, the degree to which project performance is influenced by project resource planning can be used to gauge how effective it is. The study's factors include, planning for human resources, planning for financial resources, Planning techniques for time and material resources.

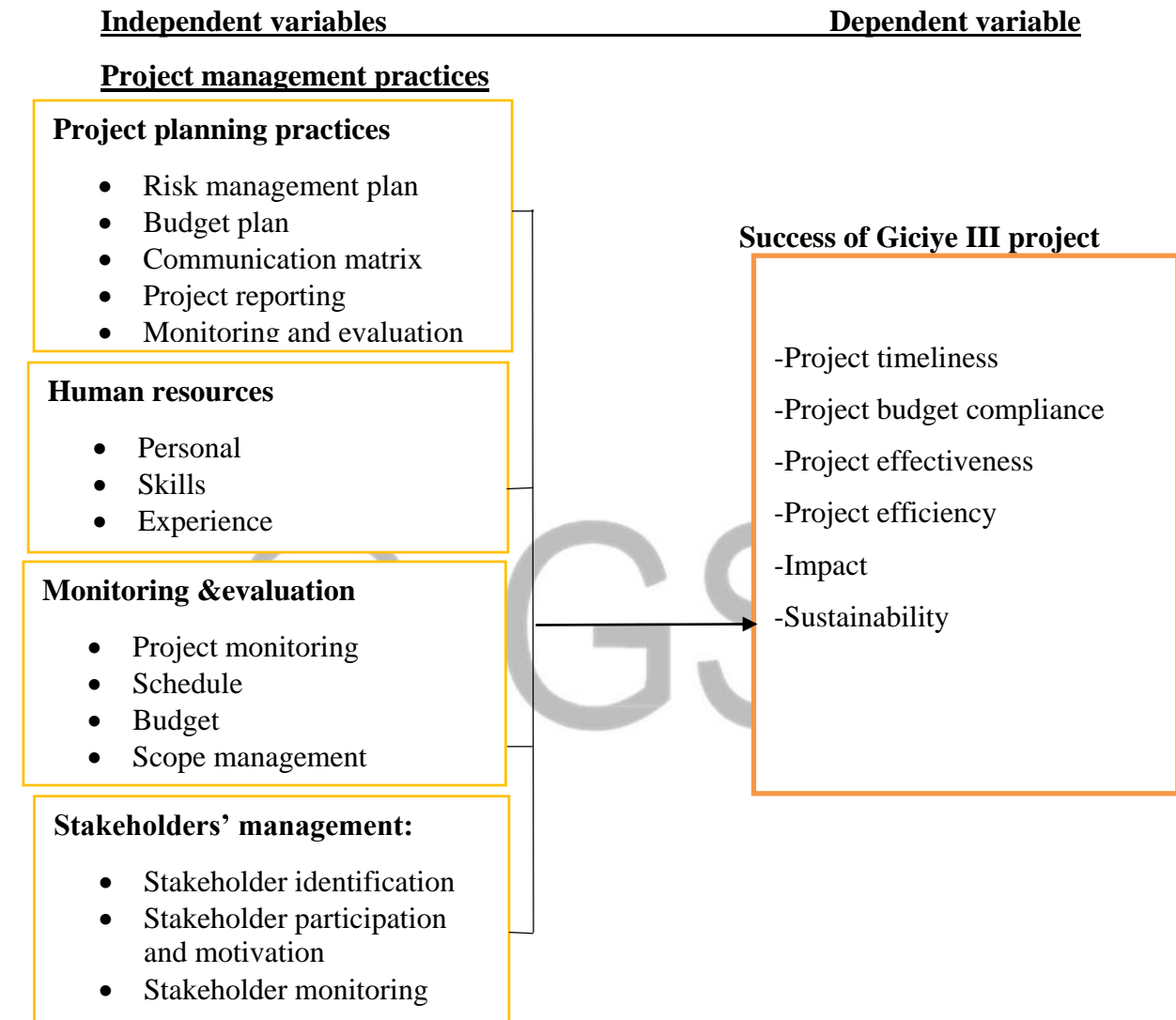
According to Kumar (2012) study of Bang Kong on the impact analysis of allocation of resources by the project managers on the success of the project carried out on various resources, to ensure the project's quality, he only considered time and cost when estimating the project's cost. It is common knowledge that project cost and efficiency are key factors in success. In addition, one of the factors that can be used to assess a project's resource needs is its scope. Projects must be delivered within cost, time and scope. Kumar omitted to mention the project's scope. Projects also need to adhere to customer quality expectations. As a result, he omitted to clearly define the parties' relationship within the established boundaries. Project managers are able to start, commence, execute, operate, conclude, and commission projects without incident if the parameters are adequately balanced. Projects whose scope is not well defined or whose client is changing the scope, time, and cost schedule will have delays.

Therefore, the above findings from different studies permit the researcher to state that there is a lack of consensus among academics and practitioners over what constitutes effective management practices and project success. However, the researcher realized through the empirical literature and critical evaluation that different researchers from various nations did not share the same idea of how project management practices affected the success of the project in their case studies. This indicates that there is a knowledge gap in academia regarding project management practices and



project success, which the current study aims to fill by collecting data on related topic through Giciye III hydropower plant construction project.

## 2.4. Conceptual framework of the study



Source: our work, 2023

**Figure 2.1: Relationship between independents and dependent variable**

### 3: Research methodology

#### 3.1. Research Design

The study employed a descriptive and co relational research design to achieve its objectives. A descriptive research design was used in this study since it gave the researcher precise information on the phenomena under study without changing its status and enabled the researcher to find answers to critical questions such as what, how, when, and where. On the other hand, a correlational research design was adopted to evaluate the correlations between the variables under consideration.

#### 3.2. Study Population

In this study, the target population involved Giciye III hydropower plant project coordinators, project managers, all stakeholders, and Contractors/subcontractors.

**Table 3.1: Target Population**

Target category	Number
Project coordinator	5
Project managers	2
All stakeholders,	5
Engineer and other technicians	20
Ordinary employees	800
<b>Total</b>	<b>832</b>

**Source:** Our research, 2023

##### 3.2.1. Sampling process

###### i) Sample size determination

. Our sample was extracted from 832 people involved in Giciye III hydro power plant construction project. The sample size was derived from a population 832 respondents using a Solvin’s formula (1960) with a margin of error of 10% as follows:

$$n = \frac{N}{1 + N(e)^2}$$

Where

“*n*” is the minimum sample size.

$N$ : is the population from which the sample was drawn, here estimated at 832 people involved in Giciye III hydro power plant construction

“ $e$ ” is the margin of error estimated at 10%. Substituting in the above formula, the sample size is

$$\text{Calculated as: } n = \frac{832}{1+832 (0.05)^2} = 90 \text{ respondents}$$

So, 90 respondents were taken as a sample to represent all 832 people involved in Giciye III hydro power plant construction project.

## **4. Findings**

### **4.1. Descriptive statistics**

The findings were reported in descriptive statistics using frequencies, percentages, mean and standard deviation.

#### **4.1.1. Effect of Project planning practices on project success**

The first objective of this research was to assess how project planning has affected the construction of Giciye III hydro power plant.



**Table 4.2. Effect of project planning on project success**

	SA	A	N	D	SD		
	%	%	%	%	%	Mean	Std. Deviation
We always have a plan that guides our project activities	63.4	30	3.3	3.3	0	4.466	.889
The project has clear vision, mission, objectives and goals	65.7	24.7	3.8	2.7	3.1	4.556	.877
Information and communication resource were fully followed and utilized in Giciye III project	56.7	35.6	2.2	2.2	3.3	4.555	.751
Financial resource contributes to Giciye III project to ensure the quality of the project	56.7	35.6	2.2	2.2	3.3	4.400	.909
The ability of resources management project (financial, human, time, etc) helped the project to be completed within time, budget & scope	60.0	34.4	1.1	2.2	2.2	4.477	.824
Risk identification process was carried out at the inception of the project to identify both internal and external factors affecting the project	53.3	36.7	4.4	2.2	3.3	4.344	.926
Quality Planning provides guidance and direction on how quality will be managed and validated throughout the project.	63.1	22.8	7.5	2.2	2.2	4.356	.831
<b>Average Score</b>	<b>59.84</b>	<b>31.4</b>	<b>3.5</b>	<b>2.42</b>	<b>2.48</b>	<b>4.45</b>	<b>.85</b>

**Source:** Primary data, September 2023

The results presented in above table show that the average mean of 4.45 indicated that project planning affects the success of Giciye III hydropower plant, with a standard deviation of .85 where 59.84% of the respondents strongly agreed, 31.4% agreed, 3.5% neutral, 2.42% disagreed and 2.48% strongly disagreed.

According to the results of interview, project planning outlines the necessary resource plan, communication matrix, risk management strategy, budget, project reporting method, implementation targets, and roles and responsibilities of each participant in the implementation process. The failure of the projects can be attributed to inadequate planning.

**4.2.2. Effect of human resource management practices on project success**

The second objective of the study was to identify the role of human resource factors on the success of Giciye III hydro power plant construction project.

**Table 4.3. Effect of human resource management on project success**

	SA	A	N	D	SD		
	%	%	%	%	%	Mean	Std. Devi ation
The ability to coordinate human resource and technical decisions results to Giciye III project project sustainability	44.4	34.4	15.6	2.2	3.3	4.144	.989
Having qualified and skilled employees as a key factor to Project completion to ensure the quality of the project	61.0	32.3	3.4	2	1.2	4.488	.767
The ability to organize the human resources in project and technical decisions keeps Giciye III project to be completed within time, budget & scope	46.7	43.6	5.3	1.4	3.0	4.311	.869
Prevision of motivation to work hard always to achieve project successful outcomes	63.3	28.9	4.4	1.1	2.2	4.500	.824
Information and communication resource were fully followed and utilized in Giciye III project	58.4	31.2	5.4	3.2	1.7	4.478	.782
Personals are motivated to work hard always to achieve project successful outcomes	54.7	26.1	15.6	2.2	1.3	4.400	.824

Every member of the team is aware of their responsibilities and roles within the project.	52.2	32.0	8.2	6.4	1.1	4.03	.872
<b>Average Score</b>	54.38	32.64	8.27	2.64	1.97	4.33	.84

**Source:** Primary data, September 2023

In general, the results mentioned in table 4.3 show that, the average mean of 4.33 indicated that human resource management affected the success of Giciye III hydropower plant construction project with a standard deviation of .84 as confirmed by 54.38% strongly agreed on this statement, 32.64% agreed, 8.27% neutral, 2.64% disagreed and 1.97% strongly disagreed.

With the interview by top management, most of them indicated that project success greatly depends on human resource management. Effective human resource management positively influences project success. To triangulate the findings collected using a questionnaire, interview was conducted with top management. The results of interview indicated that if you plan poorly in terms of human resource, project decline to fail. Any project that has limitation on human resources management will perform poorly, while a project that has no limitation on managing human resources will perform very well.

#### **4.2.3. Effect of monitoring and evaluation practices on project success**

The third objective of the study was to assess the impact of monitoring and evaluation on the execution and success of the Giciye III hydropower plant project.

**Table 4.4: Effect of monitoring and evaluation practices on project success**

	SA	A	N	D	SD		
	%	%	%	%	%	Mean	Std Deviation
There is a regular project coordination	52.2	38.9	2.2	1.1	5.6	4.311	.001
Project bring management offices closer activities	58.9	30.0	8.9	1.1	1.1	4.444	.794
Supervisors ensure the planned activities are well done	53.3	40.0	2.2	2.2	2.2	4.400	.831
Project is checked regularly by manager	50.0	37.8	6.7	3.3	2.2	4.300	.905
There is a clear record on activities done	75.6	22.2	2.2	0.00	0.00	4.733	.492
Monitoring ensures achievement of all project goals and objectives	41.0	32.8	13.7	3.3	2.2	4.300	.897
Management of the risks is done effectively	47.0	37.8	3.7	3.3	2.2	4.120	.814
<b>Average Score</b>	<b>54</b>	<b>34.21</b>	<b>5.65</b>	<b>2.04</b>	<b>2.21</b>	<b>4.37</b>	<b>.81</b>

**Source:** Primary data, September 2023

The study was motivated to get the data from respondents about rate of project monitoring and evaluation. It was found that majority of the respondents with mean of 4.733 and .492 of standard deviation scaling with 75.6% of respondents strongly agreed and 22.2% of respondents agree that there found a clear record related to the performed activities while the mean of 4.444 and .794 of standard deviation corresponding with 58.9% of respondents strongly agreed that the conducted project bring management offices closer especially on the performed activities comparatively to 1.1% strongly disagree with the statement. This implies that construction employees take care of their project as they need to reach the achievement.

In the interview conducted in July 2023 with the project managers at Giciye III hydropower plant site, the respondents revealed that “the project manager is the one responsible to check the project

progress which also done as an act of project monitoring and evaluation where the manager checks how every was done in the project.

#### 4.2.4. Effect of stakeholder involvement and participation on project success

The fourth objective of this research was to determine how stakeholders contributed to the success of the Giciye III hydropower plant building project.

**Table 4.5: Effect of stakeholder involvement and participation on project success**

	SA	A	N	D	SD		
	%	%	%	%	%	Mean	SD
Stakeholder mapping is done to help stakeholders recognize their roles	46.1	29.4	17.6	4.9	2.0	4.08	1.00
Stakeholders are regularly informed on the project progress	42.2	28.4	13.7	6.9	8.8	3.88	1.27
There is a stakeholder analysis plan to assess their influence and impact on Giciye III project	45	27.5	8.8	8.98	9.8	3.89	1.33
Stakeholder management factor influenced the project quality and completion.	29.4	41.2	11.8	7.8	9.8	3.72	1.24
Identification of nature and category of stakeholder have been useful in Giciye III project Completion and success	15.7	38.2	24.5	9.8	11.8	3.36	1.20
Stakeholders participate actively in all project phase based on their responsibilities and influence	10.7	9.9	7.8	39	31.6	3.65	1.13
Stakeholders' involvement in the project is satisfactory and acceptable	14.6	10.9	11.8	38.2	24.5	3.09	1.72
Stakeholders are often consulted in planning and decision-making	11.8	9.8	7.8	41.2	29.4	3.72	1.24
<b>Average score</b>	<b>26.93</b>	<b>24.41</b>	<b>12.97</b>	<b>19.59</b>	<b>15.96</b>	<b>3.673</b>	<b>1.26</b>

Source: Primary data, September 2023

Table 4.5 shows that a large number of participants (Mean = 4.08, SD. =1) agreed that stakeholder mapping is done to help stakeholders recognize their roles as confirmed by 46.1% of that



respondents that strongly agree with the statement comparatively to 2% strongly disagree with the statement; and as confirmed by 45% of respondents, there is a stakeholder analysis plan to assess their influence and impact on the Giciye III project (with a mean of 3.89 and Stand deviation of 1.33). Discussions with interviewers revealed that stakeholder mapping is done to assist stakeholders in recognizing their responsibilities, and there is a stakeholder analysis strategy in place to measure their influence and impact on the project.

### 4.3. Inferential statistics

For this study, inferential statistics in research draws conclusions that cannot be derived from descriptive statistics.

#### 4.3.2. Correlation between variables

##### (i) Correlation matrix

Correlation matrix helped to determine the relationship between resource management practices and project performance.

**Table 4.6: Correlation between variables**

		Correlations
Project management practices	N	Giciye III Project success
Project planning practices	Pearson Correlation	.586
	Sig. (2-tailed)	.007
	N	90
Human resource management practice	Pearson Correlation	.632*
	Sig. (2-tailed)	.028
	N	90
Monitoring practices	Pearson Correlation	.198
	Sig. (2-tailed)	.012
	N	90
Stakeholder involvement and participation practice	Pearson Correlation	.273
	Sig. (2-tailed)	.028
	N	90

\*. Correlation is significant at the 0.05 level (2-tailed).

The results of this table indicate that all independent variables had a positive linear relationship with Project success in general. The relationship was strongest because Human resource management and Project planning practices have influenced Giciye III project success at the rate of 63.2% ( $r=.632$ ,  $sig=.028$ ) and 58.6% ( $r=.586$ ,  $sig=.079$ ) respectively. Table 4.6 indicates p value  $.028 < .05$  and correlation coefficient of 27.3 which show that there is a positive correlation

between stakeholder’s involvement and project success of Giciye III hydropower plant construction project. The linear regression was thus suitable for estimation in this study and the proposed regression models could be accurately estimated. All statistic tests done here are significant because the observed P-values are less than significance level of 5% ( $P < .05$ ).

**(ii): Model Summary**

**Table 4.7: Regression Model Summary**

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.726	.527	.626	.031 <sup>b</sup>

**Source:** Primary data, September 2023

Predictors: (Constant), Project planning practices, Human resource management practices, Monitoring practices, Stakeholder involvement and participation practices

The percentage of the variance in the dependent that is solely or jointly explained by the independent variables is known as the adjusted  $R^2$ , also known as the coefficient of multiple determinations. Therefore, the four independent variables (Project planning practices, Human resource management practices, Monitoring practices, Stakeholder involvement and participation practices) that were studied, explain 62.6% of the success of by the adjusted R square. This therefore means that other factors not studied in this research contribute 37.4% of the project performance.

Table 4.8: ANOVA Results

ANOVA <sup>b</sup>						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	12.293	4	3.073	4.000	.045 <sup>a</sup>
	Residual	127.529	85	1.500		
	Total	139.822	89			

a. Predictors: (Constant), Project planning practices, Human resource management practice Monitoring & evaluation practices, Stakeholder involvement and participation practices

b. Dependent Variable: Project success

The p-value is .045 which is less than .05 thus the model is statistically significance in predicting how Project planning practices, Human resource management practice, Monitoring practices and Stakeholder participation practices influenced the success of Giciye III project. The F calculated

at 5% level of significance was 4.000 since F calculated is greater than the F critical (p value =3.073), this shows that the overall model was significant. This means that the researcher can reject null hypothesis (H0), which stipulated that there is no significance effect of project management practices on project success.

**Table 4.9: Determinant coefficients**

Model	Coefficients <sup>a</sup>				
	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
1 (Constant)	.465	1.480		.314	<.001
Project planning practices	.581	.192	.143	3.0260	.002
Human resource management practice	.633	.163	.216	3.883	.000
Monitoring & evaluation practices	.192	.149	.108	1.288	.003
Stakeholder involvement and participation practice	.279	.170	.047	1.641	.040

a. Dependent Variable: Project success

**Source:** Primary data, September 2023

The analysis finds values on the following equation:

$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \epsilon$  Where y represents dependent variable “project success” and x values represent variables of independent variables, such as Project planning practices (X1), Human resource management practices (X2), Monitoring and evaluation practices (X3) and Stakeholder’s participation (X4). With values from the analysis the function become like:

$$Y = .465 + .581X_1 + .633X_2 + .192X_3 + .279X_4 + \epsilon$$

The table above showed that Project planning (p=.002<0.05), human resource management (p=.000<0.05), Project monitoring and evaluation (p=.003<0.05), and Stakeholder involvement and participation (p=.040<0.05) are statistically significant to increase the success of Giciye III project. Hereby, researcher rejected the hypothesis (H0<sub>1</sub>) stated that project planning has no significant effect on the project success; the second hypothesis (H0<sub>2</sub>): Human resource management has no significant effect on the project success; the third hypothesis (H0<sub>3</sub>): Project monitoring and evaluation practices has no significant effect on the project success. And then, the researcher also rejected the fourth hypothesis (H0<sub>4</sub>) stated that stakeholders’ management has no significant effect on the success of Giciye III hydropower plant construction project.

## 5. Conclusion

The study's findings support the assertion that there is a strong correlation between resource management and project performance. Implementers are accomplishing project success through Project planning, Human resource management, Monitoring and evaluation, and stakeholders' involvement. Practices for managing project resources appear to be essential to achieving project goals, such as finishing some project phases on schedule and under budget while still meeting customer quality requirements.

## REFERENCES

- Freeman (1984). Stakeholder based theory. *Boston: Pitman*, ©1984
- Jay B. Barney (2007). Resource-Based Theory: Creating and Sustaining Competitive Advantage. *Oxford University Press*; Illustrated edition.
- Kumar (2012). Evaluation of factors affecting time and cost performance in Hong Kong building projects. *Engineering & architectural management*, 6 (3)
- Martin, S. (2013). Project Management Pathways. *APM Publishing Ltd*.
- Mbabazize (2015). Effects of Project Resource Planning Practices on Project Performance of Agaseke Project in Kigali, Rwanda. *International Journal of Business and Management Review*, 3(5), 29–51. [www.eajournals.org](http://www.eajournals.org)
- Mininfra. (2017). Developmemnt of government projects in the Ministry of Infrastructure Republic of Rwanda. Kigali, Rwanda
- Muyuka, J (2016). M&E planning process: *Steps in developing M&E plans, Lagos*
- RMT (2021). Rwanda Mountain Tea, *annual report 2021*, Kigali, Rwanda
- Storey, J. (2001). Introduction: From Personnel Management to Human Resource Management, *A critical Text*.
- UNEP (2016). Rwanda. Available at
- World Bank (2001). Uganda -Bujagali hydropower project Document, 2001