

Stakeholders Impact Analysis On Road Construction Project Management in Ethiopia: A Case Of Western Region

Sintayehu Assefa, Zewudu Tefera Worke, Murad Mohammed

Abstract— Stakeholder management is one of the most essential parts of project management. Disagreements and change in project characteristics (time, design and budget) at the time of construction in Ethiopia were mostly occur due to the influence and poor participation of some stakeholders in the project. This research was carried out in western region of Ethiopian Road Authority classification to assess the impact of both internal and external stakeholders on road projects. In this study stakeholders from internal and external were participated through questionnaire and interview. In addition, archival review of from the road authority documentation was carried out to support the findings.

The analysis result show that out of six ongoing projects which were included in this study only one project (the researcher didn't get full data) has no change in design; the other five face design changes due to the influence of external stakeholders.

The main reasons raised from respondents were poor engagement between external stakeholders and project doing parties, and short time, less budget and attention given at design stage from client.

Index Terms: - Project Management, Stakeholders, Stakeholders Impact, Stakeholders Interest, Stakeholders Power.

I. INTRODUCTION

According to [23] Project management is the application of knowledge, skills, tools, and techniques to project activities to meet the project requirements. Project management is widely used in many organizations and in all countries. There has been no identified profession or industry where project management practices will not work [25].

In developing countries like Ethiopia, the project management system is not similar to that of the developed countries [25]. Claims appear in almost all construction industry, mostly they are not easily resolved and delays behind the schedule are common problems shown in Ethiopia. One of the challenges comes from stakeholders who want their needs to be satisfied and the poor participation of some of them. According to [23] stakeholders are: "individuals, groups, or organizations who may affect, be affected by, or perceive themselves to be affected by a decision, activity, or outcome of a project."

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According to [20] in any project, and especially in construction projects, many different and sometimes discrepant interests must be considered. Stakeholder management should also be integrate in to project team to strengthen a multidisciplinary perspective of the organization and create cross functional teams [11].

In order to minimize late changes to projects, develop partnerships, better customer service, timely conflict resolution, incorporation of multi-modal considerations and improved community fit engagement of stakeholders on project is a good means [13].

Objective

The general objective of the study is to analyze the impact of stakeholders on the road construction project management.

Research questions

- What/who are stakeholders in the road construction project and what is their role?
- What are the impacts of stakeholders on the road construction project management?
- Do contractors and consultants analyze and interpret the stakeholder's impact before start of the construction activity?
- How a project can be managed satisfying the needs of stakeholders but without compromising its purpose?

II. LITERATURE REVIEW

A. Project Management in Ethiopia

Even it is difficult to find the detailed literature on the management practice of Ethiopia [10, 25]. The project management system in developing countries is not similar to that of developed ones. The main reason for this is, in developing countries construction industry is emerging industry. Developing countries are far behind economically, politically, and technologically when compared to their industrial counterparts [10]. Hence, projects in developing countries are highly uncertain, and operate in a highly unstable, unpredictable and poorly resourced environment [25].

B. Who are stakeholders

Some writers define stakeholders based on practical reality and empirical in narrow and wider sense [6, 14]. Generally stakeholders are Individuals and organizations that are actively involved in the project or whose interests may be affected as a result of project execution or project completion [22]. In construction industry stakeholders include but not

limited to owners and users of facilities, project managers, facilities managers, designers, shareholders, legal authorities, employees, sub-contractors, suppliers, process and service providers, competitors, banks, insurance companies, media, community representatives, neighbors, general public, government establishments, visitors, customers, regional development agencies, the natural environment, the press, pressure groups, civic institutions [7, 18]

The classification of stakeholders is different from writers to writers: [16] classifies as key stakeholders like the project owner, and performing organizations; internal stakeholders

direct participants in the project and external stakeholders those people affected by the project. But according to [12] stakeholders are classified in to two categories as primary; project team who has a contractual or legal obligation to the project team and secondary those who have no formal contractual relationship to the project but can have a strong interest on progress of project [5]. This classification is also similar with primary, secondary classification method.

In general [5] classification system is used by most writers to classify and identify stakeholders in construction industry

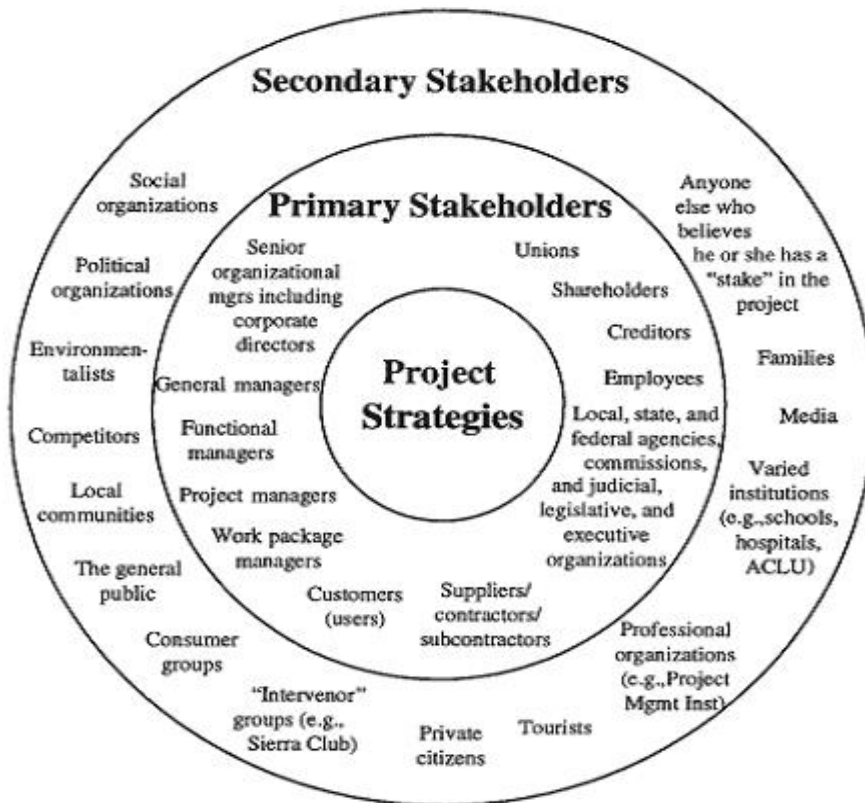


Figure1. Potential Stakeholders for construction projects [5]

A. Identification of Stakeholders

If you leave out an important stakeholder or their department’s function and don’t discover the error until well into the project; it could be a project killer [8]. It may not be difficult to identify commonly known stakeholders; the problem is identifying new stakeholders. For such purpose, researchers use different methods. Guidelines in the organization, professional services, directed by higher authorities, interviews, public consultation, formal memos, and questionnaire are methods recommended by [24]. Stakeholder impact index [20] is also another method to identify stakeholders. In this approach stakeholders are identified based up on their power and interest on the project. A little similar but different approach is used by [1]. In this approach, stakeholder-influence network developed and started with the selection of key stakeholders (high interest, high power ‘Players’) from the power-interest grid, refined in the light of their network links (Ackermann and Eden 2011).

B. Stakeholders Power and Interest

In case of Projects Power is the mechanism through which stakeholders influence the direction and decisions for a

project [18]. “To [1] stakeholders are people or groups who have the power to directly affect the organization's future; absent that power, they are not stakeholders” [3].

In any project, and especially in construction projects, many different and sometimes discrepant interests of project stakeholders must be considered [21]. Stakeholder interest in a project is considered by many researchers to be a factor affecting the successful outcome of a project [7]. According to [21] by grouping stakeholders in the power/interest matrix, project management can produce a better picture of how communication and relationships between stakeholders has affected the project and its implementation.

C. Stakeholder Impact Analysis Approaches

In order to exactly identify the impact of stakeholders on a given project, it is necessary to identify their roles in a given project [8]. First their role must be known to consider they have an impact on project. [5] Prepared a step-by-step approach for analyzing impact of stakeholder on projects as shown in fig 2 below.

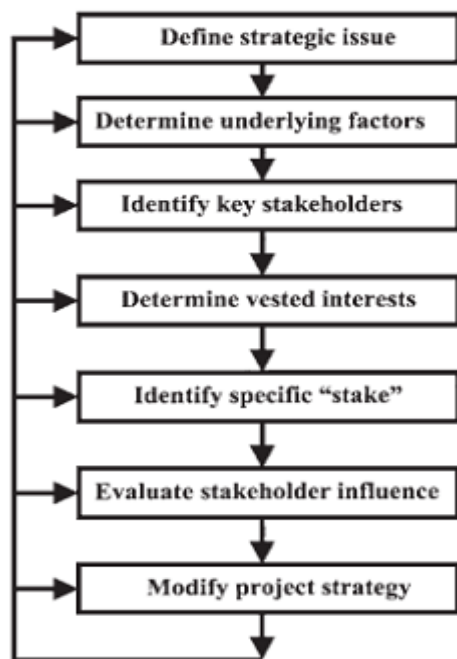


Figure 2 Stakeholder impact evaluation process [5]

Even Cleland steps show their impact, it doesn't show the exact relationship between stakeholder power, interest and impact. There are so many approaches prepared by researchers and consulting firms. In an old method of [14] stakeholders are classified based on Power, Legitimacy and Urgency. The stakeholder's *power* to influence the firm; the *legitimacy* of the stakeholder's relationship with the firm and the *urgency* of the stakeholder's claim on the firm [14]. Developed a circle that connects the three factors and then classifies them in to seven. Since the approach merely considers the appearance of attributes, it is impossible to compare the level of stakeholder influence with each other's in the same group [19]. Other researchers like [19] and [12] uses approach of [14] by modifying. (Nguyen, et al. 2009) modified system by considering Power, Legitimacy and Urgency of [14] and additional (i) Proximity, which evaluates the degree to which stakeholders are associated with projects. (ii) Knowledge, concerned with stakeholder knowledge of projects (iii) Vested Interest, which obtains a subjective assessment of the level of vested interest of each stakeholder in projects (iv) Attitude, measures the attitude of each stakeholder toward the project. But in [12] stakeholders are ranked by their influence on six project spheres namely decision-making, time, cost, quality, safety and environmental management sphere.

Olander [20] approach is different in some extent from the above methods. Olander [20] suggests an approach to evaluate stakeholder impact on projects by calculating the stakeholder impact index. According to [19] there is an overlap when [20] includes both stakeholder impact and power in the calculation, because, power is the driver of stakeholder impact on the project.

The approaches used by researchers were vast. In contextual perspective they may be complex to identify each variables and it may not be practically applied by the project doers. But the approaches used by Government organizations, aid agencies and consultants for stakeholders analysis mechanisms found from internet search were generally the

following

- i. Power/interest grid of [15], grouping the stakeholders based on their level of authority ("power") and their level or concern ("interest") regarding the project outcomes [23];
 - ii. Power-Impact grid of office of Government commerce UK, 2003 cited on [4], grouping the stakeholders based on their active involvement ("influence") in the project and their ability to effect changes to the project's planning or execution ("impact"), [23]
 - iii. Influence/impact grid, grouping the stakeholders based on their active involvement ("influence") in the project and their ability to effect changes to the project's planning or execution ("impact") [23];
 - iv. Influence/Interest grid [9];
 - v. Power- Interest and attitude (three dimensional view) [17], the third dimension *attitude* to the project as measured by the extent to which they will 'back' (support) or 'block' (resist) [15] is considered.
 - vi. Salience model, describing classes of stakeholders based on their power (ability to impose their will), urgency (need for immediate attention), and legitimacy (their involvement is appropriate) [23]. This model is similar with [14].
 - vii. Stakeholder Circle [2]
- PMI [23] listed approaches at I, II, III and IV as an approaches that can be used for stakeholders analysis.

III. RESULTS AND DISCUSSION

In order to have the output, a total of 245 questionnaires for consultants, contractors, highly experienced project managers, community members, and governmental sectors who has stake on project; interview with Ethiopian Roads Authority (ERA) experts, World Bank Ethiopia Branch and Local Authorities; and Archival review of Consultants progress report from sites were included.

A. Project Management

The project management system in the region as seen from external stakeholders and the employees within the organization has different angles. 57.14% of the respondents within the organization rate their management process as good and 23.81% as very good. Even this is the overall rating, archival review, local Authorities and Community response shows less performance of project management team. The satisfaction of 44.4% of the community by the execution of the projects is medium and low, the main reasons raised for this has been rated from respondents of questionnaire were 51.72% were not happy with the quality of road or they believe projects has poor quality, 24.14% were not happy due to delay of projects and others believe the projects has negative impacts and they were constructed for only government politics purpose.

The other issue was the management system is not supported by manual. Only 42.9% of experts included in the survey were using ERA manual and the rest doesn't have detail know how about the manual and some of them believe it is used only at design stage.

B. ERA stakeholders and their roles

Construction projects have common characteristics in that they will always have project doer, client and beneficiary. If we consider only Road construction it has common stakeholders and also have unique stakeholders. In developed countries and developing countries there is a variation in especially external stakeholders.

In order to Identify stakeholders in ERA road construction; first stakeholders collected from literature review were listed and some commonly known were included. Then respondents were asked to list additional stakeholders and requested to select stakeholders in their project case. The table below summarizes stakeholders in the region and their common roles in road project construction.

Table I Stakeholders and their roles in ERA projects

Stakeholders	Some of the roles
ERA	<ul style="list-style-type: none"> • Serve public interest based on the organization’s and government strategy • Resolve right-of-way issues • Approves certain changes, payments and any proposal from consultant • ensure the project completed successfully in terms of quality, time and cost
Consultant	<ul style="list-style-type: none"> • Communicate identified variations with the ERA, provides the consultancy advice for the project on designing, evaluating the cost, technical issues/advice • Administers contracts and supervises the work • Develops the design of the project; produces drawings and specification; ensures that a project is implemented within cost and time, and according to quality and agreement • Reports project progress for ERA timely • Approves work proposals from contractor • Prepare payment certificates for executed work • Communicate with local Authorities and community delegates to resolve issues and create good work environment
Main Contractor	<ul style="list-style-type: none"> • Brings the design of project to reality • Carries out and completes the work designed by consultants to meet time, cost and quality objectives; supervises and manages operations on site; sometimes assists in design; coordinates and supervises all sub-contract work, materials and suppliers.
Sub- Contractor	Carries out and completes the work ordered by main contractor
Donor/Financier	<ul style="list-style-type: none"> • Provides the necessary funds to the project; Ensures that the funds are utilized for the purpose; check if funds are used for this particular activity • Approves request for additional budget from client/ERA
Local Authorities	<ul style="list-style-type: none"> • Make work environment favorable by discussing with community • Resolve Right-of-way (ROW) issue collaborating with ERA ROW experts • Discus with community about the project and transfer community questions for client or consultant
Environmentalists	<ul style="list-style-type: none"> • Make sure the project doesn’t pollute the environment • Recommend best mechanisms to protect the environment while construction activity is carried out
NGO ¹	<ul style="list-style-type: none"> • Creates awareness on HIV/AIDS protection mechanisms for workers • Discuss with environmentalists and consultants to protect community interest and environment
Media	• Transmit information about the projects to the community
EEPCo ² , ETC ³ and WSSS ⁴	• Remove obstruction related to their organizations after compensation have been paid
HPR ⁵ team (Federal Gov’t)	• Make sure the project is going based on the regulation, objective, and protecting the interest of community
Ministry of Agriculture	• Recommending on Agricultural products and Forest issues
MoFED ⁶	<ul style="list-style-type: none"> • Conduct a payment based on request of consultant and ERA • Approves budget changes based on annual budget

A. Impacts of Stakeholders on road construction project management

Power of stakeholder in this research has been analyzed by the decision making or influencing capacity and changing projects overall procedure and interest of stakeholders is

measured by their vested interest on projects. The interest of stakeholders will have two angles: either to give their best input for the success of project or to satisfy their vested (self) interest. So it will have both positive and negative impact on the project’s success which will be analyzed later.

¹ NGO- Non Governmental Organization
² EEPCo- Ethiopian Electric Power Corporation
³ ETC- Ethiopian Telecommunication Corporation
⁴ WSSS- Water Supply and Sewerage Services (Ethiopia)
⁵ HPR- House of Peoples Representative (Ethiopia)
⁶ MoFED- Ministry of Finance and Economic Development (Ethiopia)

The interest of stakeholders in project life cycle is variable. Most of stakeholders participate and want to participate after the project is started. Even with in the construction progress the attitude of stakeholders on project is variable. If we take the community and local authorities they show interest and positive attitude when the project is started. In the projects on initial construction stage, community and local authorities were eager to have information about the project and want to participate. In the interview section; the discussion with local authorities that has concern on more than one project which were under progress shows that they are eager to collaborate and their response is positive in all aspects for the projects at initial stage. But on projects at final progress their attitude is

negative and some of them believe community and the politics was affected by the projects. The main reasons raised were delay of projects and need of local authorities for modifications on width of road at town section.

Power versus Interest

The grid prepared by Imperial College of London (2014) to classify stakeholders power/interest or influence/interest is one of the commonly used standard. The five scale rating of contractors and consultants was analyzed by SPSS16, Excel 2013 and summarized by the mean value and RII as shown in figure below.

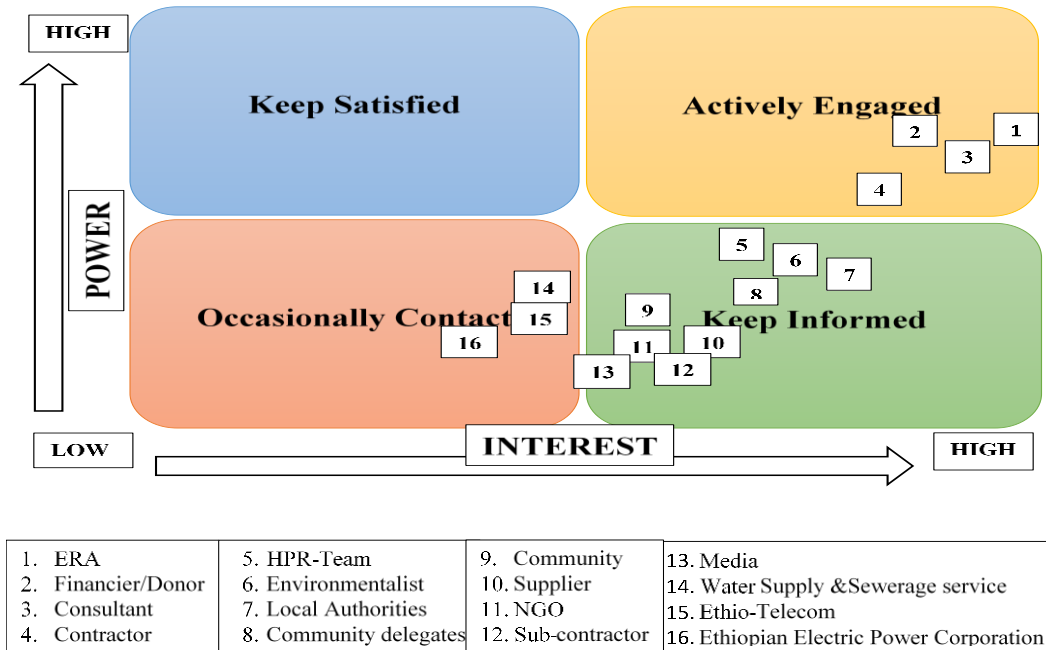


Figure1. Power/Interest Matrix

Actively Engaged: - These are the most important and key players of the project. The first top four are also common in other countries having both high power and high interest. Study conducted in Gaza strip shows Client, consultant, Donor and Financier/Donor takes the first four ranks [7]. Stakeholders in this group are also known as Collaborate which means to partner with stakeholders in each aspect of decision [7]. These were the first one responsible for any change and modification in project progress. In Ethiopian Road Authority projects (1) ERA, (2) Financier/Donor (3) Consultant and (4) contractors take the top ranks.

Keep Informed- these are the one who needs information in every progress of the report because of their high interest but have low power for decision. In the study conducted by [18] local Authority and contractors are in this category, but community/General public is in occasionally contact category. Yet in this study most of stakeholders are in this category: (5) HPR team (federal Government), (6) Environmentalist, (7) Local Authority, (8) Community delegates and (9) communities were the top one who needs to be informed. Some of these stakeholders want to be a key players or sometimes they have influence on decision (because they are found on the bridge between Key players and keep informed), but their power is very low and it needs the acceptance from key players. Others like (10) Supplier, (11) NGO, (12) Sub-contractor and (13) media are in these

category. From the collected data even they have high participation, their power is very low and hence they only needs to be keep informed.

Keep satisfied- these are also known as involve because their concerns and aspirations should be considered. These stakeholders are known to have high power but low interest on the project. According to the study conducted by [7] in Gaza strip NGO's, Beneficiary and Government are in this category and [18] study shows insurance companies are in this category. In this study response from contractors and consultants shows there are no stakeholders in this category. Unavailability of such kind of stakeholders in ERA western region projects is essential because the participation of stakeholders having high power on decision is essential.

Occasionally Contact: - also known as monitor or having minimal effort. These stakeholders have both low power and low interest or participation. General public is categorized under this cluster by [18] study result. But in Ethiopian context the interest of community for road projects is very high and they are not categorized under this. In the study (14) Water supply and sewerage services, (15) Ethiopian telecommunication corporation and (16) Ethiopian Electric Power Corporation are occasionally contact groups. The low participation or interest of these three stakeholders is the main challenge. Actually they are contacted occasionally and their collaboration is required whenever their structure is available.

But the problem is these stakeholders show their minimal effort on the project even they are contacted occasionally, which is not good for the project activity.

Stakeholder impact

The impact of stakeholders may be positive or negative. It also varies from project to project due to most stakeholders were unique to a specific project. Contractors and consultants were requested to rate the impact of stakeholders as either positive or negative and the rating was analyzed in two categories as best input and negative impact.

In road construction projects conducted in Ethiopia, the high participation with best input is essential from governmental organizations like EEPCo, ETC and WSSS because these organizations are essential for scheduled construction procedure. But they are the last stakeholders (according to the collected questionnaire) in trying their best for the success of projects.

The reasons raised from the organization experts were different from one to the other. The internal capacity of EEPCo was not strong enough to satisfy the request of project doers both in manpower and equipment. Even the compensation is paid for each electric poles as the request of the organization itself, the workers are not happy in the task because of less consideration given for them from their organization; in case of ETC the cables distribution line was not supported by design and hence it is difficult to remove within a short period of time; and the main problems raised from water engineers for WSSS were the need of time to redesign the distribution system, since almost all water lines were laid following the road root.

Due to delay of clearing right of way (ROW) issue related to the above organizations, projects face claim from contractors and delay behind schedule. The main problem was delay behind schedule leads to change in budget allocated for the project.

Out of six projects included in these study, except one in which the researcher didn't get full information the other five face a design change due to influence of external stakeholders and approval from consultant and ERA. The reasons for design change were width of roads in town sections, roundabouts in towns and some route complains from community.

In other side projects also show negative impact on stakeholders. The poor collaboration of project doers and local authorities create a gap between community and project doers. Some local authorities blame project doers by not wanting to answer complains from community delegates and local authorities themselves. On the other side project doers blame local authorities by trying to change design of roads route and width as they want. Even the above reasons were raised, some of the community members complain of less compensation payment for their assets and construction of poor detour roads which affect transportation system of areas.

Classification of Stakeholders

The classification of stakeholders was done based on the power/interest matrix and interview from project engineers. In Ethiopian context three part classification is preferable rather than internal/external classification.

- i. Key Stakeholders-* Donor/Financer, Consultant, Client (ERA) and Contractors are the key and mandatory stakeholders for the execution of a road project.

- ii. Primary Stakeholders-* these are essential for project but they can't exercise their power on the project directly. They can participate if and only the key stakeholders were available. These are Financial institutions, HPR team (federal Government), Local Authorities, community, community delegates, EEPCo, ETC, WSS, Suppliers, Environmentalists, and Sub-consultant.

- iii. Secondary Stakeholders-* these are stakeholders having low power and low interest on Ethiopian road authority projects. They include NGO, Media and other interested parties.

A. Culture of analyzing and interpreting the impact of stakeholders

Analyzing the impact of stakeholders is essential for the future plan and smooth relation of project doers and stakeholders especially the external one. The culture and awareness of community was different from areas to areas; so if the contractor or consultant has a culture of analyzing and then interpreting the impact of stakeholders, their impacts can be minimized or easily managed.

Out of the total response only one consultant had no culture of analyzing the impact of stakeholders and the remaining 5 projects consultant had the culture. In contractor side only 33.3% had such culture and 66.7% had no such culture. In case of consultant most of them had at least a culture of discussion with some selected stakeholders. In addition to discussion identifying stakeholders and analyzing their power is necessary for future action, because the consultant or contractor can easily know who to contact and what measure to take whenever there are issues.

B. Mechanisms for best management of stakeholders and minimizing their negative impact

In order to find answer for this question, open ended question was given for project managers who have more than 15years experience in construction sector; in addition to the responses from contractors and consultant. In order to manage a project effectively the following issues must be resolved first.

- i. Design gap-* The time given, budget allocated and the attention given for design of projects was poor. Designs were prepared based on the ERA design standard, but most of local authorities and community members were not satisfied with it. Whatever is the case, all of respondents agree that the design gap was the main root cause for problems arise on construction stage.
- ii. Structural Master Plan-* Towns must have their own structural master plan that is approved by law and which obligates all structures to follow the master plan, hence complains will be minimized and the money allocated for construction and destruction of service lines can be saved.
- iii. Participation of Local Authorities-* In the design stage local authorities were requested for collaboration. Even the routes were selected based on the interest of local authorities. But their interest and participation at design stage was poor (as ERA project engineers response) and they don't know the detail of design instead they know only crossing towns. This was one of the reasons for claims at construction stage. Local authorities blame the client and designers in not considering the master plan of the towns. So local authorities believe it will affect the

future growth of towns. But ERA project engineer's response the master plan was used but it must follow the ERA standard.

iv. Inter organizational relationship-inter organizational relationship between project doers and government organizations having a stake on road crossings was poor. In order to minimize disagreements there must be strong relationship between organizations.

v. Awareness of community- in most areas the community was not aware about the projects. Local authorities also accept this gap. After start of the project the communication of community about project with local authorities is low. Making community aware about project progress minimizes their impact on projects.

In order to manage project effectively managing, supervising or designing engineer can be effective at least if he fulfills two or three things: *Ethical, professionally having full knowledge and well experienced in the field* as most of respondents believe.

IV. CONCLUSION

The research was targeted on one main objective and four specific objectives/research questions. Based on the analysis result and data's collected it can be concluded as follows

The time and attention given for design was low and gaps at design stages and before construction stages were the main sources of negative impact of local authorities and community;

Ethiopian Electric Power Corporation, Water supply and sewerage services, Ethiopian telecommunication corporations and Local Government (authorities) were the top in influencing the project negatively in the region according to consultants and contractors response;

Donated projects by World Bank and African development bank has a good follow up and attention given from financier related to the government financed projects; and External stakeholders were one of the main causes of delay of project, claim and design changes.

ACKNOWLEDGMENT

With the support of Almighty God and peoples around me this thesis paper comes to an end. First of all I would like to gratefully thank my advisor, Assistant Professor Zewudu Tefera Worike for his fruitful comments and continuous advice and co-advisor, Murad Mohammed, for his advice throughout my work.

My special credit also goes to my colleagues who support me in translating questionnaire in to local languages, those who coordinate their staffs and friends at project sites, and also Kedir Hussen and my students who support me in data collection and communicating with local stakeholders,

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