

INFLUENCE OF PROCUREMENT PRACTICES ON PERFORMANCE OF CONSTRUCTION PROJECTS IN TANZANIA: A CASE STUDY OF NATIONAL HOUSING CORPORATION

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Abstract: The purpose of this study was to assess the influence of procurement practices on performance of construction projects in Tanzania. The principle question to be addressed by this study is ‘what procurement practices are responsible for performance of construction projects in Tanzania?’ To answer this question and to achieve the primary objective of this study, the researcher focuses on National Housing Corporation (NHC) as a case study. NHC has been selected for this study because it is one of the major public institutions with a significant portfolio of public projects, some of which have succeeded whereas others have failed. The research design used was descripto-explanatory which allowed a detailed description and analysis of the variables under study; describing and presenting their characteristics and explaining their relationships without manipulation. The target population composed of 60 employees from five different departments within NHC headquarters, of which the researcher conducted a census. The study used questionnaires as the primary research instrument. The data was coded as per the objectives to give distinct differences and multivariate regression done to look at the relationship of the variables. Presentation also was done through their calculated mean, frequency, standard deviation and the correlation analysis of the data collected. The study found that indeed various procurement practices influence performance of construction projects in NHC. The supplier selection was found to reduce conflict of interest between the suppliers and management of the organization and in the process influence productivity of the staff. The study further revealed that that contract monitoring and control reduce risks and triggers off an effort to search for solutions to the identified threats to the project success. The study concluded that to a great extent the performance of construction projects is being influenced by adoption of procurement practices, the study recommended that NHC resources need to be more utilized so as to enable more development and less wastage in the company, NHC should handle on the issue of conflict of interest from the management and the outsiders when dealing with the supplier selection and project implementation section. However, the NHC also need to advance more on the policies regarding the quality of construction projects so as to ensure quality projects are achieved at the long run which is beneficial to the company.

Keywords: Procurement planning, Supplier Selection, Contract Monitoring and Control, Project Performance.

1. INTRODUCTION

The construction industry is an important part of the economical backbone in many countries (Ngai *et al.*, 2002), often accounting for between 7-10 percent of the Gross Domestic Product (Winch, 1996, Voordijk *et al.*, 2000). Furthermore, construction products and processes have a large impact on safety, health and environmental aspects (Bayliss *et al.*, 2004). Since all human beings in modern societies are directly affected by its processes and/or products, the importance of a

well-functioning construction industry is beyond doubt (Cheung *et al.*, 2001, Ngai *et al.*, 2002, Eriksson, 2007). In many countries the construction industry has, however, attracted criticism for inefficiencies in outcomes such as time and cost overruns, low productivity, poor quality and inadequate customer satisfaction (Latham, 1994, Egan, 1998, Ericsson, 2002, Chan *et al.*, 2003). Practitioners, researchers and society at large have, therefore, called for a change in attitudes, behavior and procedures in order to increase the chances for construction projects to be successful and result in improved end products (Love *et al.*, 2000, Dubois and Gadde, 2002).

Although procurement procedures need to be tailored to enhance the fulfillment of different project objectives (Cox and Thompson, 1997, Love *et al.*, 1998, Wardani *et al.*, 2006), clients tend to choose those procurement procedures they have a habit of using, regardless of any differences between projects (Laedre *et al.*, 2006). In order to enhance change, an increased understanding of how different procurement practices affect different aspects of project performance is vital. Earlier research efforts in this area have been limited to the investigation of how a single or a few specific procurement alternatives affect one or two project objectives. In order to achieve successful governance of construction projects a holistic and systemic approach to procurement procedures is crucial (Cox and Thompson, 1997, Eriksson and Pesämaa, 2007, Eriksson, 2008b). Since a systemic perspective on the effect of procurement procedures on different aspects of project performance is lacking in the construction management literature, this research effort aims to fill this theoretical gap that has potential to bring important practical implications.

On the local front, similar situations affecting successful project performance within the public sector in Tanzania. National Housing Corporation being a public enterprise is no exception to these challenges. According to report of procurement audit for public procurement entities conducted by the Public Procurement Regulatory Authority (PPRA) in financial year 2014/2015, on the overall performance of audited projects found out that NHC's appropriateness of preparation and implementation of annual procurement plan scored 6.43% out of 10%, appropriateness of tender processing scored 16.13% out of 20% and appropriate of contract implementation scored 24.71% out of 40%. This clearly pointed to poor project planning, procurement procedures in contract management and a challenged financial system.

2. PURPOSE

The purpose of the study was to assess the influence of procurement practices on performance of construction projects in Tanzania, using National Housing Corporation as a case for the study. Specifically the study sought to assess the procurement planning, supplier selection and contract monitoring and control influence on performance of construction projects.

3. RESEARCH METHODOLOGY

This study employed descripto-explanatory research design; using both descriptive and explanatory research designs. The design allowed a detailed description and analysis of the variables under study; describing and presenting their characteristics and explaining their relationships without manipulation as supported by Saunders *et al.* (2009). The population covered in study was 60 employees from five different departments within National Housing Headquarters.

The study employed both primary and secondary data. Before administration, the questionnaire was pre-tested to ensure collection of valid and reliable data. Primary data were gathered through questionnaires, whereas secondary data were obtained through reports obtained from the company and other Government reports. This was supplemented by the primary data received from questionnaires.

Both descriptive and inferential statistical tools were used in the data analysis. Descriptive statistical tools included frequencies, percentages and mean while inferential statistical tool included multivariate regression analysis. Whereas descriptive statistics were used to determine and describe the status of the variables under study, inferential statistics were used to compute the correlation between independent variables i.e procurement planning, supplier selection, contract monitoring and control and dependent variable which is performance of construction projects in Tanzania.

4. RESULTS AND DISCUSSION

Procurement practices influencing performance of construction projects in NHC:

The study considered procurement planning, contract monitoring & control and supplier selection as the three major procurement practices which influence performance of construction projects in NHC. The range was "strongly disagree" (1) to "strongly agree" (5). The scores of disagreeing have been taken to represent a variable which had a mean score of 0

to 2.5 on the continuous Likert scale; ($0 \leq S.D \leq 2.4$). The scores of “moderately agree” have been taken to represent a variable with a mean score of 2.5 to 3.4 on the continuous Likert scale: ($2.5 \leq M.E \leq 3.4$) and the score of both agree and strongly agree have been taken to represent a variable which had a mean score of 3.5 to 5.0 on a continuous Likert scale; ($3.5 \leq S.A. < 5.0$). A standard deviation of > 0.9 implies a significant difference on the impact of the variable among respondents.

Influence of Procurement Planning on Project Performance:

This section of the questionnaire sought to get from the respondents on the influence of procurement planning on performance of construction projects in National Housing Corporation.

Table 1: Procurement Planning

Indicators	Mean	Std. Deviation
Improves project performance	4.22	0.634
Reduces costs	4.19	0.617
Sound formal planning provides the basis for organizing the work on the projects in NHC	4.15	0.596
Facilitate efficient resource utilization	4.09	0.559
The procurement plan is always integrated with the budgeting	3.98	0.765
Reduces conflicts of interests	3.93	0.699
All items that have to be procured are identified and defined	3.87	0.674
Increases number of projects completed on time	3.85	0.684
Timeframe of project implementation is determined	3.78	0.664
Meeting performance indicators	3.69	0.609

From the result above, it shows that procurement planning improves project's performance by a mean of 4.22, as Kabega (2010) concluded that procurement planning greatly affected the performance of construction of Bugesera District Office because the district office was constructed with quality materials as per the plan and the district offices was as per the plan architecture. Costs reduction with a mean of 4.19 and sound formal planning provides the basis for organizing the work on the projects with a mean of 4.15, since planning enhances the gathering, evaluating and interpreting of essential data and information in order to produce knowledge relevant to good policy making. On other hand the respondent support on efficient utilization of resources with a mean of 4.09 as Lysons and Farrington (2010) assert the relevance of resource allocation as an aspect of planning in the process of the project implementation strategy formulation. Resource allocation at this stage will normally assume the form of financial, physical, human and technological resources allocated to a function or activity: such allocation is usually reduced to quantitative terms expressed in procurement budgets or financial statements of resources needed to achieve specific objectives or to implement a formulated strategy.

Integration of procurement plan with the budgeting was supported by a mean of 3.98. This support the position made by Saunders (1997), planning encompasses the aspect of forecasting to help in the process of predicting costs and cash flows (financial disbursements). Ultimately, the purpose of procurement planning is to safeguard against delayed implementation of public projects and to avoid situations of budgetary constraints which would hinder successful project execution and completion. Also the study found out that reduction of conflict of interest with a mean of 3.93 and items to be procured are identified and defined with a mean of 3.87. Further respondent on increase of number of projects completed on time were supported by a mean of 3.85, determination of timeframe of project implementation with a mean of 3.78 and finally meeting performance with a mean of 3.69.

Correlation between Procurement Planning and Project Performance:

The regression analysis was performed to determine the correlation between procurement planning and project performance.

Table 2: Correlation between procurement planning and project performance

		Project performance
Procurement Planning	Pearson Correlation	.596
	Sig. (2-tailed)	.001
	N	95

From the findings in the table above, the study found that there was positive correlation coefficient between project performance and procurement planning as shown by correlation factor of 0.596, this relationship was found to be statistically significant as the significant value was 0.001 which is less than 0.05.

Influence of Contract Monitoring and Control on Project Performance:

This section of the questionnaire sought to get from the respondents on the influence of contract monitoring and control on performance of construction projects undertaken by National Housing Corporation.

Table 3: Contract monitoring and control

Indicators	Mean	Std. Deviation
Contracting in NHC minimizes costs to the procurement entity	4.13	0.674
Achieving value for money	4.07	0.696
Increases the chance of achieving project's objectives	4.07	0.723
Improves quality	3.94	0.738
Monitoring triggers off an effort to search for solutions to the identified threats to the project success	3.93	0.749
Reduces variations during project implementation	3.87	0.754
Increases number of projects completed on time	3.83	0.771
A risk assessment and management plan is developed	3.65	0.731
Reduces risks	3.61	0.738
Evaluation criteria, weighting and an evaluation methodology are defined	3.43	0.716

The findings as exhibited by table 3 strongly acknowledged that the organizations monitoring and control practice minimizes costs to the procurement entity with a mean of 4.13 and increases number of projects completed on time by a mean of 3.83. The findings support the study conducted by Alinaitwe, Apolot and Tindiwensi, (2013:56) on causes of construction project delays and cost overruns in Uganda's public sector who concluded that five most important causes of delays and cost overruns were found to be changes in the work scope, delayed payments to contractors, poor monitoring and control and high inflation and interest rates. Also the findings reveal that both the increase of chance of achieving project's objectives and monitoring triggers off an effort to search for solutions to the identified threats to the project success with a mean of 3.93.

The improvement of quality was seconded by a mean of 3.94, reduction in variation during project implementation by a mean of 3.87 while achieving value for money by a mean of 4.07. Consistence to the findings of Schmitz and Platts (2004:77), they assert that the main aim of contracting is to ensure that goods or services are delivered on time, at the agreed cost and at the specified requirements. It means developing effective working relationships with your suppliers, ensuring effective service delivery, maximizing value for money and providing consistent quality for stakeholders and end users. A risk assessment and management plan is developed by a mean of 3.65 and reduce risks by a mean of 3.61 as Agere (2009:69) notes that contract monitoring requires the systematic management of contract creation, execution, compliance and analysis to maximize performance and minimize risk. Finally the respondents moderately agree with a mean of 3.43 on evaluation criteria, weighting and an evaluation methodology are defined.

Correlation between Contract Monitoring and Control and Project Performance:

The regression analysis was performed to determine the correlation between contract monitoring and control and project performance.

Table 4: Correlation between contract monitoring and control and project performance

		Project Performance
Contract Monitoring and control	Pearson Correlation	.588*
	Sig. (2-tailed)	.023
	N	95

From the findings in the table above, the study found that there was positive correlation coefficient between project performance and contract monitoring and control as shown by correlation factor of 0.588*, this relationship was found to be statistically significant as the significant value was 0.023 which is less than 0.05.

Influence of Supplier Selection on Project Performance:

This section of the questionnaire sought to get from the respondents on the influence of supplier selection on performance of construction projects in National Housing Corporation.

Table 5: Supplier Selection

Indicators	Mean	Std. Deviation
Reduces conflict of interest	4.13	0.584
Reduces costs	4.11	0.572
Improves performance	4.09	0.559
Increases quality of goods and services	3.98	0.629
Reduces number of risks	3.85	0.711
Increases reliability	3.76	0.725
Increases number of orders	3.69	0.722
Utilization of resources	3.59	0.714
Increases number of project completed on time	3.52	0.666
Reduces number of complaints	3.41	0.687

From the table 5 above, reduction of conflict of interest and reduction of costs in supplier selection is highly supported by a mean score of 4.13 and 4.11 while increase in quality of goods and services and improvement of performance are seconded by a mean of 3.98 and 4.09. However, effective selection of suppliers was found to moderately reduce the number of complains with a mean of 3.41. Consistence to the findings of Cherop (2016), asserts for an organization to obtain reliability and quality from suppliers, it has to decide how much it is willing to pay for the supplies, the supplier selection also reduces conflict of interest between the suppliers and management of the organization. She further revealed that supplier selection has influence on the improvement of performance in productivity and enables in meeting objectives which emphasize that selection of the best supplier is an essential strategic issue imperative for supply chain effectiveness and efficiency. Therefore, the supplier selection practice generally improves the operational efficiency of the organization through reduction of employee conflict of interest with the suppliers.

Correlation between Supplier Selection and Project Performance:

The regression analysis was performed to determine the correlation between supplier selection and project performance.

Table 6: Correlation between supplier selection and project performance

		Project Performance
Supplier Selection	Pearson Correlation	.016*
	Sig. (2-tailed)	.024
	N	95

From the findings in the table above, the study found weak positive correlation between project performance and supplier selection as shown by correlation coefficient of 0.016, the significant value was 0.024 which is less than 0.05.

Project Performance:

This section of the questionnaire sought to get from the respondents on the performance of construction projects at NHC and the results are presented below.

Table 7: Project Performance

Indicators	Mean	Std. Deviation
Organization gets value for money on projects implemented	3.76	0.699
The actual budget exceed the planned budget	3.72	0.712
Quality projects are achieved at the long run	3.65	0.731
Problems are identified and corrections made	3.56	0.718
Organization has clear policies on project's quality	3.54	0.719
Stakeholder's needs and expectations are fully realized	3.52	0.720

Contractors provides correct documentation and invoices	3.50	0.746
Contractors complete construction work in planned time schedule	3.48	0.720
Contractors always ask for contract extension	3.46	0.693
The product is ready for use according to the planned time schedule	3.44	0.691
Contractors use high quality materials in construction	3.44	0.718
There is efficient use of materials	3.43	0.662

The findings indicates that most respondents acknowledged that NHC gets value for money on projects implemented by a mean of 3.76, the actual budget exceed the planned budget by a mean of 3.72 and mean score of 3.65 on quality projects are achieved at the long run. Consistence to the findings of Bryde and Brown (2004), concluded that the traditional distinction between good and poor project performance focused on the meeting of cost, time and product quality-related criteria. These criteria have been described as the iron triangle of project performance. The study further revealed that problems are identified and corrections are made during project implementation with a mean of 3.56, organizations clear policies on projects quality by a mean of 3.54 and stakeholder's needs and expectations are fully realized by a mean of 3.52.

The findings also show that contractors provide correct documentation and invoices by a mean of 3.50, contractors complete construction work in planned time schedule by a mean of 3.48 and contractor's request on contract extension by a mean of 3.46. However, the National Housing Corporation considers to a moderate extent the product's readiness for use according to the planned time schedule and contractor's use of high quality materials during construction by a mean of 3.44. Finally the efficient use of materials for construction projects by a mean of 3.43.

5. CONCLUSIONS AND RECOMENDATIONS

In conclusion, given the high percentage of respondents who said procurement planning was most important and the explanations provided on the value of procurement planning, it is important to prioritize procurement planning because it provides the basis for organizing the work on the projects, facilitate efficient utilization of resources, increase the chance of completing a project on time and within a planned budget for successful project performance.

Effective contract monitoring and control was said by a majority of respondents to be significant for success of most projects in NHC. It is equally of paramount importance to prioritize contract monitoring and control in project implementation as it triggers off an effort to search for solutions to the identified threats to the project success, reduces variations during project implementation, improves quality, reduces risks and finally increases the chance of achieving projects objectives. Also the study concludes that supplier selection reduces conflict of interest between the management and the outsiders when dealing with supplier selection and project implementation section.

The study established that on procurement practices influence performance of construction projects during the implementation of projects; therefore they need to be checked in a more appropriate for a successful implementation of the project. The risk assessment and management plan needs to be well developed and clearly detailed so as to reduce the number of risks which may arise during project implementation and increase the chance of achieving project's objectives.

The study also recommends NHC to handle on the issue of conflict of interest from the management and the outsiders when dealing with the supplier selection and project implementation section. However, the NHC also need to advance more on the policies regarding the quality of construction projects so as to ensure quality projects are achieved at the long run which is beneficial to the company.

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