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Factors Contributing for Delay in Government Construction Projects in Oromia, Ethiopia

Eshetu Ayano

Department of Economics in Finance and Development, Oromia State University, Ethiopia

Workineh Teshome

Department of Human Resource Management and Leadership, Oromia State University, Ethiopia

Abstract:

Public investment projects play important role in the economic development of countries. In addition to speeding up economic growth they are also effective tools to fairly distribute wealth among citizen. However, studies undertaken on the topic indicated that delay in construction projects is common problem of both developing as well as developed nations. According to the report of Bureau of Finance and Economic Cooperation of Oromia, many construction projects that were started in the First Growth and Transformation Plan were unable to be completed on the planned date of completion (BoFECO, 2017). Moreover, the report showed that the problem was more serious in projects relating to construction of road, bridge, hospital buildings, and water schemes. The main objective of this study was, therefore, to identify the factors that have been contributed for the delay and show measures that can be taken to reduce the problem.

The study identified that inaccurate pricing and bidding, cash flow problems and shortage of construction tools and equipments have been the most important contractor related factors contributing for the delay. It is concluded in this study that most of the time, if not always, less capable contractors who have no adequate technical capacity (trained staff, machinery, equipment and tools) won the bid for Government construction projects in the region just by offering the least bid price. And this is mainly due to the fact that project owner organizations give less attention for the technical capacity of contractors during evaluation. Similarly, repeated changes in project design, slow decision making of management of the owner organizations and contractors who selection problem were the three-top ranking owner related factors. Hence, owners should properly evaluate contractors by giving equal attention both for the technical capability of contractors and the price they offer before engaging them. Moreover, owner organizations should have a regular schedule by which they monitor all of their projects and frequent review meetings must be organized with contractors to discuss on implementation issues.

Keywords: Project delay

1. Introduction

1.1. Background of the Study

Public investment projects are essential tools that assist the attainment of social and economic objectives of countries. Public investment projects are instrumental to induce economic growth in a country as they help to create more employment opportunity for people and hence help to raise individual income. They also help to ensure fair distribution of wealth to exist in the economy. Studies undertaken on the topic asserted that projects have a major role to play in improving well-being of a society. Emphasizing on the interrelationship between project and standard of living, Memon (2011) for example indicated that, by facilitating socio-economic growth projects lead to improved standards of living of society. Abdullah *et al*, (2011) in his part claimed that nations are ranked as "developed", "developing" and "underdeveloped" based on the quantity and quality of construction projects they successfully completed.

Governments may invest more money in one sector than the other depending on their nature and interest. In Ethiopia, the construction sector receives high importance, as the country is at infant stage of providing basic infrastructures to its people. Government of the country allocates large amount of public money for construction of buildings (used for provision of education, health and other services), road, water schemes and administrative as well as living facilities.

In the construction industry timely and within budget completion of a project is commonly taken as a mechanism to measure project success. Balogun (2005), Faridi and El-Sayegh (2006) pointed out that the ultimate goal of any project is to be delivered in the shortest possible time, lowest cost and with the highest possible quality. However, for many projects this goal seems unachievable due to many problems of which delays are the most recurring one, according to these writers.

Zinabu (2016) expressed that projects are considered delayed when their stipulated completion durations have not been met or when it goes beyond the officially agreed completion time. Delay can lead to negative impact on the result of construction projects in the form of cost overrun and poor quality. Hence, improving construction efficiency by means of timeliness would certainly contribute to cost savings. So, delay factors are very crucial in construction projects and it is imperative that project owners, contractors, consultants and stakeholders must have enough knowledge on it.

1.2. Statement of the Problem

Ethiopia is one of the victims of problem of construction project delay. Despite its high contribution to GDP and employment, numerous problems are being detected in the construction projects of the country (Nega, 2008; Andualem *et al.*, 2016). Among others, delay is one of the significant problems which have impaired economic development of the nation (Li-Yin *et al.*, 2006; ECIDP, 2014). Andualem also claimed that, in most regions of the country, including the National Regional State of Oromia, delay particularly in government construction projects seems usual (Andualem, 2016).

The Regional Government of Oromia has been undertaking various construction projects that have a purpose of improving the wellbeing of people of the region. Construction of road, water and irrigation schemes and health, education and administrative buildings are among the projects that have been widely undertaken in the past years. According to BoFECO (2007) in the first Growth and Transformation Plan, the Regional Government of Oromia has allocated 39.1 billion birr (36.6% of the total budget) as capital budget which is used mainly for construction of infrastructures. Although the region has been working to improve the provision of infrastructures by allocating significant amount of money, most of its construction projects have not been completed on the planned date. In this regard, BoFECO reported that the problem was more serious particularly in projects relating to construction of road and bridge, hospital and health center and water schemes (BoFECO, 2017).

Although construction project delays can have numerous reasons which may vary from project to project and from place to place, studies carried out on the topic in the region are very limited. To the best of knowledge of the researchers, there is no research conducted to identify the factors that have contributed for delay in government construction projects in Oromia Regional State and this is the main reason for the initiation of this research endeavor. To this end, the research has tried to give answer to the following research questions.

- What are the factors that are contributing for Government construction projects delay in the Regional State of Oromia?
- What are the most significant factors that are contributing for Government construction projects delay in the Regional State of Oromia?

1.3. Objectives of the Study

1.3.1. General Objectives of the Study

The main objective of the study is to identify the factors that contribute for government construction projects delay in the region and propose measures that can be taken to reduce the problem.

1.3.2. Specific Objectives of the Study

Specifically, the research is aimed to:

- Identify the factors that contribute for delay in government construction project in the region.
- Prioritize the factors that contribute for delay in government construction project in the region.
- Forward possible recommendations that enable to reduce government construction projects delay in the region.

1.4. Significance of the Study

Government construction project delay is one of the sources of wastage of public resources. It could result in inefficient use of public resources as it adds cost of projects. Project delay can also create public dissatisfaction as it extends the time that beneficiaries have to wait to get service of the project. Thus, the outcome of this study will help in the formulation and implementation of guidelines that facilitate timely completion of projects by raising awareness of public organizations (project owners), contractors and consultants on the factors that contribute for Government construction project delay in the region.

1.5. Scope of the Study

The study was limited to Government construction projects particularly those that are financed by regional institutions. The assessment was made on delayed but active health, road, water and irrigation scheme construction projects.

2. Review of Related Literature

2.1. Concepts of Project Delay

In defining the concept of projects, it is important, to discuss the steps leading to a successful project, to describe just

exactly what a "successful project" is. Project implementation success has been defined in many ways to include a large variety of criteria. However, in its simplest terms, project success can be thought of as incorporating four basic facts. A project is generally considered to be successfully implemented if it comes in on-schedule (time criterion) and comes in on-budget (monetary criterion). Achieves basically all the goals originally set for it (effectiveness criterion). Is accepted and used by the clients for whom the project is intended (client satisfaction criterion).

In construction, the term "delay" is used to describe the time overrun of a project beyond the official agreed completion time due to causes by the parties in the contract, who are the, owner/clients, contractor and the consultant. One of the problems faced by organizations involved in projects is delay in its implementation.

2.1.1. Classification of Delay

In the process of determining the effect of a delay on the project, the analyst must determine whether the delay is critical or non-critical. The analyst must also assess if delay is concurrent. All delays that are identified in the analysis can be either excusable or non-excusable. Delay can be further categorized into compensable or non-compensable delays. Odore (2009) mentioned that there are four basic ways to categorize delays as discussed below:

2.1.2. Critical or Noncritical Delay

Delays that affect the project completion, or in some cases a milestone date, are considered as critical delays, and delays that do not affect the project completion, or a milestone date, are noncritical delays. If these activities are delayed, the project completion date or a milestone date will be delayed.

2.1.3. Excusable Vs Non-Excusable Delay

All delays are either excusable or non-excusable. Excusable delay is a delay that is due to an unforeseeable event beyond the contractor's or the subcontractor's control. Normally, based on common general provisions in public agency specifications, delays resulting from the following events would be considered excusable delays. General labor strikes, Fires, Floods, Acts of God, Owner-directed changes, Errors and omissions in the plans and specifications, differing site conditions or concealed conditions, unusually severe weather, Intervention by outside agencies and Lack of action by government bodies, such as building inspection.

Non-excusable delays are events that are within the contractor's control or that are foreseeable. These are some examples of non-excusable delays: Late performance of sub-contractors, Untimely performance by suppliers, Faulty workmanship by the contractor or sub-contractors, a project-specific labor strike caused by either the contractor's unwillingness to meet with labor representative or by unfair labor practices.

2.1.4. Compensable Delays Vs Non-Compensable Delay

A compensable delay is a delay where the contractor is entitled to a time extension and to additional compensation. Relating back to the excusable and non-excusable delays, only excusable delays can be compensable. Non-compensable delays mean that although an excusable delay may have occurred, the contractor is not entitled to any added compensation resulting from the excusable delay. Thus, the question of whether a delay is compensable must be answered. Additionally, a non-excusable delay warrants neither additional compensation nor a time extension. Whether or not a delay is compensable depends primarily on the terms of the contract. In the most cases, a contract specifically notes the kinds of delays that are non-compensable, for which the contractor does not receive any additional money but may be allowed a time extension.

2.1.5. Causes and Effects of Delay

Many studies have been conducted in different countries to identify the major cause of delay in construction projects and its implication on development. There are many factors that are listed as causes of delays in construction projects. The factors range from factors inherent in the technology and its management, to those resulting from the physical, social, and financial environment. Ahmed *et al.* (2003) studied two kinds of cause for delay in construction projects; External and Internal causes.

Internal causes of delay include causes arising from three parties involved in the project. These parties include the owner, contractors, and consultants. Other delays, which do not arise from these four parties, are based on external causes for example from the government, materials suppliers, or the weather.

Ahmed *et al.* (2003) and Theodore (2009) identified a number of factors that causing delays in construction projects, and grouped in to four categories, those are delay due to:

2.1.5.1. Contractor's Responsibility

The factors that are related to contractor's responsibility are; Poor qualification of the contractor's technical staff; Shortage of materials on site; Construction mistakes and defective work; Poor skills and experience of labor; Shortage of site labor; Low productivity of labor; Financial problems; Coordination problems with others; Conflicts in sub-contractor's schedule in execution of project; Lack of site contractor's staff; Poor site management; and Delays in site mobilization.

2.1.5.2. Consultant's Responsibility

The factors that are related to consultant's responsibility are; absence of consultant's site staff; lack of experience on the part of the consultant; Inadequate experience of consultant; Delay in approving major changes in the scope of work; Mistakes and discrepancies in design documents.

2.1.5.3. Owner's Responsibility

The factors that are related to owner's responsibility are; Delay to furnish and deliver the site; Lack of working knowledge; Slowness in making decisions; Lack of coordination with contractors; Change orders by owner during construction (replacement and addition of new work to the project and change in specifications; Financial problems (delayed payments, financial difficulties, and economic problems) and Poor communication and coordination.

In their study Chan *et al* (2002), Alwi *et al* (2002), Assaf (2006), Odeh and Battaineh (2002) and Alghbari *et al* (2007) classified factors that cause time overrun into eight groups (owner, contractor, consultant, material, labor and equipment, contract, contractual relationships and external factors). Hence, such delay has an adverse: on time overrun, cost overrun, dispute; negotiation; total abandonment; and Litigation (Aibinu and Jagboro, 2002). Similar, a study by Manavazhia and Adhikarib (2002) affirmed that delays in the delivery of materials and equipment to construction sites are often a contributory cause to cost overruns in construction projects in developing countries.

Mansfield (1994) studied the causes of delay and cost overrun in construction projects in Nigeria. The results revealed that the most important factors were financing and payment for completed works, poor contract management, changes in site conditions, shortage of material, and poor planning. Masher (1998) concluded that owners had more concerns with regard to financial issues, contractors regarded contractual relationships the most important, while consultants considered project management issues to be the most important causes of delays.

Al-Momani (2000) conducted a quantitative analysis of construction project delays of 130 public building projects in Jordan. The analysis included the reported frequencies of time extensions for the different causes of delays. The researcher concluded that the main causes of delay in construction projects are related to design changes, weather, site conditions, late deliveries, economic conditions, and increase in quantities.

Assaf (1995) studied the causes of delay in large building construction projects in Saudi Arabia. The most important causes of delay included approval of shop drawings, delays in payments to contractors and the resulting cash-flow problems during construction, design changes, conflicts in work schedules of subcontractors, slow decision making and executive bureaucracy in the owners' organizations, design errors, scarce and incompetent labor.

Other focused study by scholars as seen in the reviewed literature on large civil engineering projects in Kenya and other developing countries reveals that there has been considerable and continued interest on the effects of construction delays. The information available is varied and widespread. Despite the necessity for such research, little work has been carried out to describe the delays in the public construction projects. These factors were among others:

- Late or none payment to contractors by the clients
- Delay in issuing of technical information for use by contractor from the consultants
- Lack of management capacity by the contractors to execute work.

The actual frequency and magnitude of these factors causing delays is not known, which has proven to be a serious and very expensive problem for the construction industry. Developing countries like Kenya and others, lack resources, managerial skills and have low human capital productivity. Another factor identified in review for delays is incompetent designers/contractors, poor estimation and cost management, social and technological issues, site related issues, and improper techniques and tools as in the case study of the (Economic Stimulus Projects) ESP-projects in Kenya.

Therefore, project design standards, specification and construction methods must be carefully selected so that they will be appropriate to local financial, human, and material resources required during both the implementation and its subsequent operation. It is important to appreciate that, for a country like Kenya, projects are sometimes implemented on "Fast Track" basis and some issues are easily overlooked during project preparation and often lead to projects implementation issues that result in delays.

2.2. Conceptual Framework

Conceptual frameworks, according to Kothari (2008), are structured from a set of broad ideas and theories that help a researcher to properly identify the problem they are looking at, frame their questions and find suitable literature. The researchers use conceptual framework to guide their data collection and analysis. According to sociologists (Haralambos and Holborn, 2008), a conceptual framework enables the researcher to find the link between the existing literature and his own research goals. Hence, in this specific study twenty-four (24) factors of construction project delays were identified from the literature and are categorized under two major categories; contractor related and owner related factors.

3. Research Methodology

3.1. Research Design

The research mainly employed descriptive survey method. Descriptive survey method is used to describe the state of affairs as it exists (Orodho, 2003). It is a method that helps to answer more clearly defined research questions. This method is, therefore, appropriate since it allows to report what happened or what is happening in the implementation of Government construction projects in the region and to identify the delay factors.

3.2. Target Population and Sampling Technique

3.2.1. Target Population

The study targeted health (hospital buildings), road, water and irrigation scheme construction projects funded by regional institutions (excluding those that are financed by zonal and woreda institutions) whose planned completion time has expired but did not finalized to the date of data collection. Health facility (hospital), road, water and irrigation construction projects were selected as they took significant amount of capital budget of the region.

3.2.2. Sampling Techniques

List of hospital buildings, road, water and irrigation scheme construction projects which were financed by regional institutions was collected from the respective organizations and simple random sampling method is applied to identify projects to be included in the sample.

3.3. Data Type and Data Collection Tools

Both primary and secondary data were used to undertake the research. As to the secondary data, published and unpublished documents, books, dissertations and government reports and policy publication were used as a main source of information. Questionnaires and interviews were applied to collect primary data from sampled respondents. The questionnaires included structured (close ended) as well as unstructured (open ended) type of questions. Interviews were conducted using semi-structured interview guide to solicit detail information on main issues. Pilot questionnaires were sent to ten (10) professionals for their comment and comments obtained were used in the development of final version of the questionnaire that was used to collect data.

3.4. Data Collection Procedure

Members of the contractor organizations that have been working in the selected projects and members of the owner organizations (Government organizations) that responsible for project monitoring and evaluation and/or other project related activity have participated in filling the questionnaires. Hence, from the contractor side finance managers, human resource managers and members of technical staff of each project have participated in filling the questionnaire. Similarly, employees of Bureau of Health, Bureau Water, Mineral and Energy, Irrigation Authority and Road Authority were made to fill questionnaires. Consultants of the selected projects have also given their opinion through questionnaires. Interviews were conducted with heads of project owner organizations (government organizations) and managers of the selected projects.

3.5 Data Analysis

After data collection, the data was entered in to computer and analysis of quantitative data was carried out using the Statistical Package for Social Science (SPSS) Version 20. Frequency, percentage and relative importance index was used for descriptive statistics chi square test was used for inferential statistics. Qualitative data was analyzed using checklist and matrix analysis methods based on the identified thematic areas.

The relative importance index was used to determine the relative importance of different factors that contribute for delay. Hence, the Relative Importance Index (RII) was calculated and factors were ranked according to their contribution using the following formula.

$$RII = \frac{\sum W}{A * N}$$

Where,

- RII is the Relative Importance Index,
- W = weighting given to each factor by the respondents (ranging from 1 to 5),
- A = highest weight (i.e. 5),
- N = total number of respondents.

4. Data Analysis and Interpretation

4.1. Respondents' Characteristics

A total of 250 questionnaires were distributed to relevant personnel of owner, contractor and stakeholder organizations to gather pertinent data required to undertake the study and 202 (81.8%) have been properly filled and returned. The response rate indicates that, 89.1% of the respondents were male and the remaining 10.9% female. As to the age of respondents, slightly more than 87% were between 18 and 45. With regard to the educational background and work experience, around 67% of the respondents reported to have first degree and nearly 50% of them indicated that they have 6-15 years' experience working in project and related work areas. Large amount of the respondents (58.4%) were members of project owner organizations followed by members of contractor organization (23.8%). The outstanding 17.8% of the respondents were from stakeholder organizations.

4.2. Analysis of Responses on Delay Factors

4.2.1 Analysis of Responses on Owner and Consultant Related Delay Factors

The following table (table 1) shows the response given by respondents to some owner and consultant related project delay factors.

No	Response Item		Frequency	Percent	Cumulative Percent
1	Contractor selection problem has contributed for the delay	Strongly Disagree	13	6.4	6.5
		Disagree	27	13.4	19.9
		Undecided	24	11.9	31.8
		Agree	84	41.6	73.6
		Strongly Agree	53	26.2	100.0
2	Late submission of project design and/or other contract documents has contributed for the delay	Strongly Disagree	14	6.9	7.0
		Disagree	29	14.4	21.4
		Undecided	36	17.8	39.3
		Agree	82	40.6	80.1
		Strongly Agree	40	19.8	100.0
3	Project design revision has negatively affected the project completion time	Strongly Disagree	9	4.5	4.5
		Disagree	19	9.4	14.0
		Undecided	37	18.3	32.5
		Agree	64	31.7	64.5
		Strongly Agree	71	35.1	100.0
4	Dispute between the owner and contractor has prolonged the project completion time	Strongly Disagree	18	8.9	9.0
		Disagree	32	15.8	25.0
		Undecided	57	28.2	53.5
		Agree	58	28.7	82.5
		Strongly Agree	35	17.3	100.0

Table 1: Respondent's view on owner and consultant related delay factors (N=202)

Source: Survey Result, 2017

Contractor selection is critical to the successful completion of projects. Where the selection is poor, unqualified contractors will be selected and this will consequently lead to project delays. Based on this understanding, respondents were asked to show if they believe contractor selection problem has contributed for the delay. As indicated in table 1, around 68% of the total respondents indicated that selection problem has contributed for the delay. The analysis also showed that significant amount of members of the owner, contractor and stakeholder organizations believe that selection problem has contributed for the delay. In this regard, about 61% of members of the owner organizations, 77% of members of the contractor organizations and 80% of members of the stakeholder organizations indicated their agreement that problems of the selection procedure have contributed for the delay.

In the standard bidding document for procurement of works for national competitive bidding of The Federal Democratic Republic of Ethiopia (which Government Organizations of the Regional State of Oromia are using without making significant change in it) it is explicitly stated that the contractor must demonstrate that it will have available the equipment required for the implementation of the project. This requirement is set to be a must meet requirement and the contracting authority (owner) may determine bid as not responsive when bidder has failed to demonstrate their ability to make available all the equipments necessary. However, project site observations undertaken showed that most contractor organizations lack

essential tools and equipments that are important to complete their work on time indicating that there was a problem in evaluating and selecting contractors for project work.

Respondents were asked to rate the extent to which late submission of project design and/or other contract documents has contributed for the delay. Near to 60% of respondents replied that late submission of the project design and/or other contract documents has caused the delay. With regard to late submission of project design and/or other contract documents, nearly 73% of members of the contractor organization and about 67% of members of the stakeholder organizations agree that it has contributed for the delay. Similarly, slightly less than 54% of members of owner organizations indicated that late submission of project design and/or other documents is a reason for delay. The analysis result indicates that the number of members of the contractor and stakeholder organizations that have the opinion that late submission of project design and/or other contract documents has contributed for the delay is larger than the number of members of the owner organizations that do have similar opinion. Chi square test result indicated that the difference in opinion among members of contractor, owner and stakeholder organizations on the contribution of late submission of project design and/or other contract documents is found to be considerable (critical value of chi square at 95% confidence level, 15.507 and the calculated chi square result, 15.984).

The analysis results also indicated that the proportion of members of the three organizations that accept late submission of project design and/or other contract documents as a factor for delay was found to be different. In connection to this, roughly 60% of members of Road Authority and 54% of members of Bureau of Water, Mineral and Energy agree that late submission of project design and/or other contract documents has caused the delay. However, less than 50% of members of Bureau of Health revealed that late submission of project design and/or other contract documents is a cause for delay. This shows the impact of late submission of project design and/or other contract documents on project delay is relatively significant in road and water scheme construction projects than health projects. This is probably due to the fact that Bureau of Health use standard designs (ready available design) for construction of hospitals and health stations undertaken in the region and are not required new design each time they go for construction.

Any kind of change that alters scope of the project which was not considered originally or changes of design to address omissions can have impact on overall project completion time. Therefore, respondents were asked if design revisions have affected the completion time of the project. As indicated in table 1, near to 67% of the total respondents agree that revision of project design has affected the project completion time. Regarding the effect of project design revision, 77% of members of the contractor organizations, 65% of members of the stakeholder organizations and 64% of members of the owner organizations either strongly agree or agree that it has affected the project completion time. Chi square test result indicated that there is no significant difference in opinion among members of contractor, owner and stakeholder organizations that project design revision has been a contributing factor for project delay (critical value of chi square at 95% confidence level, 15.507 and calculated chi square result 8.827)

Compared to the other two organizations, large proportion of members of Bureau of Water, Mineral and Energy believe that project design revision has affected project completion time. With respect to this, around 69% of members of the organization either strongly agree or agree that project design revision has affected the project completion time. Concerning this, about 59% members of Road Authority and 52% of members of Bureau of Health give similar answer.

A project manager who has been working on construction of hospital building in East Harerge Zone said that project designs prepared without taking project implementation locations in to consideration were a cause for project design revision. He said, the project owner (Bureau of Health of Oromia) provide similar (standard) hospital designs to be implemented in different places. But, when the actual implementation work starts variations in topography, soil type and other factors that existed among different project locations necessitate design revisions to be made, according to the manager. He also added, usually it took long period to get design revisions approved by project owners and this most of the time extends project completion time. In conclusion, large number of members of the contractor organizations, stakeholder organizations and owner organizations believe that project design revisions contribute for project delay. Moreover, project design revisions have impacted the completion time of all types of construction projects; water, health and road.

Disputes between project owners and contractors extend project completion time as the parties wait until grievances will be resolved. Hence, respondents were asked to provide their opinion on whether dispute has prolonged the project completion time. As indicated in table 3.1, less than half of the respondents believe that dispute between the two parties caused the delay. Of the total respondents that give answer to this question, around 46% showed their agreement that dispute has caused the delay. On the other hand, almost 25% of the respondents indicated their disagreement while the remaining 29% neither agree nor disagree that dispute is a cause for delay.

The proportion of members of the owner and the contractor organizations that accept that dispute between the owner and contractor organization has prolonged the project completion time is quite different. In connection to the impact dispute has in prolonging the project completion time, slightly more than 58% of members of the contractor organizations agree that dispute between the owner and contractor has prolonged the project completion time. However, the amount of members of the owner organizations that believe that dispute is a reason for delay was near to 34%. Members of the stakeholder organizations appear to have similar opinion on the issue. Out of those that have responded to this question, around 67% believe that dispute is a reason for project delay. Chi square test result also showed that members of contractor, owner and stakeholder organizations have different assessment that dispute between the owner and contractor has

contributed for the delay (critical value of chi square at 95% confidence level, 15.507 and calculated chi square result 15.995). The difference could probably be due to different assessment of the three parties on what really constitutes “dispute”.

No	Response Item		Frequency	Percent	Cumulative Percent
1	Management of the owner organization is slow in making decision	Strongly Disagree	10	5.0	5.0
		Disagree	21	10.4	15.4
		Undecided	39	19.3	34.8
		Agree	63	31.2	66.2
		Strongly Agree	68	33.7	100.0
2	Payments for completed work are not made on time	Strongly Disagree	19	9.4	9.5
		Disagree	38	18.8	28.5
		Undecided	32	15.8	44.5
		Agree	62	30.7	75.5
		Strongly Agree	49	24.3	100.0
3	Sufficient amount of budget required for execution of the project is not allocated	Strongly Disagree	18	8.9	9.0
		Disagree	36	17.8	26.9
		Undecided	39	19.3	46.3
		Agree	53	26.2	72.6
		Strongly Agree	55	27.2	100.0
4	The owner has failed to timely deliver materials it is supposed to deliver	Strongly Disagree	17	8.4	8.5
		Disagree	29	14.4	23.0
		Undecided	40	19.8	43.0
		Agree	61	30.2	73.5
		Strongly Agree	53	26.2	100.0

Table 2: Respondent's view on owner and consultant related delay factors (N=202)

Source: Survey Result, 2017

Respondents were asked if slow decision making of management of the owner organization was a cause for delay and just about 65% of the respondents showed their agreement that sluggish decision making was a reason. With regard to slow decision making, 79% of members of the contractor organizations, 64% of members of the stakeholder organizations and 60% of members of the owner organizations agree that it was a cause for delay. In the same way, 74%, 54% and 43% of members of Bureau of Water, Mineral and Energy, Road Authority and Bureau of Health accepted that slow decision making was a reason for delay.

In an interview held with heads of planning departments of owner organizations, it was recognized that project monitoring activities held by their respective organization were inadequate: both in terms of frequency and coverage. The follow up work of particularly projects far from the center was found to be unsatisfactory as some hospitals which are under construction have not been visited for more than a year, as it was confirmed during the researchers' project site observation. In addition, frequent absence of consultants from the project area was another factor that makes problems not to be identified and resolved on time. The result of the analysis indicates that management of project owner organizations was not active enough in timely responding to issues related projects because of lack of pertinent information about the projects.

Respondents were asked if project owners' failure in completing payment for completed work on time has resulted in project delay. In relation to this, around 55% of the total respondents indicated that there was problem of completing payments for completed work on time and nearly 29% of the respondents disagree that there was a problem in completing payment for completed work on time.

The amount of members of the owner and contractor organizations that has the opinion that payment for completed work is not completed on time was significantly different. In connection to this, while near to 90% of members of the contractor organizations believe that there was a problem in completing payments for completed work on time, only 45% of members the owner organizations and 42% of members of the stakeholder organizations accept that there was a problem in effecting payments for completed work on time.

Project owners should allocate adequate budget, if projects have to be completed on time. Bearing this in mind, the researchers have tried to see if the delay was because of failure of the owner organizations to allocate sufficient budget required to complete the project on time. The analysis result indicated that more than half of the respondents believe that project owners have not been allocating sufficient budget. In relation to this, around 53% of the respondents agree and 27% of them disagree that the organizations have not been allocating enough budget required to complete the project on the planned completion date.

The analysis results also showed that the number of members of the contractor organizations that believe that project owners have not been allocating enough budget required to complete projects was significantly larger than the number of

members of the owner organizations. In this regard, 85% of members of the contractor organizations believe that project owners have not been allocating enough budgets required to complete the project. However, only 46% of members of the owner organizations accept that project owners have not been allocating enough resource. To summarize, the analysis result indicated that relative to members of owner and stakeholder organization significantly large number of members of the contractor organizations have the opinion that the owner organizations have not been completing payment for completed work on time. Moreover, there was a problem of allocating enough budgets that can ensure timely completion of projects from the owner side, according to these respondents.

As regards to timely provision of materials, respondents were asked to show if the project owner's act of failure to timely deliver materials it is supposed to deliver has contributed for the delay. The analysis result indicated that slightly more than 56% of the respondents agree that it has negatively affected the project completion time and 24% of them showed their disagreement. On the same issue, 75% of members of the contractor organizations replied that the owners were not providing the materials on time. Similarly, response of more than half of members of owner and stakeholder organizations also indicated that there was a problem in timely providing materials. Specifically, 52% and 50% members of the project owner organizations and members of stakeholder organizations respectively showed that there was problem timely delivery of material.

Organization wise, the number of members of Bureau of Water, Mineral and Energy that have the opinion that there was a problem in timely providing materials is found to be considerably larger than the number of members of the remaining two organizations that have similar opinion. The analysis result showed that, 77% of members of Bureau of Water, Mineral and Energy believe that project owners have not been providing the materials they agree to supply at the right time. Whereas, only 43% of members of Bureau of Health and 28% of members of Road Authority accepted that there was a problem in the provision of materials from the owner side. Therefore, it could be concluded from the above analysis that lack of timely provision of materials agreed to be supplied by owner organizations seems to be one factor of project delay particularly in water scheme construction projects in the region.

No	Response Item		Frequency	Percent	Cumulative Percent
1	Top management of the owner's organization interferes in the project execution work	Strongly Disagree	25	12.4	12.4
		Disagree	31	15.3	27.9
		Undecided	62	30.7	58.7
		Agree	42	20.8	79.6
		Strongly Agree	41	20.3	100.0
2	The agreed upon completion duration was impractical	Strongly Disagree	24	11.9	11.9
		Disagree	44	21.8	33.8
		Undecided	42	20.8	54.7
		Agree	46	22.8	77.6
		Strongly Agree	45	22.3	100.0
3	The consultant has no adequate skill required to work on the project	Strongly Disagree	19	9.4	9.5
		Disagree	35	17.3	26.9
		Undecided	43	21.3	48.3
		Agree	63	31.2	79.6
		Strongly Agree	41	20.3	100.0
4	The consultant has no adequate experience required to work on the project	Strongly Disagree	19	9.4	9.5
		Disagree	37	18.3	28.0
		Undecided	43	21.3	49.5
		Agree	60	29.7	79.5
		Strongly Agree	41	20.3	100.0

Table 3: Respondent's view on owner and consultant related delay factors (N=202)

Source: Survey Result, 2017

The researchers have tried to assess whether there has been interference of management of the project owner organization in the project work. The analysis indicated that, less than half of the total respondents agree that there has been interference of management of the project owner organization in the project work that is aimed at fulfilling vested interest. In this regard, 41% of the respondents said that there has been interference of management of the owner organization. On the other hand, 28% of the respondents disagree and the remaining 32% neither agree nor disagree.

The amount of members of the owner and contractor organizations that have the opinion that there is interference of management of the owner organization in the project work was found to have difference. The analysis indicated that, 56% of members of the contractor organizations and 53% of members of the stakeholder organization believe that management of the owner organization interfere in the project work with the objective of fulfilling vested interest. But, the proportion of

members of the owner organizations that have similar opinion is found to be relatively smaller. In connection to this, only 32% of members of the owner organizations were found to have the same idea.

Respondents were asked if the delay is due to unrealistic project duration set during planning. Result of the analysis indicated that less than half of the respondents believe that the delay is due to impractical time duration set at the beginning. As indicated in table three above, the number of respondents that have the opinion that the agreed upon completion duration was impractical was 45%. The analysis further indicated that 34% of the respondents disagree that the delay was due to impractical time duration.

The number of members of owner organizations and members of contractor organizations that accept that the project delay is because of unreasonable time duration is found to be again different. In this respect, while more than fifty percent of members of the contractor organization consider impracticality of the time as a cause for delay, less than half of members of the owner organizations reported to have similar mind on the issue. To be specific, 62% of members of the contractor organizations and 38% members of the owner organizations agree that the agreed upon project completion duration was impractical. The amount of members of stakeholder organizations that agree that the time duration was impractical is around 47% and near to 31% of them did not agree nor disagree that the time duration was impractical.

Respondents were asked to what extent they believe consultants have the necessary skill to work on the projects. As regards to this, nearly 52% of the respondents agree and 27% disagree that the consultants lack the skill required to work on the project. In relation to adequacy of the skill of consultants, more than half of members of the contractor organizations and members of stakeholder organization reported that the consultants' lack the skill that is required to work on the projects. However, members of owner organizations that do have similar opinion were found to be less than half. Specifically, 61% of members of the contractor organizations and members of stakeholder organization agree that the consultants lack the skill required to work on the projects. The analysis also showed that members of the owner organizations that do have similar belief constitute 45%.

Respondents were also asked to give their opinion about the adequacy of experience of the consultants that are assigned to work on the projects. Of the total respondents participated in filling the questionnaires, 50% of them agree and 28% disagree that the consultants lack experience that is required to work on the project. The analysis further indicated that, 73% of members of the contractor organizations, 53% of members of the stakeholder organizations and 40% of members of the owner organizations believe that the consultants has no adequate experience. On the other hand, 32% members of the owner organizations, 26% of members of the stakeholder organizations and 19% of members of the contractor organization show their disagreement that the consultants lack experience.

The study identified the top five most important factors contributing for construction project delay in the region using relative importance index. The following table shows the relative importance index and rank of the twelve owner and consultant related factors included in the questionnaire distributed to respondents.

No	Items	Total Score	No of Respondents	Highest Weight	Relative Importance Index (RII)	Rank
1.	The problems of the contractor selection process have contributed for the delay	740	202	5	0.73	3
2.	Late submission of the project design and/or other contract documents has contributed for the delay	708	202	5	0.70	4
3.	Frequent revision of the project design has affected the project completion time	769	202	5	0.76	1
4.	Dispute between the owner and contractor has prolonged the project completion time	660	202	5	0.65	8
5.	Management of the owner organization is slow in making decision particularly regarding issues related to the project	761	202	5	0.75	2
6.	Payments for completed work are not made on time	684	202	5	0.68	6
7.	Sufficient amount of budget required for execution of the project is not allocated	694	202	5	0.69	5
8.	The owner has failed to timely deliver materials it is supposed to deliver	704	202	5	0.70	4
9.	Top management of the owner's organization interferes in the project execution work because of vested interest	646	202	5	0.64	9
10.	The agreed upon completion duration is impractical	647	202	5	0.64	9

11.	The consultant has no adequate skill required to work on the project	675	202	5	0.69	5
12.	The consultant has no adequate experience required to work on the project	667	202	5	0.66	7

Table 4: Relative Importance Index of Owner and Consultant Related Delay Factors (N=202)

Source: Survey Result, 2017

As indicated in the table above, frequent revision of project design (RII, 0.76) is found to be the first most significant owner related factor that contributes for delay in Government construction projects in the region. Moreover, the factor is learnt to have greater impact on road construction projects than water scheme development and health projects. The second most crucial owner related factor is identified to be slow decision making of management of owner organizations (RII, 0.75). Poor contractor selection system (RII, 0.73) is identified as the third most important owner related factor that has been contributed for construction project delay in the region. Late submission of project design and/or other contract documents, (RII, 0.70) is determined as the fourth most important owner related delay factor. And the two factors, allocation of insufficient budget and inadequate skill of consultants (RII, 0.69) together stand fifth.

4.2.2. Contractors Related Delay Factors

Response Items	Alternative responses	Frequency	Percent	Cumulative Percent
Contractors lack the required experience	Strongly Disagree	22	10.9	11.1
	Disagree	25	12.4	23.6
	Neutral	57	28.2	52.3
	Agree	62	30.7	83.4
	Strongly Agree	33	16.3	100
Subcontractors chosen lack the capacity to work on the project	Strongly Disagree	18	8.9	9.1
	Disagree	28	13.9	23.2
	Neutral	62	30.7	54.4
	Agree	58	28.7	83.8
	Strongly Agree	32	15.8	100
Inadequate planning is the cause for the delay	Strongly Disagree	11	5.4	5.5
	Disagree	34	16.8	22.6
	Neutral	40	19.8	42.7
	Agree	60	29.7	72.9
	Strongly Agree	54	26.7	100
Assigned employees lack the necessary skill	Strongly Disagree	22	10.9	11.1
	Disagree	29	14.4	25.6
	Neutral	49	24.3	50.3
	Agree	64	31.7	82.2
	Strongly Agree	35	17.3	100

Table 5: Respondents' View on Contractor Related Delay Factor (N=202)

Source: Survey Result, 2017

As shown in the table above, nearly 47% of the respondents agree and 27% of them disagree that contractors lack the experience required to complete the project work on time. Similarly, about 45% of the respondents positively opined that subcontractors chosen lack the capacity to complete the projects on the agreed time, while 24% of the respondents were contrary to this argument. The study result shows that many of the contractors were inexperienced and there is capacity problem among subcontractors, as to considerable number of the respondents.

As indicated in the table above, about 56% of respondents responded that the contractors lack adequate plan, whereas around 23% of them rated it to the contrary. The remaining 21% of the respondents neither agree nor disagree. Respondents were asked to give their opinion on the skill of the contractor's staff. Near to half of the respondents acknowledged that employees assigned by the contractors do not have the skill that is required to complete the projects on time, whereas about 26% of them replied to the contrary. Therefore, result of the analysis shows, lack of adequately prepared project plan and inadequate skilled manpower has contributed for the delay as perceived by majority of the respondents.

Analysis of the quantitative data revealed that there exists similarity of opinion across majority of members of owner, contractor and stakeholder organizations with regard to experience of contractors, capacity of subcontractor, soundness of project plan and skill of the contractors' staff. As regards to experience of contractors, about 46%, 44% and 58% of members

of owner, contractor and stakeholder organizations respectively confirmed that the contractors' lack the experience that is required to complete the project on time. Whereas, 21% of members of owner organizations and 41% of members of contractor organizations disagree that the contractors lack experience. Moreover, the analysis revealed that 31% of members of stakeholder organizations were uncertain whether the contractors have the requisite experience or not.

Similar result was obtained from the analysis done on the response received concerning subcontractors' capacity. In relation to this, 42%, 46% and 56% of respondents of members of owner, contractor and stakeholder organization respectively indicated that the subcontractors selected and assigned by the contractors has capacity problem, whereas 23% and 30% of members of the owner and contractor organizations respectively negatively replied to the statement implying that the subcontractors have no capacity problem.

The proportion of members of owner, contractor and stakeholder organizations that consider absence of sound project plan as a factor for late completion of projects is found to be more than fifty percent. In connection to this, 57% of members of owner organizations, 54% of members of contractor organizations and 61% of members of stakeholder organizations reported that the contractors have not prepared a sound project plan to monitors progress of project activities. This justifies those members of the contractor organizations adequate project management competence.

To summarize, large proportion of respondents from owner, contractor and stakeholder organizations believe that unsatisfactory experience of contractors, subcontractor's capacity problem and lack of well-prepared project plan were among the factors that have been contributing for delay in Government construction project in the region. The analysis also revealed that the percentage of members of stakeholder organizations that accept insufficient contractor experience, subcontractor capacity problem, lack of well-prepared project plan and inadequate skill of the contractor's staff as a cause for project delay appear to be significantly larger than that of the members of owner and contractor organizations that do have similar stand.

Response Items	Alternative responses	Frequency	Percent	Cumulative Percent
Shortage of construction tools and equipment has resulted in delay	Strongly Disagree	9	4.5	4.5
	Disagree	30	14.9	19.6
	Neutral	48	23.8	43.7
	Agree	63	31.2	75.4
	Strongly Agree	49	24.3	100
The difficulty to find essential material in the market was the cause for delay	Strongly Disagree	22	10.9	11.1
	Disagree	38	18.8	30.2
	Neutral	55	27.2	57.8
	Agree	57	28.2	86.4
	Strongly Agree	27	13.4	100
Inaccurate pricing and bidding has contributed for the delay	Strongly Disagree	6	3	3
	Disagree	23	11.4	14.6
	Neutral	34	16.8	31.8
	Agree	66	32.7	65.2
	Strongly Agree	69	34.2	100
Inadequate cash flow has caused the delay	Strongly Disagree	16	7.9	8
	Disagree	22	10.9	19.1
	Neutral	38	18.8	38.2
	Agree	62	30.7	69.3
	Strongly Agree	61	30.2	100

Table 6: Respondents' View on Contractor Related Delay Factor (N=202)

Source: Survey Result, 2017

Regarding provision of construction tools and equipment, around 56% of the respondents agree that the contractor lacks sufficient tools and equipments that are vital to complete the project on time whereas, 20% show their disagreement. The analysis result showed that, 42% of the respondents felt that it was difficult to find the necessary construction material in the market. However, the amount of respondents that felt otherwise was also seemed considerable. Thirty percent of the respondents that have responded to the question revealed that finding construction material was not a problem.

Majority of members of owner, contractor and stakeholder organization believe that the contractors lack the necessary tools and equipment that are important to complete the projects on time. In this regard, 52%, 65% and 58% of members of owner, contractor and stakeholder organization respectively confirm that the contractors lack enough construction tools and equipment to complete the project on time, while 21%, 22% and 11% of members of the organizations responded to the contrary. The survey result revealed that inadequate construction tools and equipment was the other factor that has been contributing for the delay.

Responses given to open ended questions also assert that shortage of construction tools and equipments was one of the causes of construction project delay in the region. Interviewed respondents reported that working on more than one project at a time is a one aggravating factor of shortage of construction tools and equipments. Interview held with some members of Oromia Water Works Construction Enterprise indicated that usually contractors that engage in construction work in the region sign to do different projects simultaneously. They further expressed their feeling that, due to this, the contractors are forced to share their limited equipments among the different projects they agree to complete and finally face shortage of equipments at each project and finally fail to complete the projects at the stipulated time.

The survey results also revealed that inaccurate pricing and bidding and problem of cash flow were major problems in the implementation of Government funded projects in the region. Concerning this, almost 67% of the respondents felt that it has hindered timely completion of projects, whereas only 15% felt to the contrary. Similarly, 61% of the respondents indicated that inadequate cash flow has made the contractors not to be able to complete the projects on time, while 19% respond otherwise.

Considerably large proportion of members of the owner, contractor and stakeholder organizations have the opinion that inaccurate pricing and bidding is a cause for project delay in the region. The survey result indicated that 64% of members of owner and stakeholder organizations as well as 83% of members of contractor organizations believe that inaccurate pricing and bidding is a cause for the delay. The analysis, therefore, shows that there exists a serious problem of inaccurate pricing and bidding as well as cash flow problems that have resulted in project delay, as felt by majority of respondents.

Interview held with members of contractor, owner and stakeholder organizations also indicated that the delay in construction projects of the region could be attributed to a number of contributing factors. For example, members of contractor organizations around Jima, Harar and Woliso zones said that contractors tend to use wrong price of materials which is lower than the actual market price. They reported that contractors intentionally use lower prices to win bids by offering the least bid price. They added that most of the time, if not all the time low bidders are less competent contractors with minimum experience and inadequate resources, such as human and equipment, which again directly contribute for the delay.

Though, it is stated in the standard bid document that the bidder that offer the least bid price which give better economic advantage shall be selected, the usual practice was that owners have not been considering different factors that may affect the offered price during evaluation. Project owners have been awarding bids just for those that offer the least bid price which sometimes appear did not considered the real market price of inputs. Contractors that win bids in this way will face cash flow and finally fail to complete the project on the stipulated time.

In fact, inaccurate pricing and bidding and cash flow problem are strongly interrelated factors that can have high impact on the timely completion of construction projects. Construction project won for low bid price that failed to consider the real cost of labor and construction materials in the market can make contractors to fall short of money and unable to complete projects on time/at all.

At the end, respondents were asked to identify and put in rank order the top five most powerful contractors related factors that contribute for construction project delay in the region. The survey result indicated among the factors that were given in the questionnaire, inaccurate pricing and bidding, shortage of construction tools and equipments, project scheduling and planning problem, lack of skilled human resource and contractors' inadequate experience are ranked from first to fifth respectively. In support to this in an interview held with them, heads of the East Harage Zone Road Authority and the East Harage Zone Health Office said that inaccurate pricing and bidding and shortage of construction machineries are the main factors contributing for construction project delay in the region.

No	Items	Total Score	No of Respondents	Highest Weight	Importance Index	Rank
1.	The contractor lacks the experience required to complete the project on time	656	202	5	0.65	4
2.	<i>Subcontractors chosen has no capacity to ensure timely delivery of assigned tasks</i>	652	202	5	0.65	4
3.	Appropriate project plan that help to monitor progress is not prepared	709	202	5	0.70	3
4.	Employees assigned by the contractor lacks the necessary skill to handle the job	658	202	5	0.65	4
5.	The contractor has not enough tools and equipments necessary to complete the project on time	710	202	5	0.70	3
6.	The contractor is unable to find materials required for the project in the market	626	202	5	0.62	5
7.	Inaccurate pricing and bidding has hindered timely completion of the project	763	202	5	0.76	1

8.	Inadequate Cash flow has made the contractor not to be able to complete the project on time	727	202	5	0.72	2
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Table 7: Relative Importance Index of Contractor Related Delay factors (N=202).

Source: Survey Result, 2017

As indicated in Table 5, inaccurate pricing and bidding is identified as the first most important cause of construction project delay in the region (RII, 0.76). Many interviewees and responses given to open ended questions also asserted that unrealistically low cost of labor and construction material price intentionally set below the market price just to win bids through low bid price was among the major factors that contributed for project delay. In this regard, members of contractor and owner organizations contacted through interview claim the government's low bidder tendering system as the cause of inaccurate pricing and bidding and hence project delay in the region. For instance, a project manager around Woliso, said that:

".....winning construction projects for unrealistically low bid price that did not consider market price of materials is the major cause of project delay. There are contractors that tend to win bid for construction project through low bid price offered just to win. Most of the time the price offered by these contractors did not reflect the market price of materials. These contractors finally face shortage of money and finally fail to complete the project."

The second factor lies on lack of enough construction tools and equipment. The tools and materials used for a project would normally cost half of the total cost of construction. The contractor is held responsible to ensure that construction tools, equipment and materials are sufficient, maintained and repaired timely throughout the construction period to avoid delay and affect future activities.

Inadequate scheduling and planning is ranked by contractor as the third important factor that can cause delay in project activities. Proper project scheduling and planning is important for accomplishing the project successfully. Hence, when the contractors failed to schedule and plan for the project in terms of finance, time and overall work flow accurately, it will affect the project's completion time and hence delay will occur. Lack of skilled staffs and inexperience of contractors is ranked fourth and fifth factors that cause delay in project activities. Interviewees make a high concerned on lack of skilled labors and engineers' factor which owners expressed their deep concerned on consequence of lacking of skilled labors and engineers will affect to overall progress of project.

Therefore, one can conclude that the extent of timely completion of project activities could be influenced by inaccurate pricing and bidding, lack of necessary construction tools and equipment, inadequate planning and lack of skilled employees.

5. Discussion of Major Findings, Conclusion and Recommendations

5.1 Discussion of Major Findings

- Among twelve owner and consultant related factors that were included in the questionnaire, nine of them were identified by majority of the respondents as contributing factors for construction project delay in the region. Accordingly, contractor selection problem (68%), late submission of project design and other documents (60%), changes in project design (67%), slow decision making of management of owner organizations (65%), progress payment problem (55%), insufficient budget (53%), material delivery problem (56%), consultant skill problem (52%) and consultant experience (50%) are found to be among the owner and consultant related factors that have been contributing for construction project delay in the region.
- In this study it is realized that importance of the identified factors was not equal for the different types of projects studied. Late submission of project design and/or other contract documents has been main contributing factor for the delay in water scheme development projects than road and health projects. Similarly, changes in project design and material delivery problem has contributed more for delay in water scheme development projects.
- The study identified the three most important owner related factors contributing for construction project delay in the region using relative importance index. Accordingly, repeated revision of project design is found to be the first most important owner related factor. Particularly, this factor is identified as the main reason for the delay in water scheme development and road construction projects in the region. Project designs prepared without considering the real condition of the project implementation area was a cause for revision of project designs.
- The second crucial owner related factor, according to the survey result, is the delays that emanate from the slow decision making of management owner organizations. It is found that unsatisfactory project monitoring, both in terms of frequency and coverage, is identified as the cause of slow decision making.
- Contractor selection problem is identified as the third most important owner related factor that has been contributed for construction project delay in the region. The result indicated that poor implementation of the procurement system was the cause for selection of incompetent contractors and this in turn has resulted in project delay. Though the procurement system sets that the contractor must demonstrate that it will have available the equipment required for implementation of the project, project owners were not able to choose and engage contractors that did this.
- Of the eight contractor related factors that were given in the questionnaire, four were identified by majority of the respondents as factors that have been contributing for delay. Thus, inaccurate pricing and bidding (67%), cash flow

problem (61%), insufficient equipment (56%) and lack of well formulated activity plan (56%) were the major factors identified as contributors for project delay in the region, as to majority of the respondents.

- The survey result indicated that inaccurate pricing and bidding was the leading factor contributing for project delay in the region (RII, 0.76). Cash flow problem is found to be the second determinant factor that made contractors not to be able to complete projects on time. Of course, inaccurate pricing and bidding and cash flow problem are strongly interrelated factors. A construction project that is won for unrealistically low price can make contractors to face shortage of money to cover their cost and hence fail to complete the project at the agreed time. In the study it is realized that there are contractors that disappear from project sites before completing their task due to the problem.
- Inadequacy of construction tools and materials and lack of well-prepared activity plan each are distinguished as the third major factors contributing for the delay.

5.2. Conclusion

Both owner and contractor related factors have contributed for the delay in Government construction projects in the region. Hence, eight (8) owners' related factors and four (4) contractor related factors were found to have significant effect on the delay. In the study it also found out that the effect of a range of delay factors was different for various type of construction projects. It is learnt that not effectively implementing the provisions of the procurement procedure was the major reason for the problem. The study makes clear that there was a problem in implementing some provisions of the procedure and this in turn has resulted in project delay in the region.

5.3. Recommendations

Based on the above findings, the researchers have forwarded the following recommendations:

5.3.1. Empower Zonal Offices to Closely Monitor Projects

Infrequent project monitoring was one of the causes for delay in government construction projects in the region identified by the study. This was mainly due to the fact that the region is geographically broad and the number of projects that has to be supervised by some public institutions was large as compared to the amount of staff assigned to do the job. Particularly attention given for those projects located far from the center (Finfine) was less. This has made problems not to be identified early before they affect progress of the project work. Therefore, it is advisable that public organizations of the region that are known to undertake large number of construction projects each year delegate responsibility of monitoring implementation of construction projects to zonal offices. To this end, the institutions have to make zonal structures to have the right personnel for the job and provide them adequate training that help to enhance their ability and properly discharge their responsibility.

5.3.2. Train Procurement Committee of Public Organizations

Inability to effectively implement the procurement procedure was one major problem identified by the study. The study revealed that many contractors that are working in the region lack skilled personnel and construction equipments that are believed to be crucial for successful completion of the job. However, it is clearly stated in the standard bid document for procurement of works that bidder must meet these requirements to win bid. This indicates there is a problem in effectively implementing the procurement procedure. Therefore, public organizations have to provide sufficient training to the members of procurement committee. In addition, Bureau of Urban Development and Housing has to strengthen the support it makes for public organizations particularly during bid evaluation.

5.3.3. Build the Capacity of Local Contractors

Lack of skilled personnel and shortage of construction equipments were the major problems of local contractors which cause government construction project delays in the region, according to finding of the study. Therefore, Bureau of Construction should organize training programs for the staff of particularly local contractors in order to update their knowledge and improve their management skill. Besides, to solve the problem of shortage of construction equipments that contractors have, The Regional Government of Oromia should facilitate mechanism by which local contractors get access for credit which will be used to acquire essential construction equipments.

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