

EXPLORING THE INFLUENTIAL FACTORS AFFECTING EFFECTIVE IMPLEMENTATION OF PUBLIC PROJECTS IN ETHIOPIA: AN IN-DEPTH ANALYSIS

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Article Info

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Abstract

This study delves into the multifaceted landscape of public project implementation in Ethiopia, focusing on the specific case of Botor Tolay Woreda in the Oromia Regional State. Employing a mixed-method approach, combining quantitative and qualitative research methodologies, the research explores the intricate web of factors that influence the effective execution of public projects. The study draws upon the perspectives of 26 experienced individuals from government offices and contractor organizations, utilizing questionnaires, observations, and document analysis as primary data sources. Statistical analyses, including descriptive and inferential statistics, Pearson correlation, and multiple linear regression, are employed to establish relationships between independent variables such as planning and scope-related delays, client-related delays, contractor-related delays, and external factor-related delays, and the dependent variable of project implementation success.

The findings underscore the significance of these factors in shaping the outcome of public projects. Notably, a positive and significant relationship is revealed between project implementation success and the aforementioned factors. The study provides valuable insights into the challenges faced in public project implementation in Ethiopia, shedding light on the critical role of effective planning, client engagement, contractor competence, and management of external factors. It is recommended that measures such as the establishment of construction oversight offices at the woreda level, improved payment approval processes, enhanced client collaboration, adherence to project schedules, and resilience against external influences be taken to mitigate delays and enhance project success.

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INTRODUCTION

Ethiopia is one of the countries that populated with over 100 million people with less developed in line of infrastructure like Road, Electric power and water. To resolve the problem the government, pay attention to increase the infrastructure coverage to the rural societies through building Rural Road, Expansion of electric power and pure portable water (Japan International cooperation Agency,2022)

The Government of Ethiopia (“Government”) has targeted the achievement of middleincome status by 2025 through the application of development policies and strategies that enable rapid, broad-based, sustainable and equitable economic growth. Considerable success has been shown to date through the double-digit economic growth that has been over the last decade. This is achieved due to the fact that several development projects planned under the first phase of the GTP have been completed successfully through government financing. Similarly, the government paid the same attention for the execution of the projects and programs under the second phase of the GTP (“GTP2”) by allocating a huge number of resources but the government financing alone cannot meet the growing demand for public services sustainability that require the management skills and quality of all stakeholder’s (FDRE August, 2017).

The management of those public project are essential for the society to benefited from the implemented projects that need knowledge of the project implementation, skills and activities as well as the tools and techniques, to bring a project to its desire outcomes. The project manager to manage the project clearly define the objective, deliverables, balance the time, scope and cost with collaborated stakeholder (PMI, 2004)

The value of project management contributes and plays a vital role in the growth of the country’s sustainable development in economic, social, and political aspects (Eichengreen, 1994; Macarubbo, 2016). However, these studies suggest that projects can fail due to delays in time, cost overrun, low quality, and a lack of alignment with the intended plan.

According to personal characteristics of the consultant and of the client lack of skills, technical shortcomings ineffective project management, and an unstable or bad consultant client relationship lack of communication), sociopolitical aspects of the client organization hidden agendas; uneasiness for resistance to change hampered proper implementation of projects in general (David and Michael ,2007).

Different literatures include (Merd and Mantel 2009). suggests that the following factors are capable of affecting project implementation includes: escalation of project cost due to inflation, contractors’ performance below standard and expectation, change in the original design, poor planning, specification of costly and imported materials, insufficient budget. Obviously in the process of project management, the direct project objectives of time, cost, and performance have been accepted as the primary determinants of project success or failure. Thus, ‘Project implementation and management focuses on three basic parameters: Quality, cost and time. A successfully managed project is one that is completed at the specified level of quality, on or before the deadline, and within the planned budget’.

The core concepts of the theoretical and empirical literatures focus on the variables' Planning and scoping related cause of project delay, Client related cause of project delay, Contractor related cause of project delay, and Consultant related cause of project delay, External factors lead project delay, Project implementation Delays and Failure of Project implementation

(H.Aregay 2022). The successful execution of public projects is a catalyst for socioeconomic development and general wellbeing of citizens. Despite its Significance, the efficient implementation of public projects remains fraught with challenges, particularly in developing regions such as Botor Tolay woreda administration (Report of projects of Botor Tolay Woreda 2013 E.C) . This thesis aims to evaluate the primary factors that undermine the

effective execution of public projects. Additionally, issues that contribute to project delays, as well as the actual experience of public project implementation, will be critically analysed.

Project implementation delay is a major problem facing public projects financed by Botor Tolay Woreda administration. Therefore, identifying the significant factors that hinder effective implementation of public projects financed by the Botor Tolay Woreda administration has significance to resolve the bottleneck for the implementation of public project in Botor Tolay Woreda. The delay in implementation of projects financed by Botor Tolay Woreda administration is related with various factors and has resulted to hindrance of Sustainable development in the study area. In view of this, this study seeks to find the major Factors Affecting effective implementation of Office Construction, Road and water public Projects in Botor Tolay Woreda administration.

Previous research has emphasized the importance of the challenge of successful project Implementation (Ahsan & Gunawan 2018; Rojas & Mukherjee 2003; Endale Regasa et al., 2019). However, most of these studies have focused on specific variables, leaving a gap in understanding the situation in broader areas like Botor Tolay Woreda in Jimma zone.

In light of these gaps, there is a need for a comprehensive study on the Factors Influencing the Effective Implementation of Public Projects in rural area like Botor Tolay Woreda, and there is a need to investigate other potential factors that may influence the successful implementation of public projects. A mixed-method approach can provide a more in-depth understanding of the factors influencing in successful implementation the of the study area.

LITERATURES REVIEW Theoretical Review Systems Theory

Systems Theory emphasizes the interdependencies between different factors and stakeholders in project implementation (Bertalanffy, Ludwig von, 1901-1972). The independent variables represent different components and factors within the project system that are interconnected and influence the overall implementation process. Therefore the independent variables of contractors, client, planning and scope, and external factors align with this theory.

Stakeholder Theory

Stakeholder Theory focuses on identifying and analyzing the interests, expectations, and influence of various stakeholders involved in a project (Edward Freeman 1984). Contractors and clients are key stakeholders in project implementation, and their goals, interests, and actions can significantly impact the implementation process. Therefore the independent variables of contractors and client align with stakeholder theory.

Agency Theory:

Agency Theory examines the principal-agent relationship within a project context, particularly the conflicts of interest that may arise between project owners (principals) and project managers/contractors (agents) (Jensen and Meckling 1976) . Contractors, as agents, may have their own interests and incentives that can affect project implementation. Therefore the independent variable of contractors aligns with agency theory.

Institutional Theory

Institutional Theory highlights the role of formal and informal institutions in shaping project implementation processes (John Meyer and Brian Rowan 1970). Contractors and External factors represent factors influenced by institutional pressures and norms, which can impact decision-making, resource allocation, and practices within projects. Therefore the independent variables of contractors and external factors align with institutional theory

Resource Dependency Theory:

Resource Dependency Theory emphasizes the importance of external resources for project implementation (Pfeffer and Salancik 1978). External factors represent the external entities that organizations depend on for

necessary resources, such as funding, expertise, or political support. Therefore the independent variable of external factors aligns with resource dependency theory.

Factor Related to Project Delays

Scope and Planning Related Delays

Scope and planning related delays, implies that inadequate preliminary project planning and designing, incomplete specifications or scope changes during project execution, can result in project delays (Mbachu & Nkado, 2007). Hence, the study argues that ineffective management of these aspects has a direct repercussion on the project's completion time, quality, or cost.

Client-Related Delays

According the study of Ahadzie, Proverbs & Olomolaiye, (2008). client-related delays, concerns matter wherein the client's financial constraints, late payments, and changes in requirements can inadvertently cause project delays

Contractor Related Delays

Contractor-related delays, the third variable, is another primary factor contributing to project implementation failures. Contractor's financial difficulties, lack of experience, improper construction methods, as advised by Sambasivan & Soon, (2007), are frequently the roots of construction delays.

External Factor Related Delays

According of the finding of Odeyinka & Aina, (2006) External factor related delays, including delays due to natural disasters, socio-political conditions, and local legislation, can jeopardies project implementation.

Empirical Studies

Several empirical studies have underscored the influential factors affecting project implementation. As supported by empirical evidence, Ahsan & Gunawan (2018), found that the problems associated with scope and planning are amongst the most prevalent causes of delays. Similarly, the study conducted by Nega (2008), stated that client related issues significantly impacted project timelines, which affected the quality and cost of the project.

Findings from Fugar & Agyakwah-Baah (2818) suggest that contractor-related delays are more prevalent in developing countries due to poor management practices. However, Rojas & Mukherjee (2003), argued that external factors, although not as common, have dramatic and devastating impacts on project implementation.

According the study by Endale Regasa (2019) Assessment of Factors Affecting effective implementation of public Projects that clint , contractor, scope and planing, and External factor affect the implementation of public project. The study doesn't include rural area and also the Study methods gaps in Inferential statistics analysis.

Research Gap

Despite robust theoretical and empirical investigations concerning the hurdles in project implementation, there is a sparse literature particularly addressing the situation in Botor Tolay woreda administration. This points towards a significant research gap. This essay purports to bridge that gap by assessing the specific hindrances in effective execution of public projects in this region. In general, several studies have covered various influences on project delays, what is lacking is a comprehensive and comparative study of how these factors interact and influence each other within the context of public projects financed by local administrations like Botor Tolay Woreda

Independent Variables

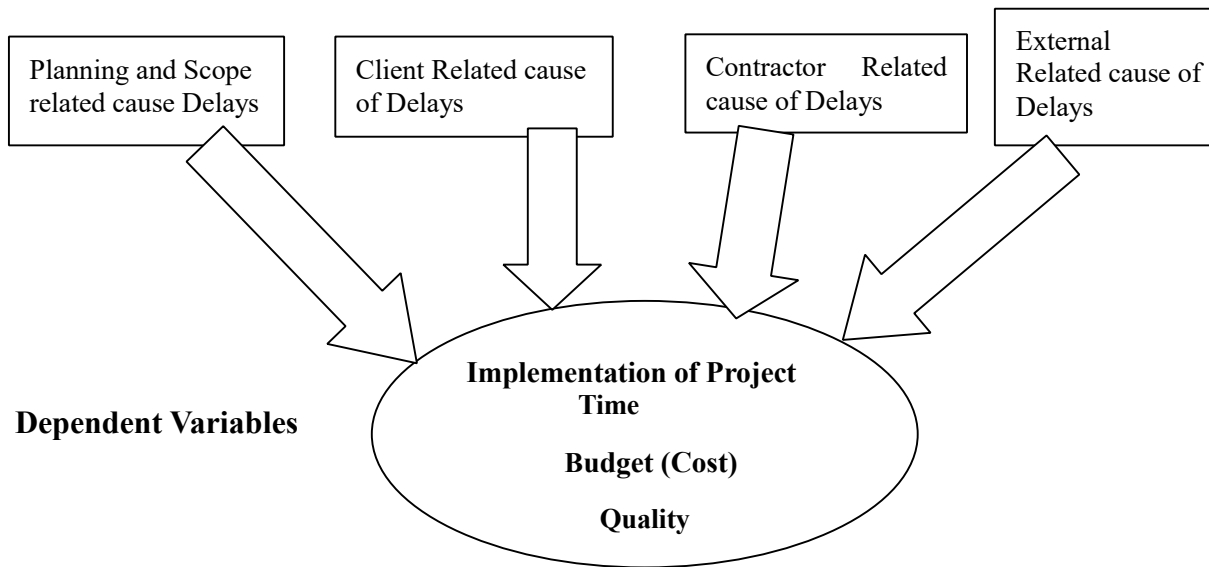


Figure 1: Conceptual Framework

Source: Compiled from Reviewed Researches

The conceptual framework in a research study is the sketch presentation of the different variables that analysis takes in the research study. The conceptual framework gives a clear outline of the interconnection that exists between the dependent and independent variables in the study. The independent variables in the study are Scope and planning related delays, Client related delays, Contractor related delays and external factor related delays while the dependent variable is the implementation of project with time, cost and quality.

METHODOLOGY

A mixed research design would allow the researcher to collect both quantitative and qualitative data, which would provide a more comprehensive understanding of the research problem. Overall, a mixed research design would be appropriate for this study as it would allow the researcher to collect both quantitative and qualitative data, which would provide a more comprehensive understanding of the research problem.

The target population was those that set as project committee office of the woreda (Education office, Finance, Agriculture, water and energy, and Health office) coordinated by the Vice administration of Botor Tolay woreda and the project that start implement since from 2008 2013 E.C, like the office construction, Road construction and water construction.

To identify the primary factors hindering project implementation and the reality of project execution, we will employ observations, survey questionnaires, and document analysis techniques. This combination of strategies will provide a holistic understanding of the project implementation landscape within the Botor Tolay woreda administration.

Purposively 26 from office experts and contractors that more experienced with the project and those have knowledge and skills about the implementation of the projects in the Botor Tolay woreda.

Both data collection methods used Primary data and secondary data. The primary data collected by using Likert scale question and secondary data was used from the Vice Administration office reports of projects documents were analyzed.

Data were analyzed using descriptive statistics and the following Multiple linear regression model and the data was collected after a pilot study to ensure the quality of the questionnaire. The below model was used.

$$y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$$

Where, y = Project Implementation, x_1 = Scope and planning, x_2 = Client, x_3 = Contractor, x_4 = External factors, and ε = is an error.

RESULTS Demographic Background the Respondents

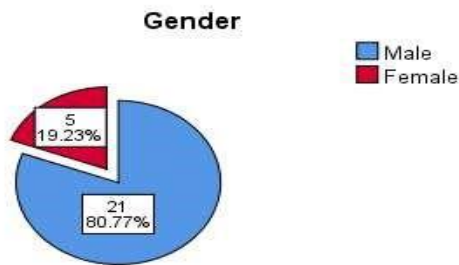


Figure 1: Gender of the Respondents

The figure 1 above indicates that the 21(%80.77) male and 5(%19.23) the respondent was Female

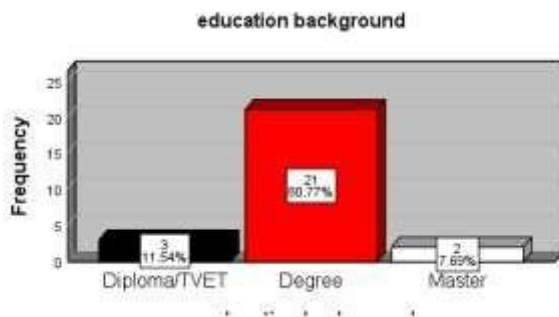


Figure 2: Education Background of the Respondents

The figure 2 above shows that 21 (%80.77) was Degree holder. 3 (%11.54) was Diploma holder while 2 (%7.69) was the master holder.

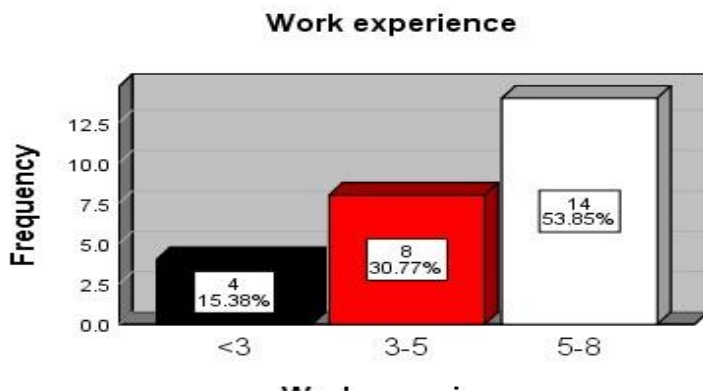


Figure 3: Work Experience of the Respondents

The figure 3 above refers that 14 (% 53.85) of the respondents have experience of ranges between 5-8, 8(%30.77) of the respondent's experience fall between the ranges of 3-5 while 4(% 15.38) have less than three years.

Descriptive Statistic Analysis Table 1: Scope and Planning Related Delays

Descriptive Statistics			
	N	Mean	Std. Deviation
Mistakes with site, soil and foundation conditions investigation	26	2.65	1.384
Incomplete Requirements and specification	26	3.77	1.336
Deficiencies in activity sequencing	26	2.35	1.468
Changes in scope of the project	26	3.92	1.354
Grand Mean	26	3.172	1.385

Source: Survey Data 2023

The above Table1 refers to the Scope and planning related Delays of the Respondents agreement and disagreement. The respondent level of agreement indicates that Mistakes with site, soil and foundation conditions investigation mean values of 2.65 Std 1.3 that has less impact on the delays of project, The Incomplete Requirements and specification means values 3.77 with Std 1.33 that indicates that the respondent agree that it has high impact on the delays of project, the Deficiencies in activity sequencing mean values are 2.35 std 1.4 that has less impact while Changes in scope of the project mean values 3.92 std 1.35 the respondent agree it has high impact on the delays of project implication.

Table 2: Client Related Delays of Project

Descriptive Statistics			
	N	Mean	Std. Deviation
Delay in transferring (delivering) project site to the contractor	26	3.42	1.554
Lack of contractual agreement enforcement, i.e., inability to manage & administer the project on contractual basis	26	4.12	1.177
Slowness in decision making process by clients	26	4.00	1.200
Poor supervision, follow up and inspection by the concerned part	26	3.92	1.164
Grand Mean	26	3.865	1.273

Source: Survey Data

The above Table 2 indicates that Delay in transferring (delivering) project site to the contractor of the respondents as the mean of the respondents **3.42 std. 1.554** indicates that the woreda let to transfer to the contractor, Lack of contractual agreement enforcement, i.e., inability to manage & administer the project on contractual basis as the respondent's level of the agreement refers that the mean was **4.12 std 1.177** that fall to the range of Agree that

point that have high impact on the delays of project in the woreda. Also, the response of the respondents agrees that Slowness in decision making process by clients the mean **4.00 std 1.2** of the result indicates decision make at let, and Poor supervision, follow up and inspection by the concerned part mean values 3.92 the respondent agree that has high impact on the delays of the project.

Table 3: Contractor Related Delays

Descriptive Statistics			
	N	Mean	Std. Deviation
Lack of skilled manpower of contractor	26	1.69	.970
Poor site supervision and management by contractor	26	4.04	1.248
Inadequate and slow supply of materials	26	3.50	1.156
Poor schedule management	26	4.50	.707
Grand Mean	26	3.43	1.02

Source: Survey Data 2023

The above Table 3 indicates the contractor Related delays of the project agreement and disagreement of the respondent the Lack of skilled manpower of contractor mean 1.69 std 0.970 that disagree that not has the impact on the project delays, the level of agreement Poor site supervision and management by contractor mean values 4.04 std 1.24 that is hamper the project success. The Inadequate and slow supply of materials respondent agreement mean values 3.50 std 1.156 while Poor schedule management the mean values 4.5 std 0.707 that the respondent agree that has delays the project implementation.

Table 4: External Related Delays

Descriptive Statistics			
	N	Mean	Std. Deviation
Price escalation	26	4.46	.582
Weather condition	26	4.54	.508
Shortage of construction materials in the market	26	4.15	.967
Political unrest and upheaval	26	4.50	.510
Grand Mean	26	4.41	0.641

Source: Survey Data, 2023

Table 4 shows that the level agreement of the respondent on the delays of project implementation Price escalation mean values 4.4 std 0.582 agree that has great delays on the project implementation delays , the respondent agree on the Weather condition mean value 4.54 std 0.508 that delays the implementation of the project, Shortage of construction materials in the market the respondent agree with mean value 4.15 std 0.967 while Political unrest and upheaval mean values 4.50 std 0.510 the respondent agree that delays the implementation of the projects.

Inferential Statistics Result Table 5: Correlation Matrix

Correlations		Implementation	Plan and scope	Client	Contractor	External
Implementation	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	26				
Plan and scope	Pearson Correlation	.859**	1			
	Sig. (2-tailed)	.000				
	N	26	26			
Client	Pearson Correlation	.774**	.702**	1		
	Sig. (2-tailed)	.000	.000			
	N	26	26	26		
Contractor	Pearson Correlation	.925**	.791**	.734**	1	
	Sig. (2-tailed)	.000	.000	.000		
	N	26	26	26	26	
External	Pearson Correlation	.860**	.729**	.632**	.852**	1
	Sig. (2-tailed)	.000	.000	.001	.000	
	N	26	26	26	26	26

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

Source: Field Survey, (2023)

As is referred to in above Table 5, of the correlation there is a positive relationship between Scope and plan and implementation of projects ($r = .859, p = 0.00, p < 0.05$) that have positive high relation between Scope and plan, Access to finance have moderate positive correlation ($r = .623, p = 0.00, p < 0.05$), Client and Implementation of projects ($r = 0.774, p = 0.00, p < 0.05$), Contractor and Implementation of projects ($r = 0.925, p = 0.00, p < 0.05$), the association between External and Implementation of projects ($r = 0.860, p = 0.00, p < 0.05$), are statistically significant at a 95% confidence level. The result shows that there is a positive correlation between Scope and planning, Client, Contractor, External factor and Implementation of Projects.

Table 6: Multicollinearity Test

Model		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)	.332	3.015
	Plan and scope	.421	2.376
	Client	.188	5.322
	External	.266	3.756

The above Table 6 indicates, in this study, the Variance Inflation Factors (VIF) and tolerance fall within the acceptance range (VIF = 1 - 10, tolerance = 0.1 – 1.0). There is no multicollinearity problem.

Table 7: Model Summary

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.958 ^a	.917	.901	.38274

a. Predictors: (Constant), External, Client, Plan and Scope, Contractor

b. Dependent Variable: Implementation

Source: Field Survey, (2023)

The model summary in the table 8 above refers to how much of the variance in the dependent variable is explained by the model. The multiple coefficients of determination of R square are 0.917.

The value of the R square indicates that 91.7 percent of the variance in the dependent variable was explained by the model. This suggests that 91.7% of project implementation depends on the independent variables while the remaining 8.3% is determined by other factors that are not included in this study. The value of adjusted R² is 0.901. This implies that there is a variation of 90.1% Implementation of the project with changes in the Access to Scope and planning, Client, Contractor and External factor at a confidence level of 95%.

Table 8: Regression Coefficient

Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.209	.275		-.760	.000
	Plan and scope	.284	.117	.265	2.428	.000
	Client	.129	.094	.133	1.369	.000
	Contractor	.497	.162	.444	3.065	.006
	External	.201	.120	.205	1.681	.000
a. Dependent Variable: Implementation						

Source: Field Survey, 2023

The results of Table 8 revealed that planning and scope ($\beta=0.284$, $p<0.05$), Client ($\beta=0.129$, $p<0.05$), Contractor ($\beta=0.497$, $p<0.05$), Government Support ($\beta=0.233$, $p<0.05$), and External Factor ($\beta=0.201$, $p<0.05$) have significant and positive effect at p-value of less than 0.05. Multiple linear regression estimates the coefficient of the linear equation involving one or more independent variables that best predict the value of the dependent variable and the regression equation is presented below.

$$Y = -0.209 + 0.284PS + 0.129CL + 0.497CT + 0.201IEF$$

The equation reveals that the Implementation of Projects will be -0.209 units if all independent variables are zero, keeping All other independent variables constant Project Implementation was increased by 0.284 units when one unit increased on Planning and Scope , Project Implementation was increased by 0.129 when one unit increase of Clients, In the same ways, for one unit increase in Contractor and External factor provide the change of,0.497 and 0.201 unit increase in Project Implementation respectively.

Summary of Major Findings

The case of the demographic information of the respondents indicates the majority of the respondent's 80.77 percent were males and the remaining 19.33 percent were females. Majority of the respondent's 80.77 percent Degree holder, followed by 11.54 percent Diploma/TEVT and 7 percent of the respondents were Master holders. In the case experience of the respondent 53.87 percent of the respondent experience fall between 5-8 years followed by 30.77 percent between the range 3-5,

The agreement towards Project implementation independent variable components is concerned most of the respondents have agreed with the four independent variable. The scale of the agreement for Planning and Scope mean values was 3.17, Client mean value was 3.86, Contractor and External factor mean value of were (3.43 and 4.41) respectively.

The majority of the respondents agree that planning and Scope, Client, Contract, and External factor were the problems of the project implementation.

Regarding the relationship of the correlation there is a positive relationship between Scope and plan and implementation of projects ($r = .859, p = 0.00, p < 0.05$) that have positive high relation between Scope and plan, Client and Implementation of projects ($r = 0.774, p = 0.00, p < 0.05$), Contractor and Implementation of projects ($r = 0.925, p = 0.00, p < 0.05$), the association between External and Implementation of projects ($r = 0.860, p = 0.00, p < 0.05$), are statistically significant at a 95% confidence level. The result shows that there is a positive correlation between Scope and planning, Client, Contractor, External factor and Implementation of Projects.

The result shows that there is a positive correlation between Planning and Scope, Client, Contractor, and External factor play a significant role in determining the Project Implementation. According to the result of multiple linear regressions, the Project Implementation R Square value of the model is 0.917. It indicates that 91.7% of the variance of project implementation was explained by planning and Scope, Client Contractor and External factor at a confidence level of 95%.

Conclusion

The demographic background of the Respondents' shows that the majority of them were literate, the gender ratio also refers dominated by male. Regarding the education of the respondent's majority of them degree holder and in case of experience dominated in the range of 5-8 years experience.

The major causes for Scope and planning related delay were related to incomplete requirements and specifications, changes in the scope of the projects, in the case of Client related delays Lack of contractual agreement enforcement, i.e., inability to manage & administer the project on contractual basis, slowness in decision making process by clients, poor Supervision, follow up and inspection by the concerned party and delays in transferring the site to the Contractors the main concerned issues.

The major Cause of the Contractors are poor schedule management, poor supervision, follows and management by the contractor and inadequate and slow material supply is the major problem. In the cause of the external factor weather condition, political unrest and upheaval, price escalation of the material and shortage of material are the case for the delays.

Recommendation

Based on the findings and conclusions of the study the below recommendations are forwarded:

The regional state government allows the opening of the Construction Office at the woreda level, but only at the zonal level. This has led to delays in transferring to the contractors and in approving payments because the office's mandate is as a consultant to the woreda.

Engineers and technical project officers in the area should prioritize project planning and scoping to minimize issues related to frequent changes in requirements and specifications. The management body in the study area should invest in enhancing the professional project management skills of the workers involved in project implementation.

It is crucial for all project stakeholders in the study area to give serious attention to proper project scoping, site supervision and management, accurate cost estimation, and adherence to project schedules to complete in time not to on time and also Stakeholders participating in the implementation phase of projects are encouraged to adhere to the planned standards as closely as possible.

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