



***CONTRIBUTION OF MONITORING AND EVALUATION SYSTEM TO THE  
PERFORMANCE OF RWANDA ENENERGY GROUP (REG), CASE STUDY OF  
RWANDA ELECTRICITY SECTOR STRENGTHENING PROJECT (RESSP)***

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**Abstract**

This study aimed to assess the contribution of monitoring and evaluation system to the performance of Rwanda Energy Group (REG) and the specific objectives were to assess the activities of Monitoring and Evaluation Unit of Rwanda energy group in Rwanda Electricity Sector Strengthening Project (RESSP), to examine the indicators of Rwanda Electricity Sector Strengthening Project towards its goal and to assess the relationship between the monitoring and evaluation system and project performance.

The research enrolled the entire population of Rwanda Electricity Sector Strengthening Project (RESSP) staffs to respond to an in-depth individual interview questionnaire. The study population was 64 employees including 46 administrative staffs and 18 technical staffs of the project. The analysis of data was done by utilizing computerized statistical package of social scientists (SPSS) and summarized in tables for interpretation and inference. M & E systems were analyzed at four levels of planning process, technical expertise, stakeholder involvement and management participation. The findings from the regression analysis showed that Activities of M&E unit, clear goal and project indicators setting and the existence of M&E system are statistically significant to the project performance, the results revealed that one unit change in activities of M&E Unit influenced negative change of project performance by a decrease of 14%, a one unit change in Clear goal and project indicators setting influenced Project Performance (RESSP) to increase by 61% and one unit change in the Existence of M&E systems influenced Project Performance (RESSP). The  $R^2 = .86$ , this coefficient of determination, which is the proportion of the variation in the dependent variable that is predictable from the independent variable(s) implies that all independent variables are fitted in this linear regression model as explanatory variables of project performance(dependent variable). The project though reported low staff awareness on M & E planning process, lack of control mechanisms to keep track of project progress, lack of utilization of M & E to support decision making during project implementation, lack of developed comprehensive strategic operational plans for regular monitoring and evaluation. The project further reported low-level application of stakeholder analysis or feedback and communication strategy that reflects community needs or people's interest in the implementation or enable stakeholders to influence project acceptance based on their needs. There was lack of visible support and commitment by management towards project implementation as well as effective communication that meets project objectives and effective use of lessons learnt from different projects for future decision-making and improved project delivery. The study recommends establishment of strategic plans to define internal process of carrying out M & E, strengthening organizational M & E capacity, structuring stakeholder involvement and management participation.

## INTRODUCTION

The Energy Development Corporation Limited (EDCL) was incorporated to have devoted attention to: Increasing investment in development of new energy generation projects in a timely and cost efficient manner to expand supply in line with EDPRS and other national targets, Develop appropriate transmission infrastructure to evacuate new plants and deliver energy to relevant distribution nodes; and plan and execute energy access projects to meet the national access targets. This ring-fenced approach to development is designed to enhance accountability of development resources with the various stakeholders while at the same time opening space for increased private sector participation. To achieve this goal, there is a need of Monitoring and evaluation system which is a key role to play in the successful implementation of the policies, programs and projects which constitute the backbone of traditional development. An effective monitoring and evaluation system help to obtain data and information required for the formulation and implementation of policies, programs and projects. It can also enable entities to ascertain whether or to what extent the economy is geared towards achievement of set of national goals by providing objective information. The guide to Monitoring and Evaluation for Energy Projects acknowledges that there are many reasons for conducting monitoring and evaluation exercises, and many ways to conduct the exercise. Each set of reasons is likely to lead to different methodologies being selected and different emphases being placed in the results obtained. The Guide not only acknowledges this, but one of its strengths is that it was developed by a group of experts from a wide divergence of opinions and monitoring and evaluation cultures and practices who were able to agree to key steps to assist newcomers to the field. Interactive use of the Guide is encouraged and the approach is suggested, not prescribed. It is in this context; this study aims to assess the contribution of monitoring and evaluation system to the performance of Energy Development Corporation Limited (EDCL), case study of Rwanda Electricity Sector Strengthening Project (RESSP).

### Statement of the problem

Monitoring and evaluation of projects in Rwanda especially in some government institutions is very critical because a lot of resources are provided by the government and various donors to public and non-governmental organizations to implement various projects. Not only does best practices require that projects are monitored for control but also project stakeholders require transparency, accountability for resource use and impact, good project performance and organizational learning to benefit future projects (Mackay, 2007). The weak or inadequate

Monitoring and evaluation system of some institutions in Rwanda is associated with problems in activities of Monitoring and Evaluation Unit, Clear goal and indicators setting, Data collection and analysis methods used and results dissemination channels. To achieve the desired results, monitoring team must ask the right questions, investigate the real issues or problems, and generate relevant information to enable those monitoring the project to make an accurate assessment of the project. However, most of the projects experience performance challenges in terms of completion thereby leading to confusion and uncertainty in implementation of project activities due to ineffective monitoring and evaluation. For these challenges to be solved, policymakers, planners, and implementers to engage with the meaning of good practice in monitoring and evaluation in the energy sector and the capacity building necessary to achieve this. Attention is to be paid to key elements of monitoring and evaluation such as the development of indicators and the measurement of impacts. In the light of the many failed energy projects, this study aimed to assess the contribution of monitoring and evaluation system to the performance of Rwanda Energy Group (REG), case study Rwanda Electricity Sector Strengthening Project (RESSP).

### **Objective of the study**

This study focused on these main objective and specific objectives. The general objective is to assess the contribution of monitoring and evaluation system to the performance of Rwanda Energy Group, and the specific objectives were:

1. To assess the activities of Monitoring and Evaluation Unit of Rwanda energy group in Rwanda Electricity Sector Strengthening Project (RESSP)
2. To examine the indicators of Rwanda Electricity Sector Strengthening Project towards its goal.
3. To assess the relationship between the monitoring and evaluation system and project performance.

### **Research questions**

1. What are the activities of monitoring and evaluation unit on Rwanda Electricity project achievements against the targets of Rwanda Electricity Sector Strengthening Project (RESSP)?
2. How are the the indicators of Rwanda Electricity Sector Strengthening Project towards its goal ?
3. What is the relationship between the monitoring and evaluation system and project performance?

## **LITTERATURE REVIEW**

### **Theoretical Review**

This subsection implies theories related to the study. It indicated the contributions of monitoring and evaluation system to the performance of Rwanda energy group (REG).

### **Result Based Management Theory**

This theory as the name suggested, is results oriented. It is one of the strategies in management. All the ground actors, supporting directly or indirectly towards the achievement of specified development results, making sure that their processes, products along with output contribute to the attainment of sustainable results. This theory helps to develop performance-monitoring tools that influence the performance of the projects (Walshe,et al 2001).

### **Stakeholder's Theory**

A stakeholder is “any group or individual who can affect or is affected by the achievement of an organization's objectives” (Freeman, 1984). It is well known that companies produce externalities that affect different stakeholders. These externalities often cause stakeholders to increase pressures on companies to reduce negative impacts and increase positive ones. The theory suggests that a firm should pursue strategies that consider the parties affected by decisions while trying to minimize damage or maximize benefits to the representative groups (Freeman 1984). This calls for governments to think beyond financial performance but have obligations towards society and its constituent groups, (Jones, 1980).

### **Theory of constraints**

According to Mabin, V. (2015) formulated this theory in production environment explaining that the throughput rate of a system is determined by bottleneck. This introduced theory of constraints as a means of managing a factory production process with an aim of maximizing throughput rate. Maximizing throughput rate would in turn maximize profit, cash flow and return on investment. In the multi-project environment, theory of constraints is applied as critical chain methodology using the same principle of a capacity constrained resource. This critical chain methodology is used by large companies such as Hitachi (Umble Umble&Murakami, 2006), ABB, Boeing, Hewlett Packard and others (Stratton, 2011) for project management. Even a small company can implement the full Critical Chain as the software is available at USD250 (Stratton, 2011).

### **Financial Literacy theory**

Financial literacy theory argues that the behavior of people with a high level of financial

literacy might depend on the prevalence of two thinking styles according to dual-process theories: intuition and cognition. Dual-process theories embrace the idea that decisions can be driven by both intuitive and cognitive process. Dual process theories have been applied to several fields, including reasoning and social cognition (Evans 2008).

### **Human Capital Theory**

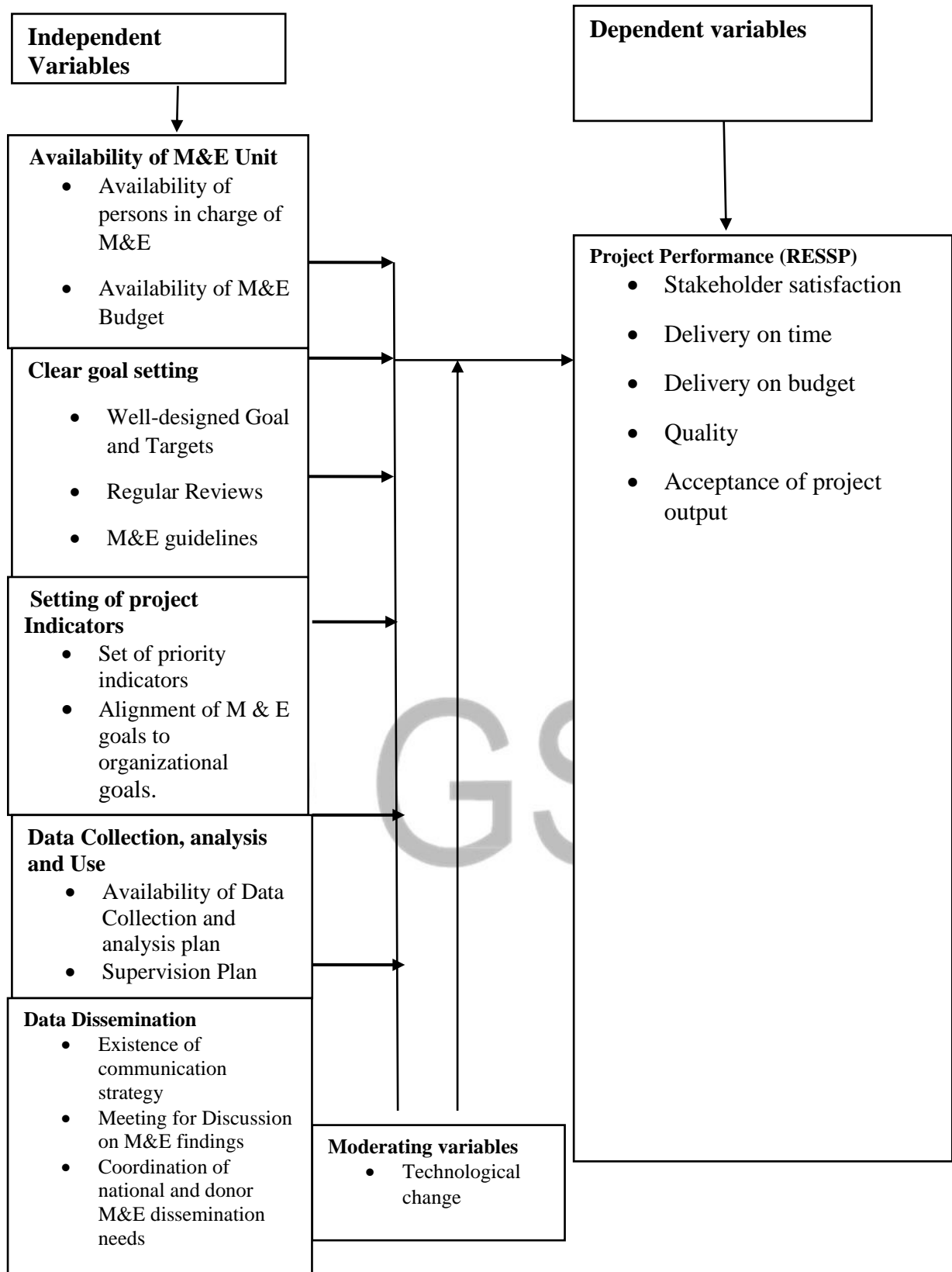
From an organizational perspective, the human capital theory hypothesizes that in a perfectly operating labor market, organizational productivity increases as individuals become more highly trained. The overall link between training and development to productivity at the workplace is based on a concept referred to as factor pricing, Maglen (2008). According to Livingstone (1999), human capital theorists insist on the importance of investment in education and imparting of the value of the worker. The theory assumes that organization specific training, such as in the events of changes, is likely to increase the organization long term productivity results on their training investment.

### **Theory of Change**

Theory of change when applied to social change processes represents a thinking action alternative to other more rigid planning approaches and logics. A theory of change defines pieces and steps necessary to bring about a long-term goal. It also describes the types of interventions that bring about results hoped to or expected (Perls, 2005).

### **Conceptual Framework**

Basing on independent variables and dependent variables, the researcher constructed a conceptual frame as shown below:



Source: Researcher's compilation, 2021

## METHODOLOGY

### Research design

The research used the mixed method design which is a combination of quantitative and qualitative designs especially convergent parallel mixed methods design. The rationale for using mixed methods design is that it combines both qualitative and quantitative data within a single study hence complementing each other by integrating their strengths (Creswell, 1994). Quantitative data was collected from questionnaire distributed to project managers, EDCL M&E specialist and Expropriation staff, whereas qualitative data was collected from Quarterly and annual Progressive Reports.

### Target population

The population referred to as a target and a set of elements that the research focused on and to which the results obtained by testing the sample which should be generalized. Before conducting this research, the researcher examined the total population to draw relevant and reliable information for the success of this study. The total population of this study was all employees of Energy Development Corporation Limited (EDCL) involved in Rwanda Electricity Sector Strengthening Project (RESSP).

Population each category of RESSP employees

Category	Population Number(N)
Administrative Staff	46
Technical Staff	18
Total	64

*Source: Energy Development Corporation Limited (EDCL) report, 2020*

### Sample design

Reference to the Target Population of 64 employees, the population is lesser than 200, this scientifically implies the use of Census which is the procedure of systematically enumerating and acquiring and recording information about the members of a given population. In order to get the detailed information about contribution of Monitoring and evaluation system to the performance of Rwanda Energy Group (REG) projects, the assessment of the project

implementation, the related challenges and the developments priorities proposed in the study area, the researcher interviewed 18 Key persons including Project Manager (1), Program Coordinator (1), Electrical Engineers (4), Social Safeguards(4), M&E Specialists(2), Finance Specialists(2) and Expropriation staff(4) in Rwanda Electricity Sector Strengthening Project (RESSP) from EDCL and EUCL staff. Below is a table that shows the information about the key informants to be interviewed.

### **Data collection methods**

Data that were used in this study were categorized into two main categories. Those include primary data and secondary data. The primary data were the data collected for the first time, and thus happen to be original in character. On the other hand, secondary data were the data already collected by others (Kothari, 2004). In this study, these two categories of data were collected from various sources.

### **Data Analysis Methods**

After data collection and coding and clearing was followed with the help of SPSS 22<sup>nd</sup> version. Having done with coding, descriptive (mean, frequency & percentages) and inferential statistics (Karl Pearson correlation coefficient and regression model) were computed for quantitative data collected from questionnaires whereas thematic approach were used to analysis qualitative data collected from interview guide. Tables, graphs, and textual models will help in the presentation of collected data.

The regression model was used as follow:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + e$$

Y=Project performance

$\alpha$ = Constant term

$\beta$ =Beta coefficients

X<sub>1</sub>= Activities of M&E Unit

X<sub>2</sub>= Clear goal and Project indicator setting

X<sub>3</sub>= Existence of M&E System

e= Error term

The study used the regression analysis modal to assess the contribution of monitoring and evaluation system to the performance of Rwanda Energy Group and the findings displayed using tables.



## DATA ANALYSIS, PRESENTATION AND INTERPRETATION

### Questionnaire Response Rate

Table shows that questionnaires returned rate was at 100 percent whereas interview was also successful at 100 percent of return rate. This tells us that all targeted persons responded to questions. Mugenda and Mugenda (2008) recommended that any research instruments return rate above 64 percent is considered representative enough for further analysis. Then, research instrument return rate in this study satisfied the criterion and the researcher was free to continue with further analysis.

Types of instruments	Number administrated	Number returned	% Response rate
Interview guide	18	18	100 %
Questionnaire	46	46	100 %
<b>Total</b>	<b>64</b>	<b>64</b>	<b>100%</b>

**Source: Primary data, 2021**

### Reliability analysis of the Questionnaire

Prior to the actual assessment, the researcher carried out a pilot study on 4 employees in Rwanda Electricity Sector Strengthening Project (RESSP), to pretest the validity and reliability of data collected using the questionnaire. The pilot study allowed for pre-testing of the research instrument. The results on reliability of the research instruments are presented in the Table below.

### Reliability of the questionnaire

Cronbach's Alpha was established for every objective to determine if each scale (objective would produce consistent results should the research be done later. The findings of the pilot study shows that all the four scales were reliable as their reliability values exceeded the prescribed threshold of 0.7(Mugenda& Mugenda, 2003)

### Reliability statistics

Objective	4 Thematic items	Cronbach's Alpha
Objective one	4	0.84
Objective two	4	0.85
Objective three	4	0.95
Objective four	4	0.92
Total	16	
Overage		0.89

$$\alpha = \frac{(k-1)(\sum_{i=1}^k \sigma^2 y_i - \frac{(\sum_{i=1}^k \sigma y_i)^2}{k})}{\sum_{i=1}^k \sigma^2 y_i - \frac{(\sum_{i=1}^k \sigma y_i)^2}{k}}$$

Where: k = number of scale items,  $\sigma^2 y_i$  = refers to the variance associated with item i,  $\sigma^2 x$  = variance associated with the observed total scores,  $\bar{c}$  = average of all covariance between items and  $\bar{v}$  = average variance of each item.

### Activities of Monitoring and Evaluation Unit of Rwanda energy group in Rwanda Electricity Sector Strengthening Project (RESSP)

The researcher established the relationship between Activities of Monitoring and Evaluation Unit of Rwanda energy group in Rwanda Electricity Sector Strengthening Project (RESSP). In this regards a correlation was done for establishing either positive or negative, significant, or insignificant correlation between dependent or independent variables. Karl Pearson correlational coefficient was computed to investigate the correlation between Activities of Monitoring and Evaluation Unit (delivered on time, quality, and budget). The decision rule was based on p-value approach. P-value approach said that if the levels of significant to hold the decision to either reject or uphold the null hypothesis was 5% or 0.05, which mean 95 percent degree of confidence level. Then, the probability obtained a sample mean given the value stated in the null hypothesis was true stated as p-value. If p-value is less or 5% ( $P \leq 0.05$ ), the null hypothesis will be rejected and accept alternative hypothesis vis- versa.

### Availability of M&E Unit

		Correlations		
		Availability of persons in charge of M&E	Availability of M&E Budget	A timely provision of funds for M&E
Availability of persons in charge of M&E	Pearson	1	.750**	.348**
	Correlation			
	Sig. (2-tailed)		.002	.001
	N	64	64	64
Availability of M&E Budget	Pearson	.750	1	.148
	Correlation			
	Sig. (2-tailed)	.002		.004
	N	64	64	64
A timely provision of funds for M&E	Pearson	.348**	.148	1
	Correlation			
	Sig. (2-tailed)	.001	.004	
	N	64	64	64

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

**Source: Primary Data, 2021**

As indicated in Table, there is significant correlations between planning for M&E and Availability of persons in charge of M&E ( $r=.348^{**}$ ,  $p=.001$ ), Availability of M&E Budget enabled delivery on time ( $.750^{**}$ ,  $p= 0.002$ ) and A timely provision of funds for M&E ( $r=.148^{**}$ ,  $p=.004$ ). These correlations were statistically significant given that the p value was  $< 0.05$  suggesting that the availability of M&E Unit influence the performance of Rwanda Electricity Sector Strengthening Project (RESSP). These findings were supported by the findings presented by Kawonga, et al. (2012), that poor setting goals for M&E lead to the failure of HIV project in countries.

### Relationship between the monitoring and evaluation system and project performance.

The study used the regression analysis modal to assess the contribution of monitoring and evaluation system to the performance of Rwanda Energy Group. The estimated coefficients values for linear regression were presented as follow:

Table **Regression results**

Coefficients a					
Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	.985	.230		4.276	.000
Activities of M&E Unit	-.138	-.063	-.033	.600	.000
Clear goal and project indicators setting	.611	.070	.487	8.698	.000
Existence of M&E Systems	.150	.033	.086	1.551	.022
a. Dependent Variable: Project Performance (RESSP)					

By re-writing the estimated equation:

$$Y = 0.98 - 0.14X_1 + 0.61X_2 + 0.15X_3$$

The estimation results from SPSS shows that all independent variables (Activities of M&E Unit, Clear goal and project indicators setting and Existence of M&E systems) are statistically significant to dependent variable (Project Performance of RESSP), their probability values: .000, .000, .000 and .022 are less than 5 per cent level of significance respectively. To assess the contribution of monitoring and evaluation system to the performance of Rwanda Energy Group, results revealed that holding all other factors constant one unit increase in activities of M&E Unit will contribute to decrease of project performance by 14%, a one unit increase in Clear goal and project indicators setting influenced Project Performance (RESSP) to increase by 61% and one unit change in the Existence of M&E systems influenced Project Performance (RESSP). This means that any change of activity in M&E unit negatively affected the performance of Project Performance (RESSP) while Clear goal and project indicators setting and Existence of M&E systems had positive influence on the performance of Project Performance (RESSP).

## **SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS**

### **Summary of Major Findings**

The study was guided by three specific objectives and these were to assess the activities of Monitoring and Evaluation Unit of Rwanda energy group in Rwanda Electricity Sector Strengthening Project (RESSP), to examine the indicators of Rwanda Electricity Sector Strengthening Project towards its goal, to assess the relationship between the monitoring and evaluation system and project performance and provide recommendations for the improvement of monitoring and evaluation system for the performance of Rwanda Energy Group (REG). The findings showed that Activities of M&E unit, clear goal and project indicators setting and the existence of M&E system are statistically significant to the project performance, the results revealed that one unit change in activities of M&E Unit influenced negative change of project performance by a decrease of 14%, a one unit change in Clear goal and project indicators setting influenced Project Performance (RESSP) to increase by 61% and one unit change in the Existence of M&E systems influenced Project Performance (RESSP). The  $R^2 = .86$ , this coefficient of determination, which is the proportion of the variation in the dependent variable that is predictable from the independent variable(s) implies that all independent variables are fitted in this linear regression model as explanatory variables of project performance (dependent variable). The other finding to this study was that stakeholder involvement was an important aspect in enhancing performance of Rwanda Electricity Sector Strengthening Project (RESSP). Finally, the management participation in monitoring and evaluation was found to have a significant effect on performance of Rwanda Electricity Sector Strengthening Project (RESSP).

### **Conclusion**

It is concluded that M & E planning process, M & E technical expertise, and stakeholder involvement along with management participation in M & E have a positive and significant effect on performance of Rwanda Electricity Sector Strengthening Project (RESSP). Given this finding, the various responsible authorities should consider employing experts who will help them in coming up with effective monitoring and evaluation plans as this will help in guiding the planning process. Apart from that, the authorities should also consider upgrading the skills of their technical staff on monitoring and evaluation. Besides that, the various stakeholders in projects should be encouraged to play an active role while monitoring and evaluation of their projects. Last but not least, the management should assume an active role rather than a passive role in monitoring and evaluation.

## Recommendations

Based on the research findings, the following are the recommendations:

1. Improve the activities of Monitoring and evaluation unit of Rwanda Energy Group
2. Providing M&E trainings to staffs of Rwanda energy group .
3. REG should continue working through the RBM approach
4. Speed up the implementation of Planned activities and avoid the delays in expropriation and Tendering,
5. REG have to comply with schedule of project plan and Monitoring and evaluation Plan to ensure that PAPs signed their files and availed their supporting documents for the projects which require the expropriation.

## REFERENCES

- Allouhi, A., Saadani, R., Buker, M. S., Kousksou, T., Jamil, A., & Rahmoune, M. (2019). Energetic, economic and environmental (3E) analyses and LCOE estimation of three technologies of PV grid-connected systems under different climates. *Solar Energy*, 178, 25-36.
- Annecke, W. (2008). Monitoring and evaluation of energy for development: The good, the bad and the questionable in M&E practice. *Energy Policy*, 36(8), 2839-2845.
- Collins, H., & Evans, R. (2008). *Rethinking expertise*. University of Chicago Press.
- Gorgens, M., & Kusek, J. Z. (2009). *Making Monitoring and Evaluation Systems Work: A Capacity Development Toolkit* (Washington, DC: World Bank).
- Guijt, I. M. (2008). *Seeking surprise: rethinking monitoring for collective learning in rural resource management*.
- Guijt, I., & Proost, J. (2002). Monitoring for social learning. *C. Leeuwis, et al*, 215-231.
- Hawking, D., & Robertson, S. (2003). On collection size and retrieval effectiveness. *Information retrieval*, 6(1), 99-105.
- Hunter, J. (2009). *Monitoring and Evaluation: Are We Making a Difference?* Namibia Institute for Democracy.
- Iqbal, M. I., Himmler, R., & Gheewala, S. H. (2017). Potential life cycle energy savings through a transition from typical to energy plus households: A case study from Thailand. *Energy and Buildings*, 134, 295-305.
- Jones, T. M. (1980). Corporate social responsibility revisited, redefined. *California management review*, 22(3), 59-67.

- Kothari C.R., (2008). *Research Methodology: Methods and Techniques, 2nd Revised Edition, New Age International (P) Limited, Publishers, New Delhi.*
- Kothari, C. R. (2004). *Research methodology: Methods and techniques.* New Age International.
- Livingstone, D. W. (1999). Exploring the icebergs of adult learning: Findings of the first Canadian survey of informal learning practices.
- Mabin, V. (2015). Goldratt's "Theory of Constraints" thinking processes: A systems methodology linking soft with hard.
- Mackay, K. R. (2007). *How to Build M and E Systems to Support Better Government.* World Bank Publications.
- Maglen, K. (2018). 'An Alligator Got Betty': Dangerous Animals as Historical Agents. *Environment and History*, 24(2), 187-207.
- Moyo, B. (2013). Power infrastructure quality and manufacturing productivity in Africa: A firm level analysis. *Energy policy*, 61, 1063-1070.
- Mugenda, A. G., & Mugenda, A. (2008). Social science research: Theory and principles. *Nairobi: Applied.*
- Mugenda, A. G., & Mugenda, A. (2008). Social science research: Theory and principles. *Nairobi: Applied.*
- Perls, T. T., Reisman, N. R., & Olshansky, S. J. (2005). Provision or distribution of growth hormone for "antiaging": clinical and legal issues. *Jama*, 294(16), 2086-2090.
- Stratton, M. R. (2011). Exploring the genomes of cancer cells: progress and promise. *science*, 331(6024), 1553-1558.
- Umble, M., Umble, E., & Murakami, S. (2006). Implementing theory of constraints in a traditional Japanese manufacturing environment: The case of Hitachi Tool Engineering. *International Journal of Production Research*, 44(10), 1863-1880.
- Walshe, K., & Rundall, T. G. (2001). Evidence-based management: from theory to practice in health care. *The Milbank Quarterly*, 79(3), 429-457.
- World Bank. (2011). *World development report 2011: Conflict, security, and development.* The World Bank.