



# Effects of Project Management Practices on the Performance of Ethiopian National Stadium

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## Abstracts

This study investigates the effects of project management practices on the performance of the Ethiopian National Stadium. It identifies the challenges inherent in project management, particularly in the Ethiopian construction sector, where the alignment of scope, time, cost, and quality remains critical. The research employs a descriptive and explanatory design, focusing on a sample of 292 staff from various management levels involved in mega projects. Key findings reveal a significant correlation between the implementation of project management tools and project performance. Despite some positive practices in time and human resource management, deficiencies in quality, procurement, and risk management were noted. The study underscores the necessity for enhanced project management methodologies tailored to the Ethiopian context, emphasizing the importance of effective stakeholder engagement and communication for successful project outcomes. The results contribute valuable insights to the ongoing discourse on project management practices in developing countries, particularly in the context of large-scale infrastructure projects.

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### **Background of the Study**

The major challenges of project management are to accomplish all of the aims and objectives of the project while at the same time mitigating the constraints of the projects (Lewis, 2006). Notably, Lewis (2006) outlined the scope, time, cost and quality of being the major project constraints. Project management practices, when applied properly, lead to an increase in the probability of project success (Thomas & Mullaly, 2008). Performance of projects is quantified and appraised using many performance metrics that could be linked to several aspects to include time, client endorsement and changes, the performance of the firm, cost, health and safety, along with quality (Cheung et al. 2014).

Subsequently, the influence of such practices on the performance of the corresponding projects executed becomes highly necessary to determine. The performance must also not be looked at with a highlight on time only or quality only. The effect will have to incorporate both time and quality not leaving out cost too. These three basic project objectives are fundamental to the totality of project performance. When practices vary from organization to organization or from project team to project team the question of which practices are the best subsequently arises. Sharma and Gadenne [2002], in their

investigation into an inter industry comparison of quality management practices and performance found out that there is a strong association between quality management practices and performance. This finding provides strong evidence concerning the effect that project management practices have on project performance. An investigation into this relationship is therefore necessary.

In the construction industry Ethiopia has also faced many problems in management practices and to adopt the best models that need to fit the country's situation and trends. Most importantly the At a research done by Addisu Denbel (2018) on more than 100 projects of NGOS's in Ethiopia, the management practices indicated that the small projects aided mainly by world bank The project logical framework, Performance Indicators, Budget Monitoring, tools are the most frequently used tools. Most importantly, there seems to be an agreement among project managers on the extent to which project logical framework & Performance Indicators are used.

When we come to the current research topic of Mega sport Stadiums, there are around twelve Mega stadiums currently under construction in Ethiopia. Those projects aimed not only in serving sport contexts but also in catalyzing the development of the regional cities. However



among the 12 international stadiums that have been begun to be built decades before, none of them haven't been completed as planned time and cost. Understanding the common challenges of implementing project management and ensuring that you have solutions to them or ways around them will help increase the success factor of your project management practices (Choudhuri, 2015).

### **Statement of the Problem**

Within the sphere of a given project there are several project management activities. Several ways of carrying out these activities emerge and become accepted as day to day practices. The need to meet certain environmental and social challenges, as may be faced by a particular organization, may cause the adoption of certain PM practices. When considering adoption of project management tools, it is common experience that some tools are more known and their use is more spread, while others are more sophisticated. For instance, Besner & Hobbs (2008) found in their survey that some tools are used extensively (e.g. work breakdown structure) while others have a very limited adoption (e.g. project evaluation and review technique).

Since projects are mostly initiated to increase organizational capabilities, meeting new

demands, realizing new opportunities or to overcome the challenges faced due to very frequent change of organization's environment then it is more likely that problems could occur during execution of the projects without the nature or type of the project ( Befekadu, 2017). Knowing the success, or outcome or performance of a project has a great deal of relevance to knowing the optimum practices. The effort put into the measurement of project performance in the country has portrayed little or no help in this direction. The possible, simple and most understanding way of measuring project performance with hard data is therefore needed in this regard.

There are previous researches done in Ethiopia also indicated significant correlation between the success criteria and all project management tools and techniques except logical framework and performance indicators. Lack of suitable project management methodology and lack of project management practices have also relationships and become major challenges the organizations faced (Frehiwot A., 2019 & Addisu D., 2018)). However, all these studies are related to projects done by local construction companies and not related to the Mega stadium projects. Thus it is hardly available to find research findings regarding the management practices, challenges and



experiences in this regard. Thus the research carrying out this research based on the following objectives.

### **Objectives of the Study**

- 1.To determine the level of applying project Management Practices and project performance among different management positions and working experiences.
- 2.To examine the level of project performance and problem solving analysis application.
- 3.To distinguish the relationships off project management practices and Project performance.

### **Study Design**

This study uses descriptive method and explanatory design, where data was collected from Management Practices in the Mega project office with some retrospective designs.

### **Sampling Design & Sample Size**

#### **Determination**

Population of the study includes 292 mega project staffs from the ministry of culture and sport, consultant firms and Chinese state owned Constriction Company. The sampling technique was Stratified random Sampling. The research used 123 (42 %) of the samples for questionnaires and 12 project managers,

consultants, government commissioners and ministers for interviewee. purposively

### **Source of Data**

The Questionnaires includes Management Practices, problem solving analysis application, Challenges and Performance items. The problem solving tree analysis (Problems Identified, Root causes and Effects) and problem success scopes (time, quality and cost). The last part includes open ended items.

Moreover interview was designed for the Project management leaders and previous sport commission commissioners. Furthermore Weekly and annual construction reports since 2012 and documentary films recorded were considered.

### **Methods of Data Analysis**

One way and two ways ANOVA were conducted to see the differences on project management tools and techniques as well as project performance across different working positions of the respondents. Partial correlation was conducted to see the relationship of project management practice tools with project performance and problem solving analysis applications. Findings from interview and documents were narrated thematically and triangulated for cross validations of findings.



**Reliability and Validity**

To ensure validity, these questionnaires were adapted from three sources Was like Wilberforce Walubengo, 2019; Peninah Kihuha, 2018; and Firehiwot Animaw, 2019 Ph.D and MBA theses in similar topics in Kenya and Ethiopia. Key professionals in the sector review the questionnaires to have the desired content.

Moreover Cronbach's alpha is used to estimate the reliability on outside populations (Addis Ababa Akaki stadium Project) test. The results of the reliability test conducted through pilot study as total were 0.773 and all variables separate score was also above 0.7.

**Result and Discussion**

**Demographic Characteristics of the Respondents**

The Project staffs are composed of local and Chinese employees. The number of staffs varies throughout its construction. The study includes staff members of the project in February 2023.

Out of the administered 153 Questionnaires 124 (81.04%) filled and returned. Out of 26

**Table:4.4. Descriptive Demography Frequency**

managers18 male top managers filled questionnaire, while two of them were interviewed. In the same way 22 middle management staffs of the project M (15) and F (7) were included.

The number of female employees in project coordinating office is also only one while male were 24. M (24) and F(4)consultant employees and M(29) and F(4 ) for other expert positions in proportion of the total respondents of 124 employees 108(87.1%) were male and 16(12.9%) were female indicate less attendants of females at the project. On the other hand proportional numbers; ranging from 18 for top management staffs to 33 other expert staffs' positions was included in the study.

This enables the study to be representative. Moreover the study participants have more than satisfactory level of education and experience to reply relevant and reliable information.



Table with 12 columns: SEX, Work Experience, Academic Qualifications, Top Management (n, %), Middle Management (n, %), Project Coordinator/officer/ (n, %), Consultant (n, %), Other Expert (n, %). Rows include Male/Female, Work Experience (less than 5 years, 5-10 years, 10-15 YEARS, Above 15 Years), Academic Qualifications (MA/Msc, BA/BSc, Diploma), and Total.

management, Project procurement management and project risk management consecutively (M=2.6689&SD=.51987 ; M=2.2705&SD=.50382 and M=2.2467and SD=.46144 ).This implies that there is less practice of project planning practices for the majority of its factors.

8.2. Descriptive result of Project Management Practice

One of the highest average score from the Project management practices factors was found by project time management and project human resource management practices consecutively (M=3.2 & SD=.58 and M=3.48 & SD=.55 ). The Project management practices the scope management and project time are agreed to be above neutral. This implies that there is some sort of planning practice on time and scope management as the majority of the respondents replied. On the contrary the least factor of project management practice indicators were for Project quality

In support of this statement the document analysis from the weekly report of the company also indicated significant number of repeated similar cases. For example the report of Construction Weekly Report Addis Ababa National Stadium Project—Phase IIWeek2 2020/8/14 statement says:-

“Electric systems other than rainwater, floodlighting systems and photovoltaic panels are not included in the contract (see letter MH/017/20200710 for details). I hope that this part of the work will be immediately implemented by the responsible unit; the above work is





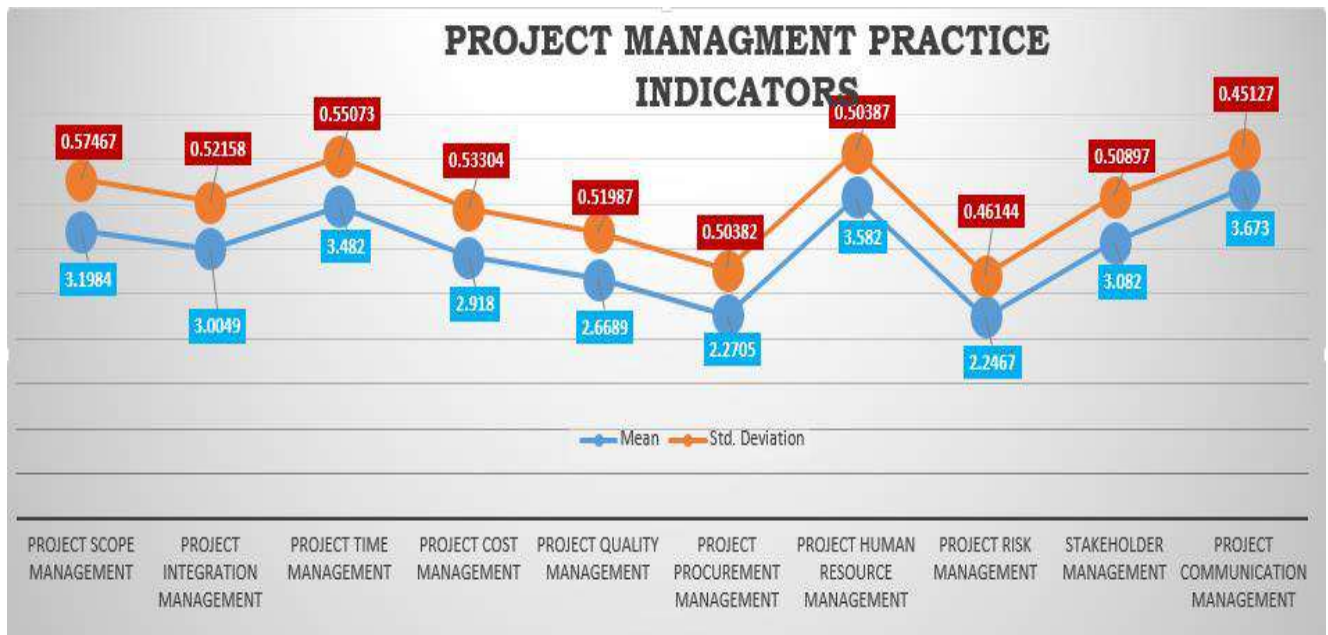
dependent on the steel structure In terms of components, if the responsible unit and the work of the transfer location with the steel structure are not determined in time, the cover will face defects, and subsequent additions will be very difficult. After communicating again on August 14, 2020, the engineer stated that he would discuss with the South Korean design subcontract and then determine the order items.''

Such quality Management problem indicators were further reported. The interview made with one of the project coordinator manager in support of this finding mentioned that:

'..... approving the design with all the requirements were

not done by the time the second phase started. Quality standards of the project design were not identified. Accordingly Appropriate quotations, bid, offers or proposal were not Obtained even Results were monitored to check if they comply with the quality standards identified since the foreigners that should come for doing this task hadn't arrived on time.....''

Figure 4.1:- Project Management Practice Indicators



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Furthermore another top official mentioned that

*“ the debate on contract resume due to inflation of the cost of materials and currency issues take more time for decision. Initially the cost was 8 billion birr but later in 2015 reaches to 13 billion. The company further demanded more and resulted for termination of the agreement. Thus the Contract was not completed and settled properly for long.....”*

*In the same way the report made by the ministry in 2022 indicated that:*

*“ Initially there was a problem on water and electricity facility for the project and got problem, however the sport commission with the communication of the government alleviates and solved the problem”*

All these findings from the qualitative data support the result made from the quantitative data. In this regard Buba and Tanko (2017) study examined the influence of project quality performance of construction projects and established that the ability of a project manager in giving direction is the best project planning and contributes to the best artistic quality of the project and also leads to better inter- functional relationships.

The major processes in quality management are quality planning, quality assurance and quality control (PMI, 2004).The project team must identify which quality standards that are relevant to the project in order to perform quality control. It is important that the quality plan not only consist of required levels of quality in different activities but also methods to achieve the requested quality (Wei & Yang, 2010). Hence In order to perform quality control, the project team must develop methods to monitor and control specific activities of the project.

On the other hand the major processes in procurement management are plan purchases and acquisitions, plan to contract, request seller responses, select sellers, contract administration and contract closure (PMI, 2004). A poorly developed procurement plan, or the lack of one, is likely to cause high procurement costs and in worst case even force the construction to be stopped (Antvik & Sjöholm, 2007). In larger projects, there is often a procurement manager assigned to control activities. Project risk management is the third project management planning variable with lower application in the project. As the qualitative data witnessed risk analysis was not





developed early in the project. The risk analysis is rough and the identified risks are not classified regarding probability and consequence of the possible outcomes. Each identified risk should be assigned with rough mitigation measures. Moreover the risk analysis is not implemented in the project management and several of the early identified risks have occurred, with a big impact on the project, since the proposed mitigation measures didn't execute. Kululanga & Kuotcha (2010) clearly states that an effective risk management must be based on iterative risk analysis throughout the project. As a consequence of the neglected analysis, several identified risks occurred and caused delays and increased costs.

Yimam (2011) stated "In Ethiopian risk analysis is preliminary and undeveloped practice. The use of easy to use risk management tools and techniques is not generally known." This may indicate the low level of awareness about the importance of risk management in the organization. The other project planning factors Human Resource management and Project time management Planning indicated as ( $M=3.5820$  &  $SD=.55$  and  $M=3.48$  &  $SD=.503$ ). The results indicated that the majority of employees agreed that there was an application of Project human resource management and Time planning management

tools. This finding is still neither strong numerically nor supported widely by the qualitative data. In this regard the reports from the ministry consistently raised:

- lack of enough and skilled manpower assignment,
- late arrival and contract of skilled foreigners,
- Experienced employee attrition and transfer as problems encountered consistently since 2018 for the case of Human resource management planning. In this regard Al-Maghraby, (2008) stated that Staff changes, especially when key-roles are involved; often affect the project negatively in aspects of time, cost and team development. The project management should, therefore, strive to make as few changes as possible in key roles of the project team. Contrary to the descriptive statistics to the project time management planning status, the Weekly Report of the Construction has indicated few problems that have significant impact on the project performance. For example the report made on Phase II Project 2020/11/26 mentioned that:-

*" Project received a new version of the pdf river reconstruction drawing again on November 18, 2020. However, this drawing has serious problems in the direction and*



*elevation of the river. The project has submitted design questions to MH. In view of this situation, the river reconstruction is still unable to be constructed. ”*

This report indicates the Project quality management problem and sequencing Activities and uncontrolled Changes to the project schedule. Thus In order to develop realistic and achievable schedules, it is important that activities are sequenced accurately. The activity sequencing involves identifying logical relationships and dependencies between the project activities (Guo-li, 2010). For the other Project management factor scope management tools the result indicates (M=3.198 and STD = .547). The descriptive study doesn't support the wide application and application of the scope management. The response from the interview further explained that the importance of project scope management is not recognized in the office and lack in providing project management training for employees participating in the project activities. The information obtained from the interview also revealed that project offices were not equipped with the necessary equipment, infrastructure & tools.

### **Descriptive Result of Project Stakeholder Management**

Project Stakeholder Management indicators as a total average score is (M= 3.0820 and SD=.50897). This is also close to neutral score and doesn't indicate the wide practice of Stakeholder Management project management practices. Similar few cases were also reported in the Construction Weekly Report Addis Ababa National Stadium Phase-II Project 2020/11/7. It says that:-

*“ On October 27, 2020, an unofficial drawing issued by the MH headquarters was received. The drawing has been completed and changed the original design. It is currently unable to construct, and the position of the cofferdam and drainage ditch made in the previous project has conflicted with the current drawing and is facing demolition and modification. Problem, the canal renovation project has been forced to stop.”*

In this regard one of the project administrators from the government office mentioned that:

*“..... The company didn't employ enough and skilled manpower. Neither no contractor performance and employees profile were submitted nor measurement & evaluation was done early.....”*



The report from the ministry of tourism and sport in 2012 up to 2015 also indicated that no Stakeholder Management has ever been done intensively for project coordinators and consultants. In this regard Uitto (2010) explained that human capital training needs is paramount for reliable monitoring and evaluation. The training needs assessment should be accurate, monitored and executed diligently by the team responsible for the human capital management (Nabris 2002).

Descriptive Result of Communication

Communication management with different mechanisms. The qualitative data in this regard indicated from the weekly reports and interview that indicate the need of communication management practices are summarized as follows:-

- Communication with manufacturers and transport to prioritize and customs procedures from the point of importing goods,
To communicate with the city administration to prepare a place where the soil excavated.
To communicate with the Chinese government to shorten the completion of the project.

ANOVA table with columns: Source, Sum of Squares, df, Mean, SD, Mean Square, F, Sig. Rows include Project Scope Management, Project Integration Management, Project Time Management, Project Cost Management, Project Quality Management, Project Procurement management, Project Human Resource Management, and Project Risk Management.

Management Practice

Similarly the project communication management practice total average score is (M=3.6730 and SD=.45127). As the result indicated from the above graph, it is possible that the majority of the respondents of the study agreed that there is a better practice of Project

These points can indicate the need of Making needed information available to project Stakeholders that can assist the project especially from the city administration, ministry of revenue and foreign minister. According to Project Management Institute's Pulse of the Profession survey (2017), almost a



third of all project failures were due to poor communication. One of the biggest challenges as a project manager is trying to collaborate with different teams.

**Project Management Practices across different Employees Working Positions and Experience Groups**

The exposure and nature of the project management practice indicators are believed to

A one way between groups analysis of variance was conducted to explore the difference on project management practices among working positions.

The group was five (Top Management Middle Management Project Coordinator Consultant and Other Expert). There was a statistical significant difference in Project management

be different depend on the working position, educational status as well as experience of the employees. The project management practice is (M= 3.079) for Top management, (M= 2.90) for middle management, (M= 3.01) for Project Coordinator, (M= 2.63) for project consultants and (M= 2.33) for other experts.

practice between working positions:  $F(4,121) = 5.97, P = .001$ . Despite reaching a statistical difference, the actual difference in mean scores between the groups was quite small.

The effect size, calculated using eta squared, was .08. Post hoc comparisons using the sheffe test indicated that the mean score for Top management (M=3.079, SD=0.49) was significantly different from the mean score of Consultants (M=2.63, SD=.52) and other experts (M=2.65, SD=.497).

Furthermore A one way analysis of variance was conducted to see if there is any difference among the working positions for Project management indicator factors.

**Table 4.5. Project Management Planning across Different Working Positions**



Accordingly there was a statistical significant difference for Project Scope management between working positions:  $F(4,121) = 4.669$ ,  $P = .002$ . Post hoc comparisons using the sheffe test for scope management mean score of Top Management ( $M = 3.6000$ ,  $SD = .53137$ ) was significantly different from the mean score of Consultant ( $M = 2.9917$ ,  $SD = .51577$ ) and Other Expert ( $M = 3.0485$ ,  $SD = .53158$ )

Similarly there was a statistical difference for project scope management practice among working positions for factors Project Integration Management : $F(4,121) = 4.669$ ,  $P = .002$  ,Project Time Management  $F(4,121) = 8.848$ ,  $P = .00$ ; Project Cost Management;  $F(4,121) = 8.324$ ,  $P = .002$ ; Project Quality Management  $F(4,121) = 7.62$ ,  $P = .00$ ; Project Human Resource Management  $F(4,121) = 10.104$ ,  $P = .002$ ; and Project Risk Management  $F(4,121) = 7.674$ ,  $P = .002$ ;. Despite reaching a statistical difference, the actual difference in mean scores between the groups was quite small for all. Post hoc comparisons using the sheffe test for scope management planning mean score of Top Management ( $M = 3.6000$ ,  $SD = .53137$ ) was significantly different from the mean score of Consultant ( $M = 2.9917$ ,  $SD = .51577$ ) and Other Expert ( $M = 3.0485$ ,  $SD = .532$ ).

For the case of Project Integration Management Post hoc comparisons using the sheffe test for scope management mean score of Middle Management ( $M = 2.81$ ,  $SD = .587$ ) was significantly different from the mean score of Project Coordinator/ officer/ facilitator ( $M = 3.27$ ,  $SD = .461$ ). Similarly for Project Time Management Post hoc comparisons using the sheffe test for Consultant mean score ( $M = 3.0420$ ,  $SD = .461$ ) was significantly different from the mean score of Project Coordinator/ officer/ facilitator ( $M = 3.576$ ,  $SD = .587$ ) and Top management ( $M = 3.77$ ,  $SD = .571$ ).

Post hoc comparisons using the sheffe test for Project Cost Management mean score of Top Management ( $M = 3.24$ ,  $SD = .403$ ) was significantly different from the mean score of Consultant ( $M = 3.04$ ,  $SD = .461$ ) and Other Expert ( $M = 3.38$ ,  $SD = .422$ ). Furthermore Post hoc comparisons using the sheffe test for Project Quality Management mean score of Project Coordinator/ officer/ facilitator ( $M = 2.33$ ,  $SD = .47$ ) was significantly different from the mean score of Consultant ( $M = 2.49$ ,  $SD = .479$ ). Moreover mean score of other Expert ( $M = 2.384$ ,  $SD = .448$ ) was significantly different from the mean score of Middle Management ( $M = 2.864$ ,  $SD = .459$ ) and Project





Coordinator/ officer/ facilitator (M=2.9785, SD=.485)

For the other project management Risk Management post hoc test; mean score of Top Management (M=2.5, SD=.413) mean score of Middle Management (M=2.485, SD=.566) and mean score of Project Coordinator/ officer/ facilitator (M=2.37, SD=.48) were significantly differ from the other experts mean scores consecutively (M=1.93, SD=.256)

Human Resource management mean score of Top Management (M=3.99, SD=.379) was statistically significantly different from the mean score of Consultant (M=3.34, SD=.459) and Other Expert (M=3.32, SD=.5). More over mean score of Project Coordinator/ officer/ facilitator (M=3.768, SD=.415) was significantly different from the mean score of Consultant (M=3.34, SD=.459) and Other Expert (M=3.32, SD=.5). However there was no statistical difference for Project Procurement management  $F(4,121) = 1.362, P = .251$ . However there was no statistical significant difference for Project Communication Management practices across different working positions of the employees  $F(4,121) = .855, P = .493$ .

Similarly there was a statistical significant difference for Stakeholder Management

Practices:  $F(3,200) = 19.43, P = .00$ . Despite reaching a statistical difference, the actual difference in mean scores between the groups was quite small. The effect size, calculated using eta squared, was .08. Post hoc comparisons using the sheffe test indicated that the Mean score of other experts (M=2.6742, SD=.35600) is different mean score of Top management (M=3.1472, SD=.30170); Mean score of Project coordinators/officers (M=3.4240, SD=.48350) and Mean score of consultants (M=3.435, SD=.39931). Similarly Mean score of Middle Management (M=1.3, SD=1.2) is significantly different from mean score of consultants and Project coordinators/officers.

In all the quantitative inferential analysis the top managers and middle managers have applied better the project management practices compared to the experts. This is due to the involvement and roles of the management. The managers structure Stakeholder Management process to monitor progress and utilize the information in improving the performance (Lipsey, 2011). The management is largely involved in budget allocation. It demands for their commitment to the implementation of monitoring and evaluation system and revise the project work plans.





The middle management result from the result of the study in fact indicates some fluctuations. The side down of the project management support is that, some managers may show negligible or no importance in the implementing an active system of stakeholders involvement in monitoring and evaluation (Goyder, 2009). Kelly (2005) stated that participation leads to learning, which is a requirement for behavioral changes and practices. Stakeholders interact with the project in two fronts: cultural and political as stated in Newcombe (2003). These two fronts combined to impose invaluable barriers on stakeholders` engagement process. Barriers can emanate from the lack of awareness within the external stakeholders.

## **8.6. Project Problem Solving Analysis and Performance Success Statuses**

### *8.6.1. Status of Problem Solving Applications*

The other objective of the study was to examine how the application of problem tree analysis influences performance of the project. This Problem solving analysis comprised of: project problems identified, project root causes and project effects. These are presented in the following figure. The study Problem Solving Analysis practices as total result mean score is (M=2.4 and SD=.49). This average score with small variation scores indicate below neutral

and resembles to imply that the majority of the employee believes

Problem Solving tree analysis is hardly implemented in the project . When we see in-depth to its components; the result is very close for all Problem tree analysis application components; Problems identified mean score (M=2.36 and SD=.6); Root causes Analyzed mean score (M=2.37 and SD=.5) and Effects Identifies mean score (M=2.46 and SD=.5).

### **8.6.2. Project Performance Statuses**

The project Success was determined with agreed scopes of Project success within specified budget /cost, With Factors meeting its specification (specified quality) and Completing in time.

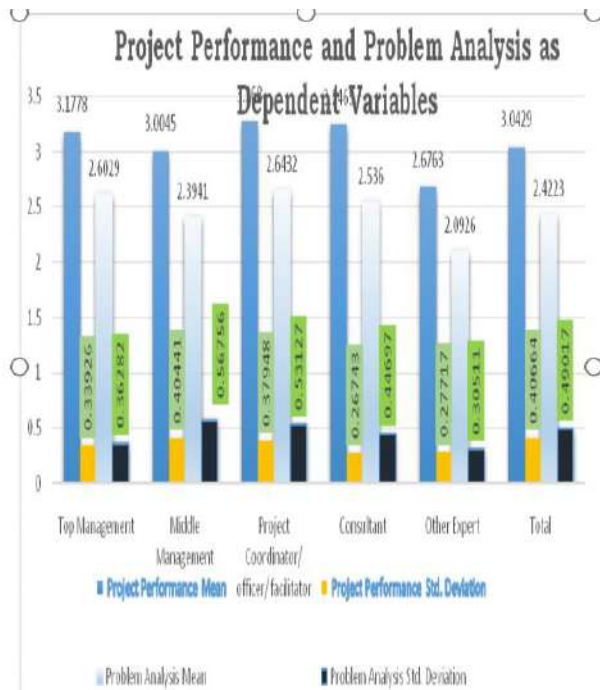
The project Performance with agreed scope as total result mean score is (M=3.0429 and SD=.40664). This average score with small variation scores indicate below neutral and resembles to imply that the majority of the employee believes project Performance with agreed scope is below good.

When we see in comprehensive to its agreed scope; the result is very close for all project Performance agreed scopes; meeting its specification (specified quality) mean score (M=3.2361 and SD=.48499); Project success



within specified budget mean score (M=3.1057 and SD=.50621) and Project Performance in Completing in time mean score (M=2.7221 and SD=.6).

As it indicates the project success factors slightly vary. The lowest score is witnessed for Project Performance factors completing in time.



According to the construction schedule, the completion of the work has been extended due to various reasons, but now the first phase of the construction is 99%, which is 43% of the total completion. The rest of the work from the first phase included the construction of a playground and a running track, it was reached an agreement and decided to work after the completion of the construction of the second

phase for the benefit of the government. As the second phase of the project profile indicated :-

**I. Contract Amount**

- The main contract amount 4,408,972,077.13
- Addendum 2 113,166,978.70
- Total contract price before VAT 4,522,139,055.83
- Total contract price with 15% VAT 5,720,505,905.62

**II. Contract period**

- The date of signing the contract 23 March, 2020
- Start date 7 May, 2020
- Date of completion 8 September, 2022
- Main working days 900

**III. The condition of the contract**

- Used time per day 952 (until November 2022)
- Elapsed time in percent 105.78
- Work planned to date 4,522,139,055.84
- Completed work to date 468,709,187.69
- Planned performance to date 100.00
- Work to date 10.36



8.7. Project Problem Solving Analysis and Performance Success Statuses across Working Position and Work Experience Interaction

A two-way between groups analysis of variance was conducted to explore the impact of Employees working position and employees working experience on Problem Solving analysis application, as measured by the three dimensions; project problems identified, project root causes and project effects.

Test (. Subjects were divided into four groups according to their working experience (Group 1: less than 5 years; Group 2: 5-10 years; Group 3: 10-15 YEARS; Group 4: Above 15 Year). The interaction effect between Working Position and Working experience was statistically significant, F (8, 122) = 3.157, P =.003. There was a statistically significant main effect for Working position alone, F (8,122) =4.154, P =.003; the effect size was also large (partial eta squared = .134). But there is no main effect for Working experience, F (8,122) =2.188, P =.094 however the effect size was small (partial eta squared = .058) Post-hoc

comparisons using the sheffe test indicated that the mean score for the 10-15 years' work experience group (M = 2.65, SD = .54) was significantly different from the 15 + group (M = 2.37, SD = .43460) and 5-10 years working experience group (2.3, SD = .46).

A two-way between groups analysis of variance was also conducted to explore the impact of Employees working position and employees working experience interaction on Project success, as measured by the three dimensions; meeting its specification (specified quality) mean score; Project success within specified budget mean score and Project Performance in Completing in time mean score. Test (. Subjects were divided into four groups according to their working experience (Group 1: less than 5 years; Group 2: 5-10 years; Group 3: 10-15 years; Group 4: Above 15 Year).

Table: 4.8
Two Ways ANOVA for Working Position and Employees Experience Interaction Effect on Project Performance

Tests of Between-Subjects Effects
Dependent Variable: Factors Define project Performance with agreed scope
Table with 7 columns: Source, Type III Sum of Squares, Df, Mean Square, F, Sig., Partial Eta Squared. Rows include Corrected Model, Intercept, and Position.



Table with 7 columns and 5 rows: Work experience, position \* work experience, Error, Total, Corrected Total. Columns contain numerical values for F, df, p, and eta squared.

a. R Squared = .567 (Adjusted R Squared = .506)

The interaction effect between Working Position and Working experience was statistically significant, F (8, 122) = 4.397, P =.001. There was a statistically significant main effect for Working position, F (8,122) =10.382, P =.002; the effect size was also large (partial eta squared = .131). There is also a main effect for Working experience, F (8,122) =5.317, P =.002. The effect size was also large (partial eta squared = .281). Post-hoc comparisons using the sheffe test indicated that the mean score for the 10-15 years' work experience group (M = 3.2657, SD = .37495) was significantly different from the 15 + group (M = 2.9659, SD =.29937), 5 years group (M = 2.5333, SD = .18856) and 5-10 years working experience group (2.9744, SD = .46293).

Mangers contribute and support the project implementation when adequately provided with key information for decision-making. Project performances done by comparing the progress reports and the original plans. Updating must be done in conformance with the revised and relevant standard plans (Robert, 2010). Project

managers, assigned huge responsibility of facilitating monitoring and evaluation projects. It entails evaluating Management's competency, Commitment, communication and collaboration of the project teams. It has great contribution towards the performance (Yong and Mustaffa, 2012). Management support is a critical element in preparing the implementation of monitoring & evaluation plans adherently they form key project decision makers (Magondu, 2013).

Project Management Practice Indicators Relationship with Project performance

Partial correlation was used to explore the relationship between the Project Performance and independent variables. Problem solving analysis application used as controlling variable. Preliminary analyses were performed to ensure no violation of the assumptions of normality, linearity and homoscedasticity. There was a medium positive, partial correlation between Project risk management and project Stakeholder Management with project performance, controlling for Problem



solving analysis application,  $r = -.378$ ,  $n = 122$ ,  $P < .001$ , and  $r = .482$ ,  $n = 122$ ,  $P < .001$ , Thus High levels of Project risk management practice and Stakeholder Management with controlling problem solving analysis application associated with higher levels of Project performance. An inspection of the same zero order correlation ( $r = .378$  and  $r=.482$ ) suggested that controlling Problem solving Analysis application had very little effect on the strength of the relationship between these two variables and the project performance. Accordingly Problem-solving analysis exhibited a strong correlation with both Stakeholder Management as well as Project risk management planning. In line with this Anantatmula (2010) emphasized the crucial role of project manager leadership in improving project performance. Consistent with findings, a considerable number of research indicated that there is a strong relationship between project management and problem-solving mechanisms, as a whole on the project performance (e.g., Rozenes 2011; Majeed 2023; Tarr 1983). It implies that the successful completion of a project is directly influenced by the management strategies employed. In particular, the leadership role assumed by the project manager plays a significant role in motivating individuals and establishing a

conducive work environment. This becomes crucial for the project team to effectively overcome the increased complexities presented by the contemporary global economy. Conversely no relationship was seen with project communication, Project Quality Management, Procurement Management and Project Human resource Management practices indicator factors. However Variables like quality management and procurement management practices were with the least practiced management tools observed in the project. These findings are contrary with the findings of Naqvi and Aziz (2011) whose study findings showed that project outcome dependency and stakeholder communication strongly correlates with each other. Affare (2012) suggested that poor communication had resulted in project delays, project cost overrun and project abandonment.

### **Conclusions of the Study**

- As supported from the qualitative and quantitative information better project management practice on Communication management, project management factors (Project Human Resource management and Project time management) are indicated consecutively. On the other side lower practice of Project planning management indicators (Project quality, Project procurement planning





and project risk management practices) were evident.

- Project performance and problem solving analysis application is at lower status for the project.
- There is also better application of project management tools like, Stakeholder Management and project communication, project management as well as problem solving analysis application and project performance scope by top managers compared to experts and consultants.
- Problem solving analysis has high relationship with Stakeholder Management and Project risk management planning (.751 and .696 consecutively).

#### **Recommendations of the Study**

- Experts and consultants should get better induction training on project management Practices
- Establish and promote more comprehensive communication framework or rather the Management Information System (MIS) in projects.
- Together with encouraging other key stakeholders including the Government Administrations, communities and Non-Governmental Organizations, can form network and play crucial role in providing the procurement management, quality

management and risk management information.

- Expediting price adjustment negotiations, reaching an agreement and signing a contract internationally requires the involvement of other ministries and embassies
- Discussing with senior government officials about allowing foreign currency in a special way and making the payment quickly, or looking for another option for the next technological works.





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