

# The Need for a Structured Construction Clients' Performance Assessment in Kenya

Gwaya Abednego, Wanyona Githae, Sylvester Munguti Masu

**Abstract-** *In recent years there has been a tremendous increase of construction projects in Kenya. There has also been a growing concern among construction clients on why the industry is not achieving the stated objectives. Clients criticize the industry for not always achieving what they need and the majority of them are not satisfied with the quality of the construction industry.*

*Many of the problems encountered in the design and construction phases originate from poor definition of scope and inadequate pre-project planning. Clients are very instrumental in the early stages of project definition and their input is very essential towards successful project execution. The main problems are frequently attributed to poor planning and poor identification of clients' needs which act as contributory factors to inadequate project performance. One approach that could help improve construction project performance is to pay more attention to the role of clients in scope definition particularly at the initial stages of project implementation and also by having a structured client input and performance assessment criteria.*

*The pre-project planning phase presents the best opportunity for clients to achieve their objectives because it is at this stage that they can express their needs properly. Despite their important role in construction projects there has not been much research on a structured assessment of the Clients' role in construction projects.*

*The main aim of this paper is to develop a framework for improving scope planning and management to enable construction clients overcome the problems they encounter with other project participants. The framework will enable construction clients in Kenya identify and communicate their needs more clearly to the other project participants. In recent years there has been a great concern over the performance of the construction industry in Kenya. For Instance there have been a number of accidents on construction sites. Buildings have been reported to have collapsed in Nairobi and Kiambu among other counties. However, the observed challenges are not unique to the Kenyan Situation. Sherif (2002) has indicated similar challenges in the UK. This has led to many reports being published there criticizing construction, stating that it is characterized by low achievement and low productivity and offering no solutions to overcome some of the stated problems.*

**Key Words:** *Modeling, project management, Scope,*

## I. THE NATURE OF CONSTRUCTION INDUSTRY

Construction projects are widely accepted as complex in nature. This complexity is evidenced in a number of different ways, such as; size of the project; technical complexity; contractual arrangements used; and the range of client-consultant-contractor relationships.

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The construction industry is also characterized by the involvement of different parties such as clients, contractors, subcontractors and consultants. The interaction of construction industry parties, who have their own objectives which differ from the others in the same supply chain often lead to conflict and litigation. Their performance has a great impact of the outcome of the project. Disparities between project objectives and the objectives of the participating organizations play an important role in this. This is attributed to the fragmentation of the construction industry ( Latham 1994)

According to Ahuja (1994), most construction projects have four common objectives; time, cost, quality and good will. They are the primary and the traditional construction performance measures on most construction projects (Ward et al 1991). Although there have been many attempts to improve performance, limited success has been achieved (Egan 1998). Quality is an integral part of scope, budget and schedule and the source of many projects associated with projects is the failure to define the project scope (Oberlender 1993). This is because all too often the focus is just on budget or schedule. One reason for not achieving performance specification is poor communication between the contractor and consumer as they have different perceptions of specifications.

## II. CLIENTS' ROLES IN CONSTRUCTION PROJECTS

Clients play a crucial role in construction projects. They are the originators of projects, define scope in form of a brief, arrange for financing, give the site where the construction works are to be carried out and finally make payments. Some projects have succeeded or failed depending on the performance of clients. It was therefore important to investigate the role of clients under the performance of their obligations mainly under scope definition and give a recommendation.

## III. SCOPE DEFINITION

Scope definition is defined as "the process by which projects are defined and prepared for execution" (Gibson et al 1996). The information identified during this process is usually presented in a form of a project definition package. A project definition package is a detailed formulation of a continuous systematic strategy to be used during the evaluation phase of a project to accomplish the project objectives. This package should include sufficient information to permit effective and efficient detailed engineering to succeed (Gibson 1993).

According to Burke (2010), the scope definition; outlines the content of the subject details, how it will be approached and explains how it will solve the client's needs and problems. Scope definition is a formulation and documentation



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of the methods and resources an owner of a company can use to perform pre-project planning. It comprises the following:-

- Statement of need
- Outline of known alternatives
- Defined schedule for pre-project planning
- Defined pre-project planning resources in detail
- Defined information available and needs
- Contract strategy
- Defined deliverables
- Defined tasks for minimizing risks
- Define responsibilities for pre-project planning team members

## A. Scope Definition And Success

The review of literature concerning scope definition revealed that the quality of scope definition is closely related to the success of a project. The scope definition developed during the early stage of a project has a significant effect on schedule and cost features at completion (Gibson and Griffith 1997). Gibson and Dumont (1996) reported in their study that the lack of scope definition is the most problematic cause of rework and lower productivity as well as delay to project being completed on time. Proper scope definition is a critical factor that contributes to project success (Sherif, 2002). One of the reasons behind incomplete scope is that time pressure generated by the market often requires construction to commence before design is complete. Gibson and Dumont (1996) support this view in which companies wish to reduce design and construction time which often results a poorly defined scope. Turner (1993) gave an example of using fast-track approach technique to complete projects faster and as a result produce risks. The reason for risk is that the design is not complete when construction begins which consequently leads to design changes and cost overruns.

## B. Previous Attempts To Define Scope Definition

The importance of scope definition has led to many attempts to identify the factors critical of scope definition. The first attempt was performed by John Hackney in the mid 1960's and the second was by the Rand Corporation in the early 1980's.

### John Hackney Definition Rating Index

John Hackney published the first definition rating index checklist (Gibson and Dumont 1996). This was a tool designed to quantify the degree of scope definition for industrial projects. He classified the items for a good scope definition under six main items. In his view, the most important item in the project definition package that if well defined; should minimize the potential cost overrun of a project. Hackney (1992) classified the items of the scope definition under six major items namely;

- General project basis
- Process design status
- Site information
- Engineering design status
- Detailed design
- Field performance status

The checklist of John Hackney was developed in such a way that items are assigned maximum weights in his checklist. The weights represent the relative ability of an item to affect the degree of uncertainty in the project estimate scores for each item. For example, complete definition is given a score zero

and the scores increase up to the maximum possible weight as the level of definition decreases. The second was the Project Definition Rating Index by Rand Corporation as discussed hereunder.

## C. Project Definition Rating Index (PDRI)

The previous section described that information regarding defining the scope of a project should be represented in a form of package containing the details. This is important because it allows the project to be executed in an effective way, since all the critical elements are identified. The tool that identifies and describes these critical elements in the scope definition is called project definition rating index (PDRI). The PDRI is an easy to use tool that enables the pre-project planning team to evaluate the likely hood of achieving project objectives (Griffith and Griffith 1996). The weighting is the same as the one performed by John Hackney.

### The Benefits of PDRI

The CII (1996) identified the following benefits:

- A checklist to enable project team evaluate the completion of scope definition
- A tool to guide in communication between owners and contractors
- A method to help teams reconcile differences
- A way to monitor progress during pre-project planning
- A training tool for companies

A benchmarking tool for companies to evaluate the completion of scope definition versus the performance of past projects

## IV. METHODOLOGY

A survey was carried based on 80 questionnaires to clients to determine their role in scope definition. 32 respondents returned the questionnaires and results are discussed below. A reminder was sent to unresponsive Clients after two weeks when they promised to fill the research instrument by the next two weeks. A follow was again made after two weeks without any further positive responses. Reasons given included that they were busy, they were yet to fill; they misplaced the questionnaires among others. However, for survey research thirty respondents are deemed adequate for data analysis. The received data was subjected to Kaiser-Meyer-Olkin's measure of sampling adequacy with a score of 78.4%. At this point a decision was made to carry on with data analysis using already received questionnaires.

## A. Tools Used By Companies During Pre-Project Planning

The clients apply/use project tools as pre-planning project management strategies. Table 1.1 below illustrates the results.

**Table 1.1: Tools used by companies during pre-project planning in (%)**

Tools Used	Never	Rarely	Some times	Often	Very often	Ranking
Agreement matrix	37.5%	43.8%	12.5%	0%	0%	8
Alignment thermometer	31.3%	25%	37.5%	0%	0%	9
Benchmarking	6.3%	75%		6.3%	0%	7
Brainstorming	0%	18.8%	43.8%	31.3%	6.3%	2
Lesson learnt from previous projects	0%	6.3%	37.5%	43.8%	12.5%	1
Management by objectives	0%	18.8%	43.8%	18.8%	12.5%	6
Project definition rating index (PDRI)	18.8%	75%	0%	0%	0%	10
Scope definition checklist		25%	31.3%	37.5%	0%	3
Value engineering programs	6.3%	12.5%	37.5%	37.5%	0%	3
Work process flow diagram	0%	12.5%	50%	37.5%	0%	3

Source: Own field study

The use of indicated tools during pre-project planning as part of project management strategies is dismal. Lessons learnt from previous projects at 66.3% is the only reasonably considered factor. The rest like project definition index is rarely or never used at 93.8%. Other factors not usually used are agreement matrix, alignment thermometer and benchmarking. Scope definition checklist, value engineering and brainstorming are inadequately used at 37.5%. Ideally, clients play a significant role in construction projects and clear scope definition is useful. The role of clients in construction projects can be rated at 18% overall for successful projects execution otherwise if they do not cooperate with consultants, it is very rare for project performance to achieve above 70% on overall performance success. The perfection of these tools usage will go a long way in ensuring efficiency in the construction industry with closer coordination, monitoring and evaluation of the performance of construction projects.

## V. PRE-PROJECT MANAGEMENT PERFORMANCE INDICATORS

### A. Early project management requirement indications

A survey to establish the occurrence of early project management requirements problems attributed to clients was carried out. It was established that clients authorized project execution before completing pre-project planning, allocated insufficient time for conducting pre-project planning and experienced poorly established priorities between project objectives \*all at 81.3%. Other factors which occurred as part of early project management problems include; lack of

leadership at 75.1% and poor communication between team members at 50%; which can be considered neither a serious problem nor not a problem as such. The rest of the indicators were not significant problems as per table 1.2 below with lack of experience with new technology and unclear definition of team members' roles at 18.8% indicating that the two factors are insignificant problems. The indication is that in Kenya new technology is embraced readily and team members' roles are clearly identified.

**Table 1.2: Occurrences of pre-planning performance problems in (%)**

Performance Indicators	Never	Rarely	Some times	Often	Very often	Often and very often combined	Ranking
Authorization of Project execution before designs	0%	12.5%	6.3%	18.8%	62.5%	81.3%	1
Insufficient budget for pre-project planning	0%	12.5%	6.3%	43.8%	37.5%	81.3%	1
Insufficient time for conducting pre-project planning	6.3%	6.3%	50%	12.5%	25%	37.5%	8
Lack of a clear process for pre-project planning	6.3%	25%	25%	18.8%	25%	43.8%	7
Lack of experience with new technology	6.3%	12.5%	62.5%	6.3%	12.5%	18.8%	9
Lack of leadership	6.3%	12.5%	6.3%	43.8%	31.3%	75.1%	4
Lack of team skills	12.5%	31.3%	6.3%	43.8%	6.3%	50.1%	5
Poor communication between team members	0%	12.5%	37.5%	37.5%	12.5%	50%	6
Poorly established priorities between project objectives	0%	18.8%		50%	31.3%	81.3%	1
Unclear definition of team members' roles	0%	43.8%	37.5%	12.5%	6.3%	18.8%	9

Source: Own field survey

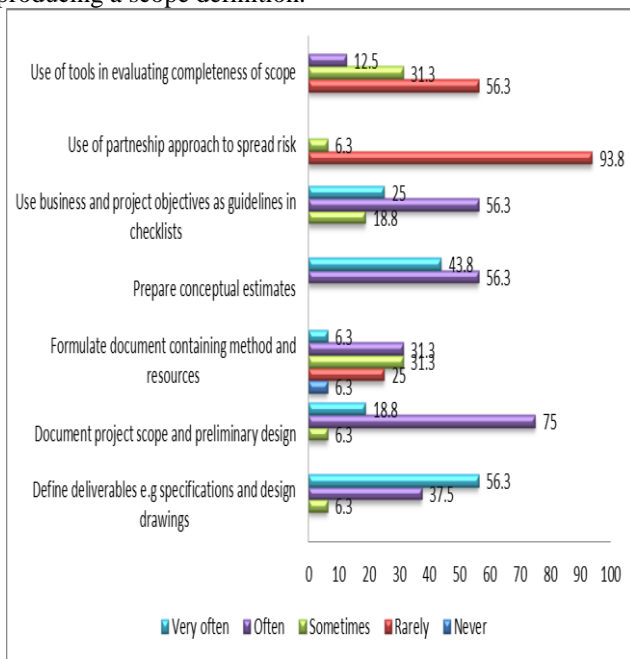
## VI. USE OF PROJECT MANAGEMENT TOOLS IN SCOPE DEFINITION

Respondents were asked to rate how often they employed various project management tools while defining scope.

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Prepare conceptual estimates, define deliverables, document project scope and preliminary design are the mostly used tools. On the other hand use of partnership approach to spread risk, use of tools for evaluating completeness of scope before start of detailed design is rarely used. More details are on figure 1.1 below. Since some of the tools are strongly used and others rarely used it cannot be concluded that the construction industry in Kenya is superior or inferior to the other developing countries. However developed countries have perfected these tools and they use all of them but mutually exclusively.

Respondents were asked to rate how often they employ various factors while defining the scope. It was noted that 93.8% of the respondents rarely use partnership approach to spread risk as a tool to scope definition, while 100% confirmed conceptual estimates forms a crucial tool when producing a scope definition.



**Figure 1.1: Factors employed while defining scope production**

From the research survey; there is need for more sensitization to construction clients on scope definition and management because scope does affect quality, time and cost. Through active participation of clients in the construction process; there will be better efficiency and effective execution of construction projects.

## VII. MODELING FOR CLIENTS PERFORMANCE IN PROJECT MANAGEMENT

### i. Identify the category of the indicators

The measurement method used will depend on whether the indicator is a *monetary*, *quantitative* or *qualitative* measure.

**a. Monetary (M):** These are indicators against which monetary values can be attached. These include such measurements as related to direct cost and cost related measures.

**b. Quantitative (Qty):** These are indicators against which monetary values are not applicable, but results or impacts can be quantified for example indicators related to time, work done and productivity.

**c. Qualitative (Qly):** These are indicators against which

neither monetary values nor quantitative values can be attached. These indicators are measured on a scale (ordinal) for instance a Likert scale of assessing the efficiency or effectiveness of the management team.

### ii. Measuring

- Measure the actual value.
- Compare the actual value with the planned or expected value.
- Determine the difference between actual and planned/expected value.

Whenever, a listed indicator in the set for a criterion is found to be not applicable or irrelevant its measured value is automatically zero. In such a situation, the weighting for the remaining indicators for the given criterion are re-estimated to balance the equation hereunder:

$$\sum_{i=1}^n w_i = 1 \text{ or } 100\%$$

Clients were asked to rate a set of indicators depicting the performance of clients based on obligations. The following were the mean ratings:-

**Table 1.3 Rating on client's obligations**

FACTOR	MEAN RATING	CUMULATIVE SCORE
Project Financing.	50 %	50 %
Project Scope.	30 %	80 %
Client's Project Co-ordination with Consultants.	10%	90 %
Prompt and/or contractual honoring payments.	10 %	100%
Any other.	NIL	100 %

Source:- Own Field study.

Even if there was no rating of any other; for developing countries, the political climate; construction culture and Government policies can affect the Client's performance.

However, should the obtaining situation change it will affect the construction industry uniformly. For this study we have held the factor as a constant equivalent to (e).

$$PMMc = 0.5PF + 0.3PS + 0.10PC$$

$$+ 0.1.Pp + e \dots \dots \dots 1.1$$

Where PMMc is the clients overall performance measurement PF is the client's project financial arrangements and preparedness.

PS is the role of the client in clear scope definition and in scope change management process;



PC is the level of the client coordination with consultants in ensuring a diligent execution of projects.

Pp is the level and timely honouring of payments by the client to both the consultants and contractors.

(e) is an error attributable to any external factors outside the scope of the client's control.

Overall project execution efficiency reflecting good project management is measured thus:

$$Pe = 82\%PMM + 18\%PMMc$$

Whereby Pe is the overall project execution efficiency; PMM is the consultant and contractor contribution. A paper on project management performance for consultants and contractors is presented separately and readers are encouraged to read it.

Project financing, payments, coordination and scope definition can be measured at agreed intervals and the client notified on the areas of improvement accordingly.

### VIII. CONCLUSION

Clients have a major role to play in terms of scope definition, financing and coordination for construction projects. The type and level of cooperation of clients with consultants' can make a project a success or a failure. Identifying key parameters and gauging the performance of the clients is very crucial. The paper attempted to model the client contribution in the performance of construction projects in this case at 18%.

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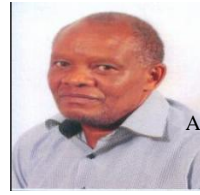
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