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# Evaluating Barriers to Effective Implementation of Project Monitoring and Evaluation in the Ghanaian Construction Industry

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## Abstract

Construction projects monitoring and evaluation is a vital process in the project delivery which is aimed at ensuring the major objectives and goals are achieved. However, the implementation of monitoring and evaluation in the Ghanaian construction industry have seen numerous challenges and as a result, the poor performance of the industry. This paper identifies and evaluates the barriers faced by projects in the implementation of monitoring and evaluation in the Ghanaian construction industry. Literature was reviewed and subsequently, a semi-structured questionnaire developed to stimulate the relevant response from the major stakeholders in the Ghanaian construction industry. The collected data were analysed using the one sample t-test. Literature revealed ten (10) challenging factors to the implementation of monitoring and evaluation. Weak institutional capacity, limited resources and budgetary allocations for monitoring & evaluation, weak linkage between planning, budgeting and monitoring & evaluation, weak demand for and utilisation of monitoring and evaluation results and finally, poor data quality, data gaps and inconsistencies were identified as the most significant contributing factors to the implementation of PM&E in Ghana construction projects. The study contributes to the body of knowledge on the challenges to effective monitoring and evaluation of construction projects.

**Keywords:** Construction industry stakeholders, Effective project implementation, Project monitoring and evaluation, Ghana.

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## 1. Introduction

The construction industry world over and more especially in developing nations are greatly manual and as such requires more human resource to undertake the many activities aimed at achieving set targets. These activities, however, require close supervision to ensure that they are executed right at first hand to eliminate re-work, increased project cost and prolong project duration and as such the need to monitor and evaluate projects to achieve the desired outcome. Project monitoring and evaluation, therefore, is a management function geared towards achieving effective use and efficient utilisation of project resources and as such cannot be overemphasized. Monitoring and evaluation are therefore critical to the performance of the construction industry and it seeks to facilitate strategic decision making to guarantee successful project implementation through a systematic and routine collection of project information and assessment of same [15]. Project monitoring and evaluation is explained to mean In spite of the effort made by project monitoring and evaluation teams (stakeholders) to achieve project objectives, problems with project delays, cost overruns, and non-conformity, as well as environmental issues, remains as yet unsolved. As early as the year 2000, [15] confirmed this inability of Third World and developing countries to successfully deliver projects but indicated the panacea to this challenge is the implementation of monitoring and evaluation.

Unfortunately, project monitoring and evaluation have been faced with numerous barriers to their implementation in the sub-region due to reasons such as the complex nature of construction and divergent views on project delivery with less technological integration in the industry in developing nations. The study, therefore, evaluates possible barriers and their dire/disastrous implications regarding the implementation of monitoring and evaluation in the Ghanaian construction industry. It is hoped that this study will provide an avenue for a more streamlined process for the reliable delivery of quality and economical projects within the stipulated time frame [4].

## 2. Literature review

### 2.1. *Barriers to the implementation of project monitoring and evaluation*

Worldwide projects have experienced numerous barriers in their implementation. As a solution, project monitoring and evaluation are key elements in improving project performance. These barriers are primarily influenced by the kinds of measures being used and the minimum amount of attention given to the practice. The effectiveness and success of every monitoring plan depend largely on the capacity of the institution or individual mandated to undertake the activity. Implementation of project monitoring and evaluation is therefore challenged with weak institutional capacity. Capacity building of institutions is relevant, not just for the immediate correction of poor performance, but also for the involvement based on a broad aim and result analysis [3]. Monitoring and evaluation are processes and therefore there is a need for synergy with other activities in the project cycle, such as planning and budgeting. Weak linkage between planning and budgeting on the one hand and project monitoring and evaluation on the other will adversely affect the ultimate aim of PM&E. An important consideration in planning for data collection and analysis is to identify any limitations, biases, and threats to the accuracy of the data and analysis [6]. It is also imperative to carefully plan for the data management of the M&E system which curtails time and resource wastage [6]. Budgeting for PM&E tasks and overall responsibilities must be listed and analyzed where necessary. Items associated with each task must be determined, including their cost, and there must be a budget for staffing, including full-time staff, external consultants, capacity building/training, and other human resource expenses. In addition, the budget should include all capital expenses, including facility costs, office equipment and supplies, travel and lodging, computer hardware and software, and other expenses. Budgeting must also determine whether all tasks are included in the overall project budget, such as support for an information management system, field transportation, vehicle maintenance, translation, and printing and publishing of M&E documents/tools. Poor linkage between these crucial steps in project monitoring and evaluation eventually poses a challenge [13].

The kind of measures used in measuring project monitoring and evaluation constrains the effective implementation of project monitoring and evaluation. [11] postulates that a problem with the various monitoring and evaluation models is that most of the measures are only capable of reporting on performance after they have occurred. According to [2], a conference of leading representatives from a group of design and construction companies noted that major problems with the key performance indicators (KPIs) of the Construction Best Practice Program (CBPP) were that they do not offer the opportunity to change and that they are designed as post-results KPIs. An examination of the other KPIs reveals a similar situation [5]. [2] explain two alternatives of KPIs as measures of assessment under “lagging” or “leading” measures: key performance outcomes (KPOs) and perception measures. KPOs could be used to assess a sub-process and give indications for change in the next sub-process. In this way, they could be considered as leading indicators [11].

Limited resources and budgetary allocations for PM&E, according to the GNDPC [10], pose a barrier to PM&E. Non-compliance with planning and PM&E guidelines, poor data quality, data gaps and inconsistencies are also factors facing PM&E in the Ghanaian construction industry. The absence of a comprehensive national database PM&E system and the development of PM&E objectives that are not measurable and therefore cannot be used to evaluate project performance and achievements or to communicate project results are barriers to the effective implementation of project monitoring and evaluation. Weak demand for and utilisation of PM&E data do not encourage the implementation of PM&E in the construction industry [6]. Finally, the development of a project monitoring and evaluation objectives which are not consistent with the needs and values of intended beneficiaries as well as projects activities that do not deliver the desired outcomes economically are further barriers confronting project monitoring and evaluation [10].

## 3. Research methodology

Literature revealed ten (10) barriers to the implementation of project monitoring and evaluation which underpinned this study. The factors were restructured for construction practitioners and stakeholders to rank them on a five-point Likert scale to help measure the strength and intensity of respondents’ opinions of the identified challenging factors. The study took the form of a survey using a questionnaire. The research strategy adopted was qualitative and considered a review of literature to gain insight into the barriers to the implementation of project monitoring and evaluation practices in the Ghanaian construction industry. Forty (40) questionnaires were administered to monitoring and evaluation practitioners in nine (9) metropolitan/municipal/district assemblies (MMDAs) in the upper east region of Ghana through a purposive sampling technique. A one hundred percent response rate was achieved. Both desk and field survey data collection methods were employed. The desk survey (literature review) formed an essential aspect of the research since it set the pace for the identification of variables

and the development of the questionnaire [8]. The field survey dealt with the administration and retrieval of the survey questionnaires.

In evaluating the results of the survey on the barriers faced during the implementation of project monitoring and evaluation in the Ghanaian construction industry, this research was interested in the significance of each barrier to the implementation of project monitoring and evaluation practices in Ghana. Hence, in establishing the significance of the variables, the one-sample t-test was used. The one sample t-test establishes whether a sample mean is significantly deviant from a hypothesised mean.

### 3.1. Assumption

The hypothesis for a single sample –test is typically set thus:

$$H_0: U=U_0 \quad \text{----- (1)}$$

$$H_a: U<, >U_0 \quad \text{----- (2)}$$

Where,  $H_0$  denotes the null hypothesis,  $H_a$  denotes the alternative hypothesis and  $U_0$  denotes the hypothesised or population mean. In a typical one-sample-test, the mean of the test group, degree of freedom for the test (which approximates the sample size), the t-value (which is an indication of the strength of the test) and the p-value (i.e. the probability value that the test is significant) are commonly reported (see for instance, [16]; [12]; [9]; [1]).

The mean for each barrier, including the associated standard deviation and standard error, is presented in Table 2. With each barrier, the null hypothesis was that the barrier factor was not critical ( $H_0: U= U_0$ ) and the alternative hypothesis was that the factor was critical ( $H_a: U>U_0$ ), where  $U_0$  is the population mean. Hence,  $U_0$  represents the critical rating above which the constraints are considered significant. For this endeavour, the rating scale adopted credited higher ratings of 4 and 5 to critical and very critical constraints, with  $U_0$  fixed at an appropriate level of 3.5.

The significance level was also set at 95 percent in accordance with orthodox risk levels [7]; [14]; [1]. That is, based on the five-point Likert scale rating, a barrier was deemed critical if it had a mean of 3.5 or more.

## 4. Data analysis and discussion

The top two (2) critical barriers to the implementation of project monitoring and evaluation are discussed. As can be seen in Table1, most barriers had a standard deviation of less than one (1), indicating there was agreed consistency in respondents' interpretations of these barriers. The standard error associated with all the means are relatively close to zero, suggesting that the sample chosen is an accurate reflection of the population. The fact that most variables had standard deviations less than one suggests that there were no differences as to how this variable was interpreted by the respondents.

### 4.1. Weak institutional capacity

This issue has bedevilled most activities in the country and most sectors of the economy, to be specific. Capacity building of institutions cannot be underestimated. It is no surprise that this variable occurred as the most critical challenge of project monitoring and evaluation implementation in the Ghanaian construction industry. This is probably attributed to the interpretations of the respondents as it recorded a low standard deviation of 0.736. Nonetheless, this indication shows that in Ghana much attention is drawn to the capacity and the impact of institutional efforts on most operations. Our institutions cannot easily adapt to new dimensions in the sector in which they operate as few of them undertake any research or continuous process development.

### 4.2. Limited resources and budgetary allocations for monitoring and evaluation

The second barrier to the implementation of monitoring and evaluation the Ghanaian construction industry is limited resources and budgetary allocations for PM&E. Cost overruns on projects in developing countries amount to approximately forty percent, making it difficult to prioritize those activities which are indeed necessary. The lack of investment in monitoring and evaluation is also on record, hence presenting the second critical barrier to the implementation of PM&E practices in Ghana.

### 4.3. The development of PM&E objectives not consistent with the needs and values of intended beneficiaries

Surprisingly, this barrier was ranked tenth (10<sup>th</sup>). Although this could also be attributed to respondents' interpretations as it records a standard deviation of one, a probable reason is that in Ghana and most developing countries stakeholders rarely consider how project objectives are consistent with the needs and values of

beneficiaries despite the increased demands for improved construction practices. Consequently, construction stakeholders are not keen on project monitoring and evaluation to suit the needs of the intended beneficiaries unless it is obligatory (i.e. deliberations by concerned citizens or social activists). It appears the practice is for these stakeholders to manage projects at their own expense, whereas the supervisory role of public agency has lost its control as there are huge breakdowns in communication amongst these stakeholders, as noted earlier.

Table 1: One-sample statistics

	N	Mean	Std. deviation	Std. error mean
<i>Weak demand for and utilisation of monitoring and evaluation results</i>	40	4.13	.853	.135
<i>Weak institutional capacity</i>	40	4.55	.749	.118
<i>Weak linkage between planning, budgeting and monitoring and evaluation</i>	40	4.35	.834	.132
<i>Limited resources and budgetary allocations for monitoring and evaluation</i>	40	4.35	.736	.116
<i>Non-compliance with planning and monitoring and evaluation guidelines</i>	40	3.98	.800	.127
<i>Poor data quality, data gaps and inconsistencies</i>	40	3.98	.800	.127
<i>Absence of a comprehensive national database for monitoring and evaluation system</i>	40	3.70	.939	.148
<i>The development of monitoring and evaluation objectives that are not measurable and therefore cannot be used to evaluate project performance and achievements or to communicate project results</i>	40	3.70	.966	.153
<i>The development of monitoring and evaluation objectives that are not consistent with the needs and values of intended beneficiaries</i>	40	3.50	.987	.156
<i>Projects activities that do not deliver the desired outcome economically and do not have the desired impact</i>	40	3.93	.944	.149

Table 2: Summary of t-test showing results of 1-tailed test and ranking

	Mean	Std. deviation	Ranking	Sig (1-tailed)
<i>Weak demand for and utilisation of monitoring and evaluation results</i>	4.13	.853	4 <sup>th</sup>	0.000
<i>Weak institutional capacity</i>	4.55	.749	1 <sup>st</sup>	0.000
<i>Weak linkage between planning, budgeting and monitoring and evaluation</i>	4.35	.834	3 <sup>rd</sup>	0.000
<i>Limited resources and budgetary allocations for monitoring and evaluation</i>	4.35	.736	2 <sup>nd</sup>	0.000
<i>Non-compliance with planning and monitoring and evaluation guidelines</i>	3.98	.800	5 <sup>th</sup>	0.001
<i>Poor data quality, data gaps and inconsistencies</i>	3.98	.800	5 <sup>th</sup>	0.001
<i>Absence of a comprehensive national database PM&amp;E system</i>	3.70	.939	8 <sup>th</sup>	0.093
<i>The development of PM&amp;E objectives that are not measurable and therefore cannot be used to evaluate project performance and achievements or to communicate project results</i>	3.70	.966	9 <sup>th</sup>	0.099
<i>The development of PM&amp;E objectives that are not consistent with the needs and values of intended beneficiaries</i>	3.50	.987	10 <sup>th</sup>	0.500
<i>Projects activities that do not deliver the desired outcome economically and do not have the desired impact</i>	3.93	.944	7 <sup>th</sup>	0.004

## 5. Conclusion and Recommendation

In conclusion, the role of monitoring and evaluation in project implementation are enormous and as such must be given much attention by all stakeholders' undertaking key roles in ensuring health and safety compliance, achievement of project quality and delivery to project time as well as cost. In view of the effort to ensure that

projects succeed, factors such as weak institutional capacity, limited resources and budgetary allocations for monitoring & evaluation, weak linkage between planning, budgeting and monitoring & evaluation, weak demand for and utilization of monitoring and evaluation results and poor data quality, data gaps and inconsistencies presented a challenge to project delivery in Ghana. It is therefore recommended that stakeholders involved monitoring and evaluation should undergo capacity building on strategies and new methods for effective monitoring and evaluation to guarantee projects success as well as allocation of funds for monitoring and evaluation.

## References

- [1] Ahadzie, D.K. A model for predicting the performance of project managers in mass house building projects in Ghana. Unpublished thesis (Ph.D.). University of Wolverhampton, UK, 2007.
- [2] Beatham, S., Anumba, C., Thorpe, T., Hedges, I. (2004) KPIs: a critical appraisal of their use in construction, *Benchmarking, An International Journal*, 11, 1, pp. 93-117.
- [3] Bhagavan, M. R., Virgin, I. Generic aspects of institutional capacity development in developing countries, Stockholm Environment Institute, 2004.
- [4] Bohn, S. J. (2009). Benefits and barriers of construction project monitoring using hi-resolution automated cameras. Unpublished thesis (MSc), Georgia Institute of Technology.
- [5] BQP/CPN (2001) KPIs – Drivers of improvement or a measurement nightmare, Members' Report 1149, Royal Academy of Engineering, British Quality Foundation/Construction Productivity Network, London.
- [6] Chaplowe, S.G (2008). Monitoring and evaluation planning, American Red Cross/CRS M&E Module Series, American Red Cross and Catholic Relief Services (CRS), Washington, DC and Baltimore, MD.
- [7] Cohen, J. (1992). A power primer. *Psychological Bulletin*, 112, pp.155-159.
- [8] Fadhley, S. A. A study of project finance banking with special reference to the determinants of investment strategy. Unpublished Thesis (Ph.D.), Loughborough University, 1991.
- [9] Field, A. Discovering Statistics using SPSS for Windows, Sage Publications, London, 2005.
- [10] Ghana National Development Planning Commission (2010).
- [11] Gyadu-Asiedu, W. (2009). Assessing construction project performance in Ghana: Modelling practitioners' and clients' perspectives, Eindhoven: Technische Universiteit.
- [12] J.F.Hair, R.E. Anderson, R.L. Tathan, W.C. Black, Multivariate Data Analysis, Prentice-Hall, Upper Saddle River, New Jersey, 1998.
- [13] International Fund for Agricultural Development (2002). A guide for project M&E. Rome: IFAD. Available at: <http://www.ifad.org/evaluation/guide/toc.htm> [Accessed on 07 June 2013].
- [14] Ling, R. (2002). The social juxtaposition of mobile telephone conversations and public spaces, Conference on Social Consequences of Mobile Telephones. Chuncheon, Korea.
- [15] Otieno, F. A. O. (2000). The roles of monitoring and evaluation in projects. Available at: <http://www.irbnet.de/daten/iconda/CIB8942.pdf> [Accessed on 5 February 2016].
- [16] R. Reymont, K.G. Joreskog, Applied Factor Analysis in the Natural Sciences, Cambridge University Press, New York, 1993.