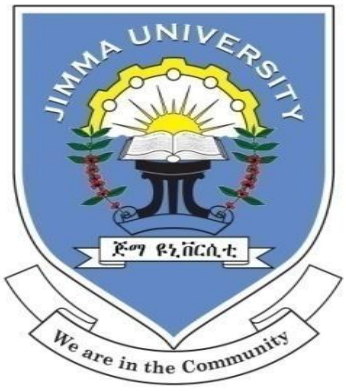

Jimma University

Jimma Institute of Technology

School of Civil and Environmental Engineering

Construction Engineering and Management Stream

Assessment on Client's Role to Improve Successful Completion of Universal Rural Road Access Program at Jimma Zone

By: Aynalem Feyisa Diriba

A Thesis submitted to the School of Graduate Studies of Jimma University in Partial Fulfillment of the Requirement for the Degree of Masters of Science in Construction Engineering and Management

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Main Advisor: Dr. – Ing. Wubeshet Jekale (Assistant Professor)

Co-Advisor: Mr. Getachew Kebede (Msc)

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Approved by Board of Examiners:

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Internal Examiner	Signature	Date
_____	_____	____/____/_____
External Examiner	Signature	Date

DECLARATION

This thesis entitled "**Assessment on Employers Role to Improve Successful Completion of Universal Rural Road Access Program at Jimma Zone**" is my original work and has not been presented for a Degree of Masters in any other University.

Aynalem Feyisa _____ _____/ _____/ ___

Name Signature Date

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ABSTRACT

The role of client throughout the construction process are crucial to the success of projects in all types of construction sectors. Problems on practicing employer role are observed as one of the most frequently occurring gap in construction projects in Ethiopia. Like other zone of the country, URRAP projects in Jimma Zone are also suffering from this problem.

The objectives of this study were firstly to assess the way of the employer's practice its role in managing URRAP project; secondly to identify the gap of employer on practicing its role and lastly to recommend way of improving successful completion of URRAP projects by enhancing role of employer and filling the gap.

Desk study and questionnaire surveys were carried out to identify the role of employer, gap of employer on URRAP road project. The desk study was conducted on five selected projects. Statistical method such as Severity index, Relative importance index and Spearman's correlation coefficient were used to analyze the collected data. Based on the findings, variables were ranked according to their occurrence. In addition, coefficient of correlation in ranking variables was studied in order to identify the agreements between participant responses.

The results indicated that being responsible for the execution of the project from the initial idea to implementation, sequencing and scheduling of work, and carrying out construction, suitable management arrangements were most frequent and significant role of client's. From the 14 gaps of employer identified, lack of adequate finance to run the project, poor project financing (in terms of budget, payment), delay of the client to approve payments were the most ranked.

The findings also indicated the most recommended strategies to minimize gaps. These strategies were establishing evaluation criteria for consultant and contractor selection; self-motivated and able to work unsupervised; establish realistic project budgets and program timelines. The study concluded based on the findings of the research and recommendations for further studies were forwarded to improve successful completion URRAP projects by enhancing role of employer.

***Key words**: Employer's role, Gap, URRAP*

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LIST OF ABBREVIATIONS

ADB	African Development Bank
CDM	Construction Design Management
CM	Construction Manager
ERA	Ethiopian Road Authority
FI	Frequency Index
FIDIC	Federation International Des Ingenieurs conseils
II	Importance Index
MOWUD	Ministry of Works and Urban Development
MUDC	Ministry of Urban Development and Construction
ORA	Oromia Road Authority
PPA	Public Procurement Agency
RI	Relative Index
RSDP	Road Sector Development Program
SI	Severity Index
URRAP	Universal Rural Road Access Program
WB	World Bank

CHAPTER ONE

INTRODUCTION

1.1 Introduction

It is evident that the socio economic development of any country is highly dependent on the amount of economic and social infrastructure, whether it is public or private. One of the major sectors contributing for infrastructure growth is the construction industry. Its role ranges from providing infrastructure support to factors of production for other sectors of the economy. In addition, physical objects generated such as infrastructure facilities, roads, bridges, buildings, houses, etc in the construction industry have effects on other industries as a chain of economic activities. (Tin, 2010)

It is a mere understood fact that road network expansion is essential for a country's economic growth and sectors development through enabling provision of road accesses to a number of regions within a country or several international destinations. This is believed to generate and flourish business transaction locally and globally thereby further promoting the economy of the country.

The Government has a set vision to make public, economic and social services physically more accessible to the rural population. There remains a critical need to provide rural communities with transportation infrastructure and services that ensures permanent accessibility to social and government services, economic and business services, and better opportunities for employment and income generation.

In response to this need, and as part of the RSDP-IV, Government is embarking on a Universal Rural Road Access Program (URRAP) that sets out to connect all Kebele by roads of a standard that provides all-weather, year round access, meets the needs of the rural communities, are affordable and maintainable. (ERA, 2005)

Obviously, the involvement between the many parties in a construction project such as clients, consultants, contractors, subcontractors, and suppliers has exposed many uncertainties and problems associated with the relationship between these parties. As a result, increasing cost, late completions, poor quality, and high accident rates in project activities are usually seen in construction project. The

roles and their project management approach can have significant effects upon the attainment of the project objectives from the viewpoints of all the parties involved in the project (Tin, 2010).

The ability of the client to properly motivate and direct the craftsman will determine the success of the labor on the job. This aspect of the project is the primary responsibility of the project owner. Additionally, they are responsible for overseeing the construction of the entire project. More than anything else, the success of the project hinges on the performance and capabilities of these key individuals. The relationship develops between them, clients, subcontractors, and suppliers largely affect the overall perception and reality of the project's success and/or failure. Also, being "the face" of the contractor, future working relationships with the owner are at stake. It is absolutely critical to identify personnel who are technically proficient, excellent communicators, effective managers, and good leaders (Hagberg, 2006)

Researchers have been concerned to managerial role of client for successful completion of the project. The Problems on management practice have become critical issues faced by the project for a long time in order to increase productivity in construction. To achieve the income expected from any construction project, it is important to have enhanced client participation which contributes to the integrated composition of production, such as labor, equipment, and cash flow.

1.2 Historical Development of Roads in Ethiopia

Ethiopia's economic growth is highly dependent on the agricultural sector. Therefore, development efforts to change the existing socio-economic condition of the nation would also be dependent on the efficiency of this sector for the foreseeable future. However, a better Performance of the agricultural sector in particular, and the sustainable economic growth of the Country at large would be achieved through an improvement of the basic infrastructure. Consequently, the road network has been identified as a serious bottleneck for the economic development of the country (Girmay, 1994.)

The provision of adequate road transport services (in quality, coverage and organization) is essential for the economic and social development of Ethiopia. Road transport accommodates 95% of passenger/freight movements in the country, import/distribution of petroleum products, fertilizers, relief food and collection/export of coffee from rural areas (Leul Kone, 2008).

Road sector construction projects in Ethiopia are means through which development strategies are achieved. Development strategies which are fulfilled through successful road projects out end to import accessibility of rural areas, lower costs associated with transport maintenance and open more areas for development activities (Leul Kone, 2008)

Road are a primary communication to all sectors of economy and the population .It is widely recognized that an efficient road infrastructure is a big requirement for economic and social development. Ethiopia having physical topography is characterized by mountains, gorges and rivers. This topographic nature, besides determining the long history of the country (enabling the defenses of the country from outside invading forces), was found to limit the level of development of the surface transport structure. This has resulted in the use of head loading and pack animal transport for a long period in the county's history (Leul Kone, 2008)

It is recorded by historians that planned road building, with primitive and local technology, was initiated during emperor Theodros (1855–1868). With some European employment, Theodros was able to build roads having a width of 9 to 12 meters from Debre Tabor Gonder and from Gojam to Mekdella history (Leul Kone, 2008). Emperor Minilik II after defeating the Italian invaders at Adwa in 1896 used the captured Italian army members to build roads connecting the central region of the country with the northern parts. Generally speaking this Status of road construction in Ethiopia and its future activities roads were not of adequate standard and capable of carrying wheeled traffic. In fact the period was characterized by absence of motor vehicles, since they were not imported. It is recorded that it was in 1907 that the first two motor vehicles were imported to the country .In late 1920's 3 with the coming to power of Emperor Haile Selassie I road building responsibility was bestowed to the Ministry of Public works and considerable efforts were exerted to develop the system. During this period, a number of motor vehicles were imported which promotes a direct impact on the level of the expansion of network. By 1936, before the second Italian invasion, there was about 2,000 Km of roads in the country (Girmay, 1994.)

During the Italians occupation (1936-1941), tremendous road construction was undertaken by the Italians for their militaristic and economic purpose. The Italians roads building accomplishment were noteworthy when one considers that much of their work was done in some of the most formidable road building areas in the world. During approximately four years period and without benefit of modern earthmoving

equipment, principally utilizing large quantities of forced labor of Ethiopian nationals and some 60,000 imported Italian labors, they built and improved some 6,000 Km of roads and trails (Girmay, 1994.)
In 1997E.C Phased road sector development program (RSDP) provided a coordinated framework for intervention along with policy, institutional and regulatory reforms have been launched. It was almost ten years since Ethiopia engaged in a massive road sector development program (RSDP I and II), constructing, upgrading and maintaining a total of 78,569 km of roads with a total cost of 25.4 billion birr. (Leul Kone, 2008)

The Ethiopian highway network kept on lagging behind the countries need. After the overthrow of the Imperial Regime in 1974, Derg restructured the highway authority as the Ethiopian Roads Authority and the Rural Roads Task Force. The latter had the objective of developing rural roads outside the main system and extending feeder roads within the main system.

The World Bank, African Development Bank and others provided assistance for new road construction and maintenance. Despite these efforts, Ethiopian's road network remained quite limited, even by African standards. Expansion of the rural road network accounted for much of the roads constructed thereafter until the change of government in 1991 and the network was further reduced with Eritrea as a new state. In 1993 the Ethiopian Roads Authority (ERA) was reestablished with a legal autonomy and being responsible for overall plan.

1.3 Statement of the problem

It is expected that a better understanding of the concept of management can support project managers in exceeding their project objectives and thereby creating shorthand long term added value for the client. Unless the project is not successfully implemented in quality, cost and time, the failure of it may cause serious damage (moral as well as financial) among the contracting parties.
Many researchers have written on client's influences in construction projects. For instance, poor project definition/formulation by the client may result in a successful project irrespective of the other parties' performance. Also, payment delays by clients cause cash flow problems to consulting firms which in the worse possible case may lead to bankruptcy. If both client and the other parties understand the fundamental roles of construction clients and if clients themselves are prepare to take

an active role in the construction process, the chances of producing more successful projects will improve as well as the project management in mutual activities among parties will be more efficient. Role of employer on managing URRAP projects have the potential to impact successfulness of URRAP projects, Here in order to make the client responsible and wants to create an environment in which the construction industry responds positively with innovation and specialized expertise, it need detail study to identify the problem and challenges frequently occurred, analyzing and recommending possible way of handling the problem.

1.4 Research Questions

The following research questions pertain to offices consisting of Jimma zone URRAP road construction project stakeholders' teams. The overall purpose of this research is to improve successful completion of URRAP road construction project by enhancing client's role, thereby increasing the effectiveness in both a project and a government. Thus formulating and answering the following research questions could define the overall purpose

- ✓ How does the Oromia Road Authority practice its role in managing Jimma Zone URRAP road construction project?
- ✓ What is the gap of employer on practicing its role in managing URRAP road construction project in Jimma Zone?
- ✓ How can improve successful completion of URRAP road construction by enhancing role of employer?

1.5 Objective of the study

1.5.1 General Objective:-

- ➢ To asses client's role to improve successful completion of URRAP road construction project.

1.5.2 Specific Objectives:-

- ✓ To assess the way of the Oromia Road Authority practice its role in managing Jimma Zone URRAP road construction project?
- ➢ To identify the gap of employer on practicing its role in managing Jimma Zone URRAP road construction project

- To recommend way of improving successful completion of URRAP road construction by enhancing role of employer.

1.6 Significance of the study

The research study shall be investigating employer's role in URRAP road construction project of Ethiopia specifically in Jimma zone. It also digs out the of employer's role in directing the client organization with the need of specialized capabilities in order to fulfill its roles in an effective and professional working way. The main goal of the research study is to provide essential strategies to improve employer leading performance on project management team who enable the project's success.

From the above mentioned literature we understand that role of employer is the major issue in URRAP road construction project in developing countries like Ethiopia which needs special and organized consideration to overcome the poor performance of this major infrastructure projects.

The research will be helpful for further research studies on construction management on URRAP road construction project in other parts of Ethiopia.

1.7 The scope of the study

There are many projects which are under construction in Ethiopia. In order to achieve the stated objectives of the study, the scope would be too large to tackle. This study will be conducted in Jimma zone URRAP road construction project. The study will not provide or show role of employer on other rural road construction site in Ethiopia. Due limitation, this research will be conducted with URRAP project only and didn't take into account the other categories of construction industry like building, railway, industrial projects (factories and workshop), tunnels, and dam.

CHAPTER TWO

LITERATURE REVIEW

2.1. Introduction

For centuries, the construction industry is one of the biggest industries worldwide. Being such a large industry, it has played a pivotal role in the socio-economic development of all nations. Its role ranges from providing infrastructure support to factors of production for other sectors of the economy. In addition, physical objects generated such as infrastructure facilities, roads, bridges, buildings, houses in the construction industry have effects on other industries as a chain of economic activities. (Tan, 2010)

Having allocated such amount of big finance, the owner is typically working for the successful completion of projects, based upon predetermined requirements including functions, quality, budget, and schedule.

This chapter presents a review of relevant literature related to: project and Construction projects, construction stakeholders and their responsibilities; contractual provisions relative to role of employer; major responsibilities of employer; challenges associated with employer role; gaps in client role and improvement intervention of client's gap are briefly discussed.

2.2. Project and Construction projects

2.2.1. Project

A guide to the Project Management Body of Knowledge has defined a project as "a temporary endeavor undertaken to create a unique product, service, or result. The temporary nature of projects indicates a definite beginning and end. The end is reached when the project's objectives have been achieved or when the project is terminated because its objectives will not or cannot be met, or when the need for the project no longer exists. Temporary does not necessarily mean short in duration. Temporary does not generally apply to the product, service, or result created by the project; most projects are undertaken to create a lasting outcome".

The Implementation of government projects are expected to provide further thrust to the Construction sector in the country. Therefore, it is important to ensure these projects are being implemented successfully without any major problems due lack of proper management. (Tan, 2010)

2.2.2. **Construction Projects**

Construction projects represent a unique set of activities that must take place to produce a unique product. The success of a project is judged by meeting the criteria of cost, time, safety, resource allocation, and quality as determined by the owner.

The purpose of Project Management is to achieve goals and objectives through the planned expenditure of resources that meet the project's quality, cost, time, scope, and safety requirements. The CM must control, deflect, or mitigate the effects of any occurrence or situation that could affect project success. (Bob Muir, 2005)

There are many challenges facing today's construction manager. Some are new to the industry, and some are centuries old. Many of these challenges are a direct result of construction operations, while others a result of indirect, peripheral activities. Surprising number of challenges are not construction issues but must be addressed and managed by the construction manager to ensure project success. Some of the construction issues include workforce considerations, safety, time constraints, and the changing nature of the work. Non-construction challenges that face that are part of the business landscape include legal issues, government regulations, environmental concerns, and socio-political pressures. It is critical that the understanding the demanding realities that he or she faces in the planning and control of construction operations. (Bob Muir, 2005)

Construction projects are understood with the following three major identified characteristics (Wubshet, 2004.)

- Unique, involving a degree of innovative characteristics depending on the type of projects; and hence employ process-orientation, Management of uncertainty and changes, and flexible approach to its management;
- Temporary, it has a definite beginning and ending constrained by finance and other resources and requirements; and hence, finite and Constrained; and
- A component of a certain business or program, requiring predetermined goals and courses of action; and hence performance-oriented and Constrained.

2.3. Road Construction Projects

Rural road projects have been an important delivery mechanism for reinstating community access in Ethiopia over the last four year. The works are acknowledged as being of high quality, and the labor productivity rates and costs are in line with international norms. Infrastructure program are now in a stage of rapid expansion in Ethiopia. A major effort is being made to rehabilitate and upgrade the state, provincial and rural road networks. Many different approaches are being applied: equipment and labor-based, force account and contracting. (Askar, 1988)

2.4. Stakeholders in Construction Industry

Stakeholders are individuals, groups or organizations, institutions and others that are actively involved in a project and whose interests may be positively or negatively affected by the project execution. They may also exert influence over the project and its results. In short, they are claimants who claim ownership, who have rights or interests in a project and its activities (Kasiem, 2008)

Project stakeholders can be classified into two major groups: primary and secondary stakeholders. Primary stakeholders are those persons or groups of the project team who have a contractual or legal obligation to the project team and have responsibility and authority to manage and commit resources according to schedule, cost, and technical performance objectives. These stakeholders can also be named as contractual stakeholders. Secondary stakeholders are those who have no formal contractual relationship to the project but can have strong interest in what is going on regarding the project. These stakeholders can be participants on budgetary and financial agreements, business and professional interests or relationships and they are also referred to as budgetary and collateral stakeholders (Wubshet, 2004.)

The process of construction involves some of the following stakeholders: projects end-users, employer, professional team (consultant), contractor and subcontractors, manufacturer of construction materials and components, and construction materials merchant. Other stakeholders might be included as well: authorities that under statutory requirements must approve the structure of the facility; banking and financing institutions that advance some of the capital required; and public undertakings that in some countries act as a contractor for the supply of basic services such as electricity, water sewerage etc. (PMBOK, 2000)

Project end users are those stakeholders where the project is intended for use by them. In the public sector, the users might be the communities as a whole or a particular section of the community composed of individuals (UNIDO, 1969)

Employer

Employer is a stakeholder who initiates the project based on his assessment of user needs; and who appoints advisors; commissions the work; and throughout the process advances the capital necessary for the project study, design, and construction. Employers can be classified as public and private employers. Public employers correspond to entities that make use of public funds to provide constructed facilities for public use. In a public contract for construction works, the employer is identified as a party who has called for tenders to build, construct, erect or deliver the works and includes the employer's legal successors and representatives. (Atkinson, 1992)

These public employers provide much of the construction works both in developing and developed countries. For example, in the United Kingdom, public sector provides 80 - 90percent of all civil engineering works (Atkinson, 1992) where as in developing countries, the figure would be higher than this percentage as the commercial development sector is relatively undeveloped for which most formally constituted consultants and contractors rely on the public sector for work. (Ofori., 1993)

The employer plays the most important role within the construction process and therefore, he is the most important party to the contract for without him there would be no contract and no work for consultants and contractors. However, once the contract is signed for the works, the two parties become equal parties to the contract with duties and obligations to each other as per the contract agreement and governing laws (David., 2004)

Consultant

Professional team as a construction stakeholder is employed by the employer to plan and design the project together with the preparation of cost estimates and depending on the need of the employer, to draw up the contract; to obtain tenders; to let and supervise the work; to administer the contract; and to authorize payments or issue certificates. The professional team may include architects and engineers of several kinds, specialist consultants, cost estimators and quantity surveyors, and other related professionals where they are named collectively as a consultant (Atkinson, 1992). (MoWUD, 1994) (UNIDO, 1969). In a public works contract, however, it is generally recognized as the

"Engineer" whose responsibilities are defined in the standard conditions of contract. In such a contractual arrangement, the behalf of the employer or as an agent of the employer with defined authorities and responsibilities. (MoWUD, 1994)

Contractor

Contractor is a person or an organization responsible for assembly of the materials and components required to produce the facility or to execute the works. Similar to the employer and engineer, the contractor is also identified in public works contract as a person or persons, firm or company to whom the contract has been awarded by the employer that include his personal representatives, successors and permitted assignees. (Atkinson, 1992)

Manufacturers

Manufacturer of construction materials and components provide many of the material inputs that are produced away from project sites. It is not easy to define the construction materials industry because construction uses many different products, some of which are manufactured by industries outside the construction sector (UNIDO, 1969)

Supplier

Supplier is Construction materials merchant and also another important stakeholder acting as intermediary between the manufacturing industry and the contractor. Construction materials merchant stocks a large number of construction materials, components and fittings; provides small contractors with valuable technical and commercial information; and most importantly of all, he gives short term credit to the contractors. (David., 2004)

In a typical public construction project, the contractual arrangement with an employer contractor agreement involves some of the primary stakeholders such as employer, contractor, consultant, financial institutions, and subcontractors.

The following table shows some of the major roles of the above stakeholders for construction project.

Table 1 Major role of the construction stakeholders

Stakeholders	Major Roles
Client	-Comes up with the investment needs such as project idea, land, capital etc. -Usually provides the infrastructure needed

	- Takes care of some of the legal constraints & permits -Leases the project's execution - Most important player of the process
Consultant	-Change the clients project idea into economic and constructible artifact - Responsible for the project design -Make sure that design satisfies requirements -Usually prepare BOQ and contract documents -If assigned to supervise: -Look after proper execution of project -Certify payment certificates -Issue provisional and final acceptance certificate
Contractor	- Change the drawings and specification made by the consultants into a physical structure - Prepares a bid document - Provides the resources needed to execute the project - Executes the project according to plan - Monitors project execution - Rectifies defects -Manages different resources
Statutory Bodies	-Look after the project's compliance with the general public's interest -Prepare a general development scheme and make sure that the project satisfies that. - Look after the safety, legal, commercial etc issues associated with the project. -Look into the environmental, cultural, social etc effect that the project in
Suppliers	-Are parties that supply the varies materials, equipment's and services needed for the project
Financers (Financial institutions)	-Donating or loaning agencies or institutions like banks, insurances, pension agencies etc. - Who could provide loan services for the project

The involvement between the above many parties in a construction project has exposed many uncertainties and problems associated with the relationship between these parties. As a result, increasing cost, late completions, poor quality, and high accident rates in project activities are usually seen in construction project. The roles and their project management approach can have significant effects upon the attainment of the project objectives from the viewpoints of all the parties involved in the project (Tan, 2010)

This paper focuses on one of a major construction stakeholder that is; employer's role to improve successful completion of project. If clients themselves are prepare to take an active role in the construction process, the chances of producing more successful projects will improve as well as the project management in mutual activities among parties will be more efficient.

The client may pose risks to project designers and civil contractors by not adequately performing their responsibilities. Active involvement of the client in projects will impact upon the performance, success of the projects and will reflect on the performance of the construction industry in general. (Tan, 2010)

2.5. Client

A construction client can be defined as "a party who carries out or assign others to carry out construction, demolition or building works." (Construction Price Indices, 2013) The construction client is responsible for interpreting and translating the user's needs, expectations and desires into requirements and pre requisite for construction project. It could be a natural or legal person, for whom a structure is constructed, or alternatively the person or organization that took the initiative of the construction. (Greenwell, 2016)

The Client is the person or company, with the controlling interest in the project. They will retain a significant level of control over the assessment and appointment of designers and Contractors for a project. (Joyce, 2009)

Generally the client has an important role in the process since they will appoint advisors, authorize work to take place, agree costs and timetable and appoint professionals to the project. Some projects will have a community organization or group as the client but may have difficulties with the role of employer due to its liabilities. (Bob Muir, 2005)

2.6. Responsibilities of Employer

The Client's should focus on operational goals and co-ordinate the team of all kinds to provide support for the process of operation.

According to (Mohamed, 1997) the main responsibilities of Client's are: preparing and organizing; Procurement, Ensuring a co-ordination and cooperation; design management; Decision making; measuring and reviewing performance; Communication; Health, Safety and Environmental management. Many of these responsibilities are performed by the Clients' jointly with the other members of the project organization. In the following sections, the relevant issues and tasks to be considered for each responsibility are briefly defined. . Based on the following literature (NEDC, 1991), (Hayden, 1992) (Defenbaugh, 1993), (Chase, 1993)and, (Oakland, 1994.) Responsibilities of Clients' were established as follow:

2.6.1. Preparing and organizing

The preparing stage is when clients have the most control and influence over their projects. As develop initial vision into a detailed brief, it needs to build a team, check feasibility, plan budget, and assess life cycle costs (Simmons, 2010). The main objectives of this task are to set objectives; establish policies to meet objectives; develop organizational structures; and delegate authority and responsibility. The following practices are Responsibilities of client on the preparing and organizing task.

- ✓ Determine the focus, concerns and the ability levels of Client's organization for planned improvement, by conducting first party audit.
- ✓ Establish organizational structures and responsibilities.
- ✓ Prepare education and training requirements for all levels of staff.
- ✓ Delegate the in-house champion or external consultant to train the Client's
- ✓ Organization on professional, quality, technology, and team building skills.
- ✓ Delegate appropriate responsibilities and authority to the respective personnel, for conducting program.

2.6.2. Procurement

The client's role on procurement task involves appointing a competent principal designer and competent principal contractor and other participants to the project. The principal designer will

oversee the design and planning of a project and assist the client in the performance of the client's duties. The principal contractor is responsible for construction execution aspects. The main objective is to ensure that the participants for the project are acquired in the most effective way. (Bradford, 2013)

Procurement for construction projects is about buying in services, usually for design, development or construction, facilities management or a combination of these. It is complex but getting it right will improve project's chances of success. The decisions made on procurement are critical as they affect large sums of money, and can be a key determinant of design quality.

(Edum-Fotwe, 2014.)

The following practices are Responsibilities of client on the procurement task.

- ✓ Depending on the size of Client's organization and nature of the project appoint an election team to select project participant.
- ✓ Ensure that the selection team is represented by all sections of the organization (i.e. marketing. operations, engineering, purchasing, and construction.).
- ✓ Setting criteria for the Contractor selection process and ensure that this include technical skills, quality) and safety systems.
- ✓ Identifying the potential Contractors through questionnaire requests or preliminary interview
- ✓ Conduct an audit against identified firms and assess that their equipment and System satisfy the quality plan.
- ✓ Electing the Contractor who meets the pre-determined selection criteria? And seek Client approval.
- ✓ Conducting interviews with the Contractor, share project objectives and management policy and agree the formation of a joint co-ordination team.
- ✓ When preparing contract document, minimizing unnecessary contract term which impose more risks and liabilities on contractor.
- ✓ Ensuring that the co-ordination agreement and safety plans are included in the contract
- ✓ To pre-qualify Designer and Consultants considering the principles used in the Contractor selection process.
- ✓ Ensuring that the selected sub-contractors have got enough equipment to satisfy the standard plan.
- ✓ Advice the Main Contractor the principles of selection of Sub-contractors and vendors.

2.6.3. **Ensure co-ordination and cooperation team**

Under most partnering arrangements, co-ordination and co-operation team should be established at the earlier stage of the project. This team should be represented by members of both the Client and Contractor. Plans and objectives specific to the project should be shared between the parties. An action plan for co-ordination, problem solving, performance measurement, communications, etc. should be prepared jointly. The plan should address the involvement of appropriate patties form both organizations. In accordance with the action plan, responsibility and authority are delegated to the respective personnel.

The client shall establish arrangements for confirming the adequate co-operation and co-ordination between all members of the project team. This is effectively performed by the principal designer and the principal contractor and the client may just monitor their performances. (Bradford, 2013).

CDM Regulations 2007 state that on all projects the client will need to be intimately involved in the project design and the project construction processes in order to confirm that the various parties are co-operating with each other and co-ordination and co-ordination their designs and/or construction activities to comply with the legislation and produce an efficient and effective project.

As construction work develops and changes from day to day the health and safety management arrangements, as contained within the construction phase plan on noticeable projects, may need frequent adjustment. On-going cooperation and co-ordination will be needed at each phase, possibly requiring regular meetings involving the client and contractors' on-site management. Each party is responsible for briefing its own staff on co-ordination requirements and the precautions to be taken. This will be very important where constant re-routing of traffic and pedestrians is necessary. Whenever possible, construction work should be completely separated off from the client's work activities. (Bradford, 2013)

Keeping all participants to function together efficiently for a common goal. It includes preventing and resolving conflicts.

The following practices are Responsibilities of client on co-ordination and cooperation tasks have been identified.

- ✓ Initiate action in both the Clients' team and co-ordination, and keep them focused on the target.
- ✓ Providing a common ground for both the Client and Contractor by maintaining openness and avoiding defensiveness.

- ✓ Identifying and resolve differences constructively and positively.
- ✓ Solving disputes immediately with the assistance of team members.
- ✓ Conducting meeting at regular intervals and ensure that all parties attend the meetings continuously.
- ✓ Conducting meetings of top level representatives from all parties, and share project plan and objectives.
- ✓ Assisting the members to jointly develop action plans for problem solving, resolving disputes,
- ✓ Performing measurement, communications, and corrective actions.
- ✓ Assisting the members to establish the joint team and delegate responsibilities and authority to the appropriate personnel.
- ✓ Ensuring that the membership of the joint team is well balanced by the representatives of the Client and the Contractor.
- ✓ Depending on the nature of project and problem, assisting the joint team in appointing the goal.
- ✓ Improving team and corrective action teams.
- ✓ Recording the agreed action plans and communicates it to the entire organization.

2.6.4. **Design management**

Design management for Client's includes co-coordinating the design team for continues improvement and checking that the design confirms and satisfies the Clients' requirements. The client should only accept design proposals that he/she understand and that have been casted fully. It will needs to check that the project meets statutory requirements, ensure timely decisions are made, and that it's monitored design quality throughout. (Mohamed, 1997)

Client can reject or modify design proposals and should only accept ones that have been fully explained and understood. Although relatively little money has been spent by the time the design stage is complete, the decisions made in this stage will fix the costs of construction and running the project for many years to come. It is hard to change designs once they have been agreed because any changes made after this are likely to result in extra time and cost. (Simmons, 2010)

The following practices are Responsibilities of client identified on the design management task.

- ✓ During the pre-bid assessment assessing the design capabilities of designer's professionals and ensure that they have enough design expertise.

- ✓ If separate design professionals are to be appointed, pre-qualifying them by auditing their expertise.
- ✓ Consulting the Contractor and construction professionals for advice during the preliminary design, and achieve constructability in the earlier phase of the design.
- ✓ Providing the Designer with necessary design input data as and when required, and without delay.
- ✓ Before issuing design inputs, ensuring that they are completely checked and reviewed right at the first time.
- ✓ Ensuring that the detailed design satisfy fire and means of escape regulations, building regulations, health and safety regulations and traffic and noise control regulations.

2.6.5. **Decision Making**

Decision making on basic construction issues is a major responsibility of employer. Many construction activities need to make decisions quickly and accurately which are key for success and failure. Moreover, most of the activity belonging to this sector involve taking into account a large number of conflicting aspects, which hinder their management as a whole (Jato-Espino, 2014)

- ✓ Make decisions and monitor progress at pre-determined stages.
- ✓ Put in place decision-making structures that support individual roles and responsibilities in relation to the project.
- ✓ The client would need to have capacity to make the sort of decisions that arise in litigation.
- ✓ The client would need to have the capacity to give proper instructions for, and to approve the particulars of claim, and to approve a compromise
- ✓ Sound decision making skills

2.6.6. **Measuring and reviewing performance**

Measurement of performance is the means of quantifying performance made against pre-specified targets. Measures established at the planning stage should be carefully monitored and their conformity to pre-determined standards ensured. Performance of the program should be measured jointly by the co-ordination team. (Mohamed, 1997)

The following practices are responsibilities of client identified on measuring and reviewing performance

- ✓ Measuring the effects of training given to the Client's organization for example by measuring skills of workforce before and after the training.
- ✓ Through the joint team conduct a regular measurement of performance and progress.
- ✓ Identifying problem areas, deficiencies and deviations.
- ✓ Discussing with team members causes of deficiencies and deviations and suggest corrective actions.
- ✓ Checking, through the joint team, that the corrective action has been implemented.
- ✓ Continuously reviewing the results of any performance measurement and identify areas where performance standards are absent or inadequate.
- ✓ Ensuring that the measurement results comply with the pre-determined plan andquality plan where appropriate.
- ✓ Defining a system to measure the performance improvements in terms of cost/benefit.
- ✓ Assessing clients' satisfaction with performance.

2.6.7. **Communications**

Communication plays an important role in leading, integrating people, and taking decisions to make a project a success. This includes exchanging information by open communication with all participants. i.e. Receiving and dispersing information on behalf of Client's organization. There must be shared project vision, where the client identifies the interests of all relevant stakeholders and ensures that there is buy-in to the project. (Hari Garbharran, 2012)

Once the project objectives are set and the scope clarified, there must be constant update as the project progresses. Progress on activities assigned to individuals or groups needs to be monitored with a view to achieving overall goals. These updates must be communicated to the relevant parties. It's believed that a detailed communication plan is necessary for the effective dissemination of information. To this end, frequent project meetings are necessary. The following practices are Responsibilities of client identified on communications between parties. (Mohamed, 1997)

- ✓ Conveying management's commitment to the Client's organization.
- ✓ Establishing a good communication system that keeps all participants aware of the objectives, progress and successful stories of the program.

- ✓ Communicating the standards, procedures and systems relating to implementation and performance measurement to relevant participants.
- ✓ Prompt actions of client to feedback from contractor, supplier, and other professionals.
- ✓ Communicating the suggestions and required corrective actions to respective parties.
- ✓ Welcome comments and suggestions from participants for process improvement.
- ✓ Publishing successful results and recognize employees, using newsletters/posters

2.6.8. **Health, Safety and Environmental management**

Safety remains an ongoing concern for the construction manager. Construction by nature is inherently dangerous, with a high degree of hazard and risk. Construction accidents add $10 billion annually to construction cost. Insurance (such as workmen' compensation) protects the contractor from certain direct expenses, but accidents also involve substantial costs that are not insurable, referred to as hidden or indirect cost. (Joyce, 2009)

The courts charge the employer (management) with the responsibility of providing a safe place to work; safe appliances, tools, and equipment; developing and enforcing safety rules and regulations; and providing instructions regarding employment dangers. Keys to a successful construction safety program includes: support and enforcement from top management, front line management. Consistently following and enforcing the safety program, on-going and comprehensive training, and recognition by all employees that safety is everyone's job.

The impact of environmental issues on construction has been escalating since the 1970's.Today, owners and constructors are bound to clearly defined duties and liabilities regarding the environment. Nearly all segments and sectors of the industry are affected by one or more environmental issues. Strict regulation, permitting requirements, and enforcement are designed to protect human health and the natural environment. Failure to comply with environmental regulation can result in project delay or termination, disqualification from future work opportunities, fines, civil action, and even criminal prosecution. (Joyce, 2009)

- ✓ Ensuring that training on health and safety at work is given by the Contractors to the workers, including those who are actually carrying out construction work.
- ✓ Conducting regular meetings at all levels to discuss health and safety

- ✓ The client shall ensure that the co-coordinator is provided with all the health and safety information in the client's possession (or which is reasonably obtainable) relating to the project which is likely to be needed for inclusion in the health and safety file,
- ✓ Where a single health and safety file relates to more than one project, site or structure, or where it includes other related information, the client shall ensure that the information relating to each site or structure can be easily identified.
- ✓ The client shall take reasonable steps to ensure that after the construction phase the information in the health and safety file is kept available for inspection by any person who may need it to comply with the relevant statutory provisions; and
- ✓ Is revised as often as may be appropriate to incorporate any relevant new information.
- ✓ It shall be sufficient compliance by a client who disposes of his entire interest in the structure if he delivers the health and safety file to the person who acquires his interest in it and ensures that he is aware of the nature and purpose of the file.
- ✓ Propose solution for Unexpected weather
- ✓ Ensure to prepare Wastes disposal around the site

Goddard, Andrew (Goddard, 2008) says about role of employer on his guide on all projects clients will need to: Check competence and resources of all appointees; Ensure there are suitable management arrangements for the project including welfare facilities; Allow sufficient time and resources for all stages; Provide pre-construction information to designers and contractors; Appoint a CDM coordinator; Appoint a principal contractor; Make sure that construction work does not start unless a construction phase plan is in place and there are adequate welfare facilities on site; Provide information relating to the health and safety file to the CDM coordinator; Retain and provide access to the health and safety file.

2.7. Contractual Provisions Related to role of employer

Among the different conditions of contract, the Federation International Des Ingenieurs Conseils (FIDIC), Ministry of Urban Development and Construction (MUDC), and Public Procurement (PPA) are widely used in Ethiopian construction industry. These contract conditions clearly define the duties and responsibilities of the parties involved in the contract and it describes the guidelines for contract administration. Here are some clauses which discuss issues related to employer's role in the project

2.7.1. **RED Book 1999 Conditions of Contract**

According to FIDIC Red book 1999 (Red booK FIDIC, 1999) Clause 2.1 Right of Access to the Site: The Employer shall give the Contractor right of access to and possession of, all parts of the Site within the time (or times) stated in the Appendix to Tender. The right and possession may not be exclusive to the Contractor. If, under the Contract, the Employer is required to give (to the Contractor) possession of any foundation, structure, plant or means of access, the Employer shall do so in the time and manner stated in the Specification. However, the Employer may withhold any such right or possession until the Performance Security has been received. If no such time is stated in the Appendix to Tender, the Employer shall give the Contractor right of access to, and possession of, the Site within such times as may be required to enable the Contractor to proceed in accordance with the program submitted.

If the Contractor suffers delay and/or incurs Cost as a result of a failure by the Employer to give any such right or possession within such time, the Contractor shall give notice to the Engineer

- An extension of time for any such delay, if completion is or will be delayed.
- Payment of any such Cost plus reasonable profit, which shall be included in the Contract Price.

After receiving this notice, the Engineer shall proceed to agree or determine these matters. However, if and to the extent that the Employer's failure was caused by any error or delay by the Contractor, including an error in, or delay in the submission of, any of the Contractor's Documents, the Contractor shall not be entitled to such extension of time, Cost or profit.

Clause 2.2 Permits, Licenses or Approvals:-The Employer shall (where he is in a position to do so) provide reasonable assistance to the Contractor at the request of the Contractor:

- By obtaining copies of the Laws of the Country which are relevant to the Contract but are not readily available.
- For the Contractor's applications for any permits, licenses or approvals required by the Laws of the Country.
- Which the Contractor is required to obtain
- For the delivery of Goods, including clearance through customs, and
- For the export of Contractor's Equipment when it is removed from the Site.

Clause 2.3 Employer's Personnel: The Employer shall be responsible for ensuring that the Employer's Personnel and the Employer's other contractors on the Site:

- Co-operate with the Contractor's efforts and
- Take actions similar to those which the Contractor is required to take under

Clause 2.4 Employer's Financial Arrangements: The Employer shall submit, within 28 days after receiving any request from the Contractor, reasonable evidence that financial arrangements have been made and are being maintained which will enable the Employer to pay the Contract Price (as estimated at that time). If the Employer intends to make any material change to his financial arrangements; the Employer shall give notice to the Contractor with detailed particulars.

Clause 2.5 Employer's Claims: If the Employer considers himself to be entitled to any payment under any Clause of these Conditions or otherwise in connection with the Contract, and/or to any extension of the Defects Notification Period, the Employer or the Engineer shall give notice and particulars to the Contractor. However, notice is not required for payments or for other services requested by the Contractor.

The notice shall be given as soon as practicable after the Employer became aware of the event or circumstances giving rise to the claim. A notice relating to any extension of the Defects Notification Period shall be given before the expiry of such period. The particulars shall specify the Clause or other basis of the claim, and shall include substantiation of the amount and/or extension to which the Employer considers himself to be entitled in connection with the Contract. The Engineer shall then proceeding to agree or determine

- The mount (if any) which the Employer is entitled to be paid by the Contractor, and/or
- The extension (if any) of the Defects Notification Period

This amount may be included as a deduction in the Contract Price and Payment Certificates. The Employer shall only be entitled to set off against or make any deduction from an amount certified in a Payment Certificate, or to otherwise claim against the Contractor.

Clause 14.7 The Employer shall pay to the Contractor:

(a) the first installment of the advance payment within 42 days after issuing the Letter of Acceptance or within 21 days after receiving the documents whichever is later;

(b) The amount certified in each Interim Payment Certificate within 56 days after the Engineer receives the Statement and supporting documents; and

(c) The amount certified in the final payment certificate within 56 days after the employer receives this payment certificate.

Payment of the amount due in each currency shall be made into the bank account, nominated by the Contractor, in the payment country (for this currency) specified in the Contract

Clause 3.1 states that about appointing of consultant as such: The Employer shall appoint the Engineer who shall carry out the duties assigned to him in the Contract. The Engineer's staff shall include suitably qualified engineers and other professionals who are competent to carry out these duties.

The employer's responsibilities under FIDIC 1987 Conditions of Contract are discussed below

(FIDIC, 1987) Clause 31 Employer's Responsibilities

Under the Employer shall carry out work on the Site with his own workmen he shall, in respect of such work:

- Have full regard to the safety of all persons entitled to be upon the Site, and
- Keep the Site in an orderly state appropriate to the avoidance of danger to such persons.

If under **Clause 31** the Employer shall employ other contractors on the Site he shall require them to have the same regard for safety and avoidance of danger.

Under **Clause 22.3**The Employer shall indemnify the Contractor against all claims, proceedings, damages, costs, charges and expenses in respect of the matters

2.7.2. **MOWUD 1994 Conditions of Contract**

(MOWUD, 1994) State the following about default of employer on managing the projects

Clause 69 Default of Employer

- Failing to pay to the Contractor the amount due under any certificate of the Engineer within thirty days after the same shall have become due under the terms of the Contract, subject to any deduction that the Employer is entitled to made under the Contract, or
- Interfering with or obstructing or refusing any required approval to the issue of any such certificate, or
- becoming bankrupt or, being a company, going into liquidation, other than for the purpose of a scheme of reconstruction or amalgamation, or

- Giving formal notice to the Contractor that for unforeseen reasons, due to economic dislocation, it is impossible for him to continue to meet his contractual obligations the Contractor shall be entitled to terminate his employment under the Contract after giving thirty days' prior written notice to the Employer with a copy to the Engineer
- Upon the expiry of the above mentioned thirty days' notice the Contractor shall, notwithstanding with all reasonable dispatch, remove from the Site all Constructional Plant brought by him thereon.
- In the event of such termination the Employer shall be under the same obligations to the Contractor in regard to payment as if the Contract had been terminated hereof, but, in addition to the payments, the Employer shall pay to the Contractor the amount of any loss or damage to the Contractor arising out of or in connection with or by consequence of such termination.

2.8. Challenges Associated With Employer Role

According to (Bob Muir, 2005) Today's employer (management) faces many challenges, stemming from a variety of sources. These challenges can have an impact on project success. Employer must be keenly aware of the risks and implications of these challenges. The challenges listed by Bob Muir, include situations and conditions that must be proactively managed by the client to ensure project success. Many of these challenges listed below are a direct result of construction operations, while others are a result of indirect, peripheral activities. These Construction issues are discussed as follow:

2.8.1. **Nature of the Work**

The very nature of construction introduces challenges typically not encountered in other industries. For example, construction differs widely from manufacturing in that:

- The work is often seasonal
- Each project is unique
- Often involves remote sites with various access problems
- The process is not as predictable
- Difficulty in applying automation
- There is high potential for encountering unforeseen conditions
- Costs can vary according to conditions
- Difficult to manage and supply utilities and other resources.

- Technical innovations are adopted slower.
- Success is dependent upon the quality of its people.
- Very custom-oriented
- Product can be of mind-boggling size, cost, and complexity
- The work is not performed in controlled conditions, therefore highly impacted by weather and other environmental conditions

2.8.2. **Work Force Considerations**

Construction is typically viewed as being one of the least desirable industries in which to work. Surveys among the nation's youth show construction at the bottom of the list of professions that they would enter. Construction by nature is dangerous, dirty, and hard work. Other industries or professions offer preferred work environments that are cleaner, safer, and generally more desirable.

Empowerment leads to high levels of commitment, enthusiasm, self-motivation, productivity, and innovation. Benefits to the employee include feelings of appreciation, belonging, and heightened self-worth.

Empowerment enables employees to make decisions for which they are accountable and responsible. A high level of empowerment yields correspondingly higher productivity. Empowerment of the workforce is one of the keys to improving construction performance.

2.8.3. **Safety**

Safety remains an ongoing concern for the construction manager. Construction by nature is inherently dangerous, with a high degree of hazard and risk. Construction accidents add $10 billion annually to construction cost. (Bob Muir, 2005) Insurance (such as workmen' compensation) protects the contractor from certain direct expenses, but accidents also involve substantial costs that are not insurable, referred to as hidden or indirect cost.

According to (Joyce, 2009) research has shown:

- 45%of sites, where a fatality occurred, the Clients had failed in their duties to appoint a Project Supervisor Design Stage (now Design Process) or a Project Supervisor Construction Stage, for their construction projects.
- 25%of construction accidents were related to omissions or failures to address health and safety issues, prior to the start of the construction stage. (Design Stage/Process).

2.8.4. **Environmental Issues**

The impact of environmental issues on construction has been escalating since the 1970's.Today, owners and constructors are bound to clearly defined duties and liabilities regarding the environment. (Bob Muir, 2005) Nearly all segments and sectors of the industry are affected by one or more environmental issues. Strict regulation, permitting requirements, and enforcement are designed to protect human health and the natural environment. Failure to comply with environmental regulation can result in project delay or termination, disqualification from future work opportunities, fines, civil action, and even criminal prosecution..

2.8.5. **Governmental Regulation**

Increasing government regulation is another of the challenges facing today's client. Along with increasing environmental and safety laws, the industry is coming under greater regulation through the construction codes and licensing requirements

Permitting requirements, contractor licensing laws, and the associated cost are also escalating. Quality of code administration is also a concern as are the delays caused by waiting for inspection. Public works projects that receive Federal or State funds are also subject greater process and administrative regulation.

2.8.6. **Socio-Political Pressures**

Political pressures and community involvement affect public and to some extent, private sector work. The community has greater input through citizen advisory boards that are engaged during project initiation, design, and construction. Today's client has substantially greater accountability to the public than previous generations. Increasing the number of stakeholders further complicates an already complex process.

2.9. Gap in Employer Role

Construction management involves the execution of a number of objectives with regard to scope; cost, time safety, and quality. These complex interactions between the construction client and the construction enterprise produce gaps that ultimately affect the outcome of a construction project. Habcon consulting (Habcon, 2014)lists gaps of client identified on their study as follow:

- ✓ Lack following indefinite delay of the consultant to process and approve payments for executed work & materials supplied to site
- ✓ Delay of the client to effect approved payments
- ✓ resistance of the consultant to approve equivalent value of the executed work and resistance to pay for materials supplied to site
- ✓ Unavailability of professionals (safety officers) in the area of health and safety to enforce requirements of the regulation.
- ✓ Poor contract management of the client
- ✓ Change in requirement of the client
- ✓ Poor project finance (in terms of budget, payment)

Justin Fischgrund mentioned gap of employer on his paper which aims to examine the quality gaps in construction projects are: lack of adequate finance to run the project, client has ongoing difficulty with communications, being not familiar with how to read drawings, with codes, and how job site operates.

(Ward, 1997.) State that employer's Poor advice could lead to: use of inappropriate management tools for the project; choice of inappropriate procurement routes; failure of systems to identify and secure the quality required by the client; a project which is poor value for money. He says Completion could be delayed because of: disruption; inefficiencies and/or lack of co-ordination in the supply chain; disputes; poor quality work; bankruptcy; There could be unforeseen project costs, including variations .Higher than expected running costs could result from: defective design; unmet specifications; defective construction and other defaults due to proper follow up of clients.

2.10. Improvement Intervention of Clients Gap

In traditional management systems, the role of the Clients are often based on a policy of 'management by control' to achieve or complete the project by the required date, within budget, and to the required quality. This approach may be somewhat successful, simple, logical and consistent, but problems such as delay and low quality may arise when the work gets distorted.(Mohamed, 1997)

(Act, 2002) State that the skills and expertise of employer have a significant and lasting impact on final costs and project outcomes by improving developing project definition, communication, documentation, motivation, training and education, safety improvement and project post-mortem

2.10.1. **Developing project definition**

Project definition involves defining the Client's requirements through careful planning and forethought. It includes the feasibility study of the project. The following practices for the improvement of 'Developing project definition' task have been identified.

- » Analyses the Client's brief, and highlights any omissions.
- » Establish program and staffing requirements for producing project definition.
- » Involve construction professionals to achieve constructability in project definition.

2.10.2. **Communications**

Good communication is necessary tool for client to efficiently complete a project. Lack of sufficient communication can lead to lack of worker motivation; be cause for delays due to mistakes causing rework, lack of information causing downtime, and misinterpretation. Although endless options for communication are available, technical problems do exist. Other communication on construction projects include understanding the chain of command and continuously communicating about the project and foreseeing potential problems in the future. This can be avoided by holding regular project management team meetings. (Mengistu, 2015)

To this end, frequent project meetings are necessary. Apart from consulting with the community, local direct involvement is a key element for project success. Also it is advisable to use an influential community member as a liaison between the clients and the community. The following practices are suggested for the Client's to improve communication between parties. (Mohamed, 1997)

- Establishing a good communication system that keeps all participants aware of the objectives, progress and successful stories of the program.
- Communicating the standards, procedures and systems relating to implementation and performance measurement to relevant participants.
- Prompt actions of client to feedback from contractor, supplier, and other professionals.
- Communicating the suggestions and required corrective actions to respective parties.

- Submit comments and suggestions from community member
- Publishing successful results and recognize employees, using newsletters/posters.
- Communicating the Client's views and suggestions on process improvement.
- Follow 'on the job briefings' to discuss problems and issues relevant to the job.

2.10.3. **Documentation**

Abd Hakim Mohamed suggest that recording act, condition, or event which bears an effect on the objective of the relevant process is one of the best practice to improve client managing capacity. It includes recording both the success and failure of efforts spent on the process and maintain these documents as readily retrievable and retain for a designated period. The following best practices for project documentation have been identified.

- Document the Client's plan containing policy, objectives, and structure of organization.
- Maintain a safety file, containing safety policy, performance standards, rules and procedure ·.
- Document the plan specific to the project.
- Record the degree of achievement of the objective at each stage of the project.
- Record the level of Client satisfaction with the service.
- Record decisions made on corrective actions and effectiveness s during performance.
- From the result of measurement, recording the performance of Contractors and suppliers against the quality procedures.

2.10.4. **Motivation**

Motivation is defined by (Mee-Edoiye, 2002)as a psychological process initiated by existence of a need and involving a goal, a purposive activity directed towards reaching a goal and thereby satisfying the needs. Motivation is establishing a good environment which encourages people to work successfully in the interest of the Client and other participants. It is a common belief that motivation factors have moral and direct influences on relationships to employee productivity. Productivity in the construction projects depends upon the effort of the performance or effort of construction employer. Motivation increases the level of performances of employees and also increases their commitment in the workplace.

Most successful leaders consider motivational factors such as praise, recognition, and self-esteem. People’s behavior is affected by motivation, which in turn results in a committed energy throughout the workplace. Some guidelines for increasing motivation within the workplace include: Provide a safe work

environment, Recognize good behavior, Show appreciation, Set attainable goals, Develop a fair pay system and Provide adequate training programs. The following practices have been identified for the improvement of motivation. (Mohamed, 1997)

- Identifying the need of each participant.
- Encouraging co-ordination team members to aim for continues improvement, and assists them to maintain a positive climate.
- Empowering people to act quality for improvement.
- Recognizing high-performing people.
- If possible introduce incentive schemes to enable parties to work towards a common goal.

2.10.5. **Training and education**

Lack of training and education is one of the general barriers to sustainable construction. Delnavaz recommends a client approach for green construction regarding training and education for on-site construction personnel. In addition, monthly on-site meetings that include education and training sessions are vital for all site workforces. In this approach, there is also meeting with each subcontractor for reviewing sustainability requirements before starting work recognized a unique role for project managers in encouraging improvements for subcontractors through training and education sessions on site. Therefore, client should provide the opportunities for workforces' and contractors' training and education by ensuring planning these meetings in their agenda since the arrangement of the project team meetings and being in charge of these meeting are the project managers' responsibilities.

2.10.6. **Safety Improvement**

(Mohamed, 1997) The client wants to control the quality of his property while it is being built or maintained. He is obliged to control safety according to the law. This may not be an easy task since a large construction site may become crowded with contractors' employees. Everyone is supposed to work fast and efficiently. Several contractors may be working at the same time for the same client, which calls for efficient coordination on behalf of the client. This reality makes it difficult for the client to control the work process entirely, especially on large projects. These problems may be complicated by other situational problems.

The courts charge the employer (management) with the responsibility of providing a safe place to work; safe appliances, tools, and equipment; developing and enforcing safety rules and regulations; and

providing instructions regarding employment dangers. Keys to a successful construction safety program includes: support and enforcement from top management, front line management. Consistently following and enforcing the safety program, on-going and comprehensive training, and recognition by all employees that safety is everyone's job. The following practices have been identified for the improvement of safety

- Conduct periodic safety inspections.
- Weigh safety in pre-qualifying contractors for the bid.
- Require safety training of contractor's employees.
- Set goals for construction safety.
- Include safety guidelines in the contract.
- Require immediate reporting of contractor accidents.
- Discuss safety at client-contractor meetings.
- Investigate the contractor's accidents.
- Require the contractor to designate safety responsibility to someone on-site.

2.10.7. **Project post-mortem**

Project post-mortem is conducted at the end of the project to review, discussed and check all aspect of the project to uncover opportunities for improvement on future project. The following practices for the improvement of project post-mortem task have been identified. (Mohamed, 1997)

- Conducting post-mortem meetings involving all jobsite planners.
- Reviewing the success and failures of the project and lessons learned.
- Accessing achievement of Clients' requirement.
- Accessing Client's satisfaction on overall performance of the project.
- Widely distribute the minutes of the post-mortem meetings.

According to (Chadwick, 2003) the following are some of the solutions that may be relevant, for assessing a client's capacity to conduct civil proceedings

- The client would need to understand how the proceedings were to be funded.
- The party would need to know about the chances of not succeeding and the risk of an adverse order as to costs.
- The client would need to have capacity to make the sort of decisions that arise in litigation.
- The client would need to have the capacity to give proper instructions for, and to approve the

particulars of claim, and to approve a compromise.

2.11. Variable Identification

This chapter reviewed literatures on major role of employer; gaps in employer role and improvement i of client's gap on. The main responsibilities of Client's are: preparing and organizing; Procurement, coordination and cooperation; design management; Decision making; measuring and reviewing pe Communication; Health, Safety and Environmental management. Based on the objectives of the stuc identified from literature were identified from the literatures to be used in the research instrument.

- Prepare education and training requirements for all levels of staff.
- Organization on professional, quality, technology, and team building skills
- Sequencing and scheduling of work, and carrying out construction
- Ensure that suitable management arrangements are made for the project
- Being responsible for the execution of the project from the initial idea to implementation
- Appoint an election team and Setting criteria to select project participants.
- Select & appoint a competent and resourced Principal Designer.
- Select & appoint a competent and resourced Principal contractor.
- When preparing contract document, minimizing unnecessary contract term which impose more risks and liabilities on contractor.
- To pre-qualify designer and consultants considering the principles used in the contractor selection process.
- Ensuring that the selected sub-contractors have got enough equipment to satisfy the standard plan.
- Advice the main contractor the principles of selection of sub-contractors and vendors.
- Initiate action in both the Clients' team and co-ordination, and keep them focused on the target.
- Providing a common ground for both the client and contractor by maintaining openness and avoiding defensiveness.
- Checking that there is good co-operation and communication between designers and contractors
- Solving disputes immediately with the assistance of team members

- Conducting meeting at regular intervals and ensure that all parties attend the meetings continuously.
- Ensure co-operation and co-ordination between the client's employees and contractors
- Assisting the members to jointly develop action plans for problem solving, resolving disputes,
- Assisting the members to establish the joint team and delegate responsibilities and authority to the appropriate personnel.
- Depending on the nature of project and problem, assisting the joint team in appointing the goal.
- Improving team and corrective action teams
- Recording the agreed action plans and communicates it to the entire organization.
- During the pre-bid assessment assessing the design capabilities of designer's professionals and ensure that they have enough design expertise.
- Consulting the designer and construction professionals for advice during the preliminary design, and achieve constructability in the earlier phase of the design.
- Providing the Designer with necessary design input data
- Ensuring that they are completely checked and reviewed right at the first time.
- Ensuring that the detailed design satisfies health and safety regulations. and traffic and noise control regulations
- Make decisions and monitor progress at pre-determined stages.
- Put in place decision-making structures that support individual roles and responsibilities in relation to the project.
- The client would need to have capacity to make the sort of decisions that arise in litigation.
- Giving proper instructions for, and to approve the particulars of claim, and to approve a compromise
- Measuring the effects of training given to the Client's organization.
- Through the joint team conduct a regular measurement of performance and progress.
- Identifying problem areas, deficiencies and deviations.
- Discussing with team members causes of deficiencies and deviations and suggest corrective actions

- Checking, through the joint team, that the corrective action has been implemented.
- Continuously reviewing the results of any performance measurement and identify areas where performance standards are absent or inadequate.
- Defining a system to measure the performance improvements in terms of cost/benefit.
- Assessing Clients' satisfaction with performance.
- Conveying management's commitment to the Client's organization.
- Establishing a good communication system that keeps all participants aware of the objectives, progress and successful stories of the program.
- Communicating the standards, procedures and systems relating to implementation and performance measurement to relevant participants.
- Prompt actions of client to feedback from contractor, supplier, and other professionals.
- Communicating the suggestions and required corrective actions to respective parties
- Welcome comments and suggestions from participants for process improvement.
- Internal and external communication clearly
- Ensuring that training on health and safety at work is given by the Contractors to the workers,
- Conducting regular meetings at all levels to discuss health and safety
- The client shall ensure that the co-coordinator is provided with all the health and safety information in the client's possession
- Checking that there is adequate protection for the workers or members of the public;
- Checking that the arrangements which the contractor agreed to make to control key risks on site have been implemented.
- Ensuring that the co-ordination agreement and safety plans are included in the contract
- Ensure to prepare Wastes disposal around the site
- Propose solution for unexpected weather.

The gaps in employer role in managing the projects were identified from the literature review to and listed below Change in requirement of the client

- lack of adequate finance to run the project
- Client is not familiar with codes
- Client is not familiar with how job site operates
- Delay of the client to approve payments
- Client is not familiar with how to read drawings
- A client has ongoing difficulty with communications
- Unavailability of safety officers in the area of health and safety to enforce requirements of the regulation
- Poor project financing (in terms of budget, payment)
- Lack of capacity to make the sort of decisions
- Resistance of the consultant to approve equivalent value of the executed work and resistance to pay for materials supplied to site
- lack of co-ordination and cooperation in managing the project
- Problem on choice of inappropriate procurement routes
- Poor contract management of the client

Improvement intervention to minimize gap in role employer's role were developed from the literatures. These are: Establish evaluation criteria for consultant and contractor selection;

- Understand the principles and application of project management
- Have quality systems and procedures in place
- Effective time management
- Have monitoring, performance measurement and reporting mechanisms in Place
- Identify needs; negotiate the procurement package
- Manage the contract relationships
- Understand the obligations for inviting tenders (i.e. prices, bids, quotations, and expressions of interest
- Monitor the delivery and measure suppliers' performance
- Enhance problem solving skills
- Understand probity, ethical conduct and fairness, accountability, and adopt these standards throughout the project from initiation to completion
- Assess and understand the risks and identify who is to manage which risks
- Establish realistic project budgets and program timelines
- Develop and outline the project definition and scope
- Self-motivated and able to work unsupervised
- The client would need to have the capacity to give proper instructions for, and to approve the particulars of claim, and to approve a compromise
- Negotiation skills with ability to resolve conflict situations
- Desire to enhance knowledge and skills by training

CHAPTER 3

METHODOLOGY

3.1. Study Area Description

The research was conducted in Jimma Zone, Oromia Regional State, and South West Ethiopia at distance 346 Km from Addis Ababa. Its astronomical location is 7°40′N North Latitude and 36°50 East Longitude and elevation varies from 1,780 m-2000 m above sea level. Ground water level in the area is variable which ranges from 3- 7 m.

3.2. Research Process

The strategy followed in this research was first started with problem identification which has been done through literature review, archival study and professionals in the sector; and then the research design was formulated. Then data and information sources were determined based on the formulated research design. On the basis of the data and information sources the research instruments were decided; and available documentary sources relevant to the research were reviewed. The review includes books, journal and articles, internet sources and archival document search such as progress reports, completion reports and contract documents within Oromia Roads Authority found in different woredas. The document search was mainly intended to assessing the way of practicing employer's role in managing URRAP projects which are new projects, completed/ substantially completed and ongoing projects through random selection. And focusing on projects with full completion which found in different woredas for further investigation on desk study.

Finally, after an in-depth review of literature, a questionnaire was designed and distributed to contractors, consultants and the employers (ORA) to get their professional opinion based on their experience. Upon obtaining the desired data, checking and sorting of data has been done. The data were then analyzed for cross-checking the validity and conformity of the information obtained through the overall research work. This was followed by thorough discussions in order to draw a conclusion and to forward recommendations based on the findings of the study.

A descriptive and exploratory survey design was used in this study. It was attempted to collect data from the relevant population (ORA, consulting firms and contractors) to evaluate the perception of different stakeholders on the issues of role of client, ranking of various clients role variables, gaps in practicing its role, and the way of intervention of gap identified on administering/managing URRAP projects.

3.3. Population and Participants

The population of the study is URRAP projects found on South East of Jimma zone. These include 7 woredas. Each woreda contain two contractors, one client and one consultant which execute various projects under them.

3.4. Sampling Technique

The sampling method used to select representative firms of the study was random sampling technique. From those samples purposive sampling method was adopted to select the population for the study.

Since the number of population is less than 30; as a random sampling method it was taken the whole population of the study as sample size. The populations which the questionnaires sent were the stakeholders in URRAP projects in the Jimma zone namely clients (project owners), contractors and consultants.

3.5. Data Collection

For a better understanding on the applicability of the various mechanisms used in assessing the role of client on URRAP project, data was collected using desk study and questionnaire survey.

3.7.1 Desk Study

In order to have information on the stated problem, data was extracted from; letters exchanged between clients and other stakeholders, contract agreement, payment and monthly progress reports. This helps to understand the relationship between the theories and actual practices in proposed projects. The data collected through the desk study was determined the worthiness of the topic for research.

For the desk study selected five(5) completed road projects in different woredas in order to fully understand what each client's role looks like in the overall progress of the project

3.7.2 Questionnaire

Questionnaire is the simplest and time saving method to collect data effectively from a huge number of respondents. Formulating questions from the identified variables, the questionnaire was designed to gather data from professionals that were involved in URRAP projects in South East of Jimma zone. The respondents were asked to rate the questions on the three point and five-point scale of ordinal measures. The questionnaire was structured in four sections as follows:

Section A: The category of organization in which the respondent serves his /her role in the organization, and the respondent's working experience. Basically there were five questions in this section.

Section B: To obtain responses from respondents on the way of employer practice its role on URRAP projects. The respondent asked to rank frequency of occurrence as well as the degree of significance of client role to project improvement on their site. The ranking of the responses was by using Likert's scale of three and five ordinal measures respectively which arranged in ascending order from 1 to 3 and 1 to 5. This section included a total of 58 required responses. There was also one question to give their idea on way of employer practice its role currently.

Section C: To get responses from the respondents on the gap of employer on management on URRAP projects. The responses were ranked by using Likert's scale of five ordinal measures which arranged in ascending order from 1 to 5. A total of 14 required responses were included under this section.

Section D: To obtain responses from the respondents on the recommended strategies to minimize gap of employer on URRAP projects. The responses were ranked by using Likert's scale of five ordinal measures which are arranged in ascending order from 1 to 5.This section included a total of 18 required responses.

The questionnaires were hand-delivered to the respondents at their offices and at project sites. The responses were received also by the same means. However, a face-to face delivery was preferred to motivate the respondents to participate and thereby improving the response rate for the study.

3.6. Method of Data Analysis

The responses to the questionnaire were based on Likert's scale of three and five ordinal measures

to answer first specific objective 1 to 3 and 1 to 5 arranged in ascending order in order to calculate severity index. For the second and third objective five ordinal measures which was from 1 to five 5 arranged in ascending order according to the degree of contribution to each question.

Data analysis tools

Three different analytical tools were used in analyzing the responses from the survey. These are frequency index, importance index, severity index for multiple raters and correlation analysis.

Frequency Index

Frequency index explains the usual occurrence or exhibiting of the characteristics of the roles. The nearer the value of frequency index of the identified client role is to unity (1), the higher the effect on successfulness. A ranking of frequency indices were done to ascertain the most frequent role factors. (Kadiret a.l, 2005).

Frequency index (F.I.) = $\frac{3n_1 + 2n_2 + n_3}{3(n_1 + n_2 + n_3)}$

Where: n_1 –number of respondent answered 'Never'

n_2 –number of respondent answered 'Sometimes'

n_3 –number of respondent answered 'Always'

Importance Index

Facilitate the identification of tactical approaches to increasing successfulness. The nearer the value of importance index of the identified role is to unity (1), the more significant it is to good management practice and hence, a greater impact on successful completion of the project. (Alum, 1995)

Important index (I.I.) = $\frac{5n_1 + 4n_2 + 3n_3 + 2n_4 + n_5}{5(n_1 + n_2 + n_3 + n_4 + n_5)}$

Where: n_1 –number of respondent answered 'None'

n_2 –number of respondent answered 'Neutral'

n_3 –number of respondent answered 'Moderate'

n_4 –number of respondent answered 'High'

n_5 –number of respondent answered 'very high'

Severity Index

Gives the analytical explanation of the critical effect on role and significance to successful project. It further gives the aggregate effect and significance to successful completion of the project. When a severity index approaches unity (1), it gives the explanation of how severe the roles are to successfulness.

Finally the severity index was calculated using the formula below. (Kadiret a.l, 2005)

Severity index (S.I.) = Importance Index × Frequency Index

3.7. Correlation Analysis.

Spearman's coefficient of rank correlation was used to test whether there is an agreement or disagreement among each pair of parties in ranking the way of employer's practice its role of on managing Jimma zone URRAP project.

Spearman's coefficient (ρ) was calculated using the equation shown below.

$$\rho = 1 - \frac{6\sum d^2}{n(n^2-1)}$$

Where: d is the difference between ranks

n is number of subjects or pairs of ranks

The value of the Spearman (rho) rank correlation coefficient varies between -1 and +1. A correlation coefficient of +1 implies perfect positive correlation, 0 implies no correlation and-1 implies perfect negative correlation.

3.8. Data Quality Assurance

In order to assure the quality of data, the researcher administered the questionnaires to the relevant respondents in an effort to achieve the necessary information. Moreover, data collectors were trained on the aspects of the questionnaire and how to handle the respondents and the data carefully. During the data analysis, the raw data used in MS excel were checked repeatedly whether the values were exactly the same as the given value by the respondents to avoid any wrong results.

3.9. Ethical consideration

Ethical clearance was obtained from Office of Research, Publications, Graduate Studies and Consultancy, Jimma Institute of Technology, Jimma University. Before the collection of the data the

purpose of the data collection will be clearly described to the stakeholders by. The data will be collected based on the willingness of the organizations to give information. The data will be kept confidential and will be used only for the research purpose.

3.10. Dissemination Plan

The findings of this thesis work has been presented for School of Civil and Environmental Engineering; and the Office of Research, Publications, Graduate Studies and Consultancy, Jimma Institute of Technology, Jimma University as part of evaluation for the award of the degree of Master of Science and will be publically defended in the presence of examiners

CHAPTER FOUR

RESULTS AND DISCUSSIONS

4.1. Basic Information of Respondents from the Questionnaire survey

This section mainly designed to provide general information about respondent's profile, experience, educational status in URRAP projects. For this study, the sample population composed of professionals from the clients, contractors and consulting firms which are engaged in URRAP projects in Jimma zone. The professional mix includes engineer, quantity surveyor, materialist and Forman.

4.2.1 Respondent's Profile

Sample description deals with several important issues closely connected with the purpose of current research. It helps to forecast general validity and reliability of data collected from the respondents. The data contains responses of highly experienced participants which work in companies of different size and operate in different parts of the country and moreover all the respondents deal with URRAP projects might be able to provide relevant data in order to answer research questions.

The respondents profile includes respondent's type or origin in the organization, Experience on road construction projects and number of road construction projects executed in URRAP projects.

A self-administered '69' questionnaires were sent to individuals in the sample space to investigate employer's role on management practice for URRAP projects of Jimma zone. Among those 57 was answered by respondents. Although the result mentioned below may not represent the whole projects under Jimma zone road network. Respondents were presented with a range of questions designed to identify way of Jimma zone Road Authority practice its role, gaps in managing the project, and methods or tools to manage/administer gap.

Small numbers of questionnaires were distributed to consultant (only 10 questionnaires) because for URRAP road construction projects there was one consultant for two woreda. Therefore the researcher concludes that the 10 questionnaires may represent the consultant's perception towards this research questions. While Contractors takes 38 numbers of questionnaires clients takes 21 numbers of questionnaires, respondent's 7, 32 and 18 respectively.

Table 2 Questionnaire distribution

S.N	Participants	Distributed	No. of response	Percent(%)	Response rate (%)
1	Clients	21	18	31.57	85.7
2	Contractors	38	32	56.13	84.2
3	consultant	10	7	12.3	70
Total		69	57	100%	82.66%

The overall response rate for the survey was 57(82.66%). The response rate in the survey was 18 (85.7%) for clients, 32 (84.2%) for Contractors and 7(70%) Consultants for. Figure 1, Shows that among 57 questionnaire respondent's 18 (31.57%) were Clients, 32(56.13%) Contractors and 7 (12.3%) Consultants, Therefore most of the respondents were contractors.

4.2.2 Experience of Respondents

Table 3 shows that 21% (12) of the respondents firm have experience less than 5 years at road construction works, 65% (37) of respondents have experience between 5 to 10 years, 10.5% (6) of respondents have experience from 10 to 15 years and 3.5% (2) have experience more than fifteen years.

Table 3 Experience of respondents (years)

Experience (yrs.)	Client	Contractor	Consultant	Total	
				No.	%
Less than 5	6	5	1	12	21
5-10	11	23	3	37	65
10-15	1	3	2	6	10.5
Greater than 15	0	1	1	2	3.5
Total				57	100%

Table 4 shows that on this study;10.52% (6) of the respondents were execute less than 5 road construction projects, 28.08% (16) of the respondents execute between 5-10 projects and61.4% (35) the of respondents execute more than 10 projects.

Table 4 Experience of respondents on number of projects executed

No. of project	Client	Contractor	Consultant	Total	
				No.	%
Less than 5	0	4	2	6	10.52
5-10	6	9	1	16	28.08
Greater than 15	12	18	5	35	61.4
			Total	57	100%

4.2.3 Educational status

The education status in Oromia region Jimma zone URRAP road project undertaken by the respondents' companies is shown in

Table 5 Education status of respondents

Type of education	Client	Contractor	Consultant	Total	
				No.	%
Diploma	9	21	3	33	57.9
Bsc Degree	7	9	3	19	33.33
Msc Degree	2	2	1	5	8.77
			Total	57	100%

The respondents were contacted since they are practitioners in the road construction industry and have adequate knowledge on the issues being ascertained. This shows that the questionnaires were filled by professionals in the road construction industry thereby ensuring the credibility and reliability of the findings

4.2. Practice of URRAP Employer's Role

4.2.1. Findings from Desk study Survey

During the study period, there were numerous URRAP projects which were under execution in Oromia Road Authority in Jimma zone. I would select five completed road projects found in different woredas in order to fully understand what each client's role looks like in the overall progress of the project and to determine what remedial measures would be taken to minimize the gaps of employer observed in managing of selected URRAP projects. These projects were 100% completed and selected as a representative to of each of the URRAP projects. The list of selected projects is as shown.

Table 6 List of selected projects for desk study

	Project A	Project B	Project C	Project D	Project E
Project name	Serbo-kusaye Beru	Ofole dawe – chalet Bule	Nada– Omoduni	Afeta Geshe – Raga Gebera	Ula Uke – Lilu
Location	Kersa	Dedo	Omo Nada	Xiro Hafata	Seqa Cheqorsa
Road class	DC 2	DC1	DC2	DC2	DC 2
Length	17km	10.36	13.6	23.5	15.8
Employer	Kersa W/R/A	Dedo W/R/A	Omo Nada W/R A	Xiro Hafata W/R/A	Seqa Cheqorsa W/R/A
Contractor	Sub Saharan	Biftu Baha	WAMA	TEZDA	WAMA
Consultant	HAD	EDYAB	GIBE	HAD	GIBE
Work progress	100 %	100%	100%	100%	100%

Most of the result attained from desk study of those different woreda was repetitive from one to other and also with data from literature review used in questionnaire.

Project A

Project A is one of the URRAP road which found in Kersa woreda namely from Serbo-kusaye Beru.

It has 17km length and its work progress is 100% completed which executed with 10,389,447.76 birr. The roles played by Kersa woreda road authority on these project were; co-operate and co-ordinate the community to help the project through their human force, and money to minimize the financial problem faced the project; close and continuous supervision of the project in order to erase problems such as delay and low quality may arise when the work gets distorted, good problem solving skill which faced contractor during work execution and also by identifying problem areas and deficiencies conduct a regular discussion on the corrective action that has been implemented.

Project B

Project B is a URRAP road which found in Xiro Hafata woreda. The name of the line is Afeta Geshe – Raga Gebera.It has 23.5km length and executed with 10,468,385.6 birr. Here the Xiro Hafata woreda road authority manages the project by supporting the contractors to start and finish on planned schedule; conduct a regular measurement of performance and progress and Continuously review the results of any performance measurement and identify areas where performance standards are absent or inadequate to take corrective action, creating close interaction with contractor and in order to early eradicate problems face them.

Project C

Project C has 13.6 km length which executed with 6,747,084.36 birr. It's found in Omo Nada woreda. The name of the line is Nada – Omoduni. On this site Omo Nada woreda road authority has a great influence for successful completion of the project. These roles are; good cooperation and coordination between client employee, contractors and consultants; Conduct regular discussion between all parties in order to solve problems early, organizing the community to help the project through their human force and money.

Project D

Ofole Dawe – Chalet Bule is Project D which is one of the URRAP road project found in Dedo woreda. It has 10.36km length and constructed by 4,808,653 birr. By being responsible Support the project by creating awareness on the society about how they participate on the project and take a care for their road during its service life; coordination and cooperation of contractor, consultant and community; preparing checklist and give instruction for those work executed per each month to achieve or complete the project by the required date within budget, and required quality; Follow quality of the work by assigning its own supervisor regularly on these site were role practiced by

Dedo woreda road authority's on this project.

Project E

Project E has 15.8km length; namely Ula Uke – Lilu which constructed under URRAP project with 8,107,542 birr. It's found in Seqa Cheqorsa Woreda. Checking material quality used; By being beside contractor solve social problems faced with community; Make decisions and monitor progress at pre-determined stages are no exaggerated problem seen on payment approval Seqa Cheqorsa Woreda road authority's role practiced on managing this project.

4.2.2. Findings from Questioner Survey

Based on the research methodology described in chapter three, this part of the study is targeted to analyze the severity of the identified roles to rank their importance. In this study, a list of fifty eight (58) potential role of employer found from literatures were considered and categorized under eight groups and presented to the respondents to rank and score them.

3-point and 5-point likert scales were used respectively in the questions on the degree of effect regarding employer role and the degree of significance the roles on successfulness of URRAP projects. In relation to frequency of occurrences, "1" represent Never, "2" represented Sometimes "3" represented Always. With reference to significance, "1" represented None, "2" represented Neutral, "3" represented Moderate, and "4" represented High, "5" represented Very high.

Table 7 SI and rank of group of role from overall respondents'

Groups	Client		Contractor		Consultant		Overall	
	SI	Rank	SI	Rank	SI	Rank	SI	Rank
Preparing and organizing	0.657	1	0.592	1	0.632	3	0.616	1
Procurement	0.553	4	0.470	6	0.626	4	0.513	4
Ensure co-ordination team and cooperate	0.519	6	0.506	4	0.533	6	0.512	5
Design management	0.466	7	0.426	7	0.529	7	0.451	7
Decision Making	0.558	3	0.585	2	0.664	1	0.584	2
Measuring and reviewing performance	0.529	5	0.488	5	0.586	5	0.511	6
Communications	0.576	2	0.557	3	0.663	2	0.575	3
Health, Safety and Environmental management	0.388	8	0.395	8	0.488	8	0.403	8

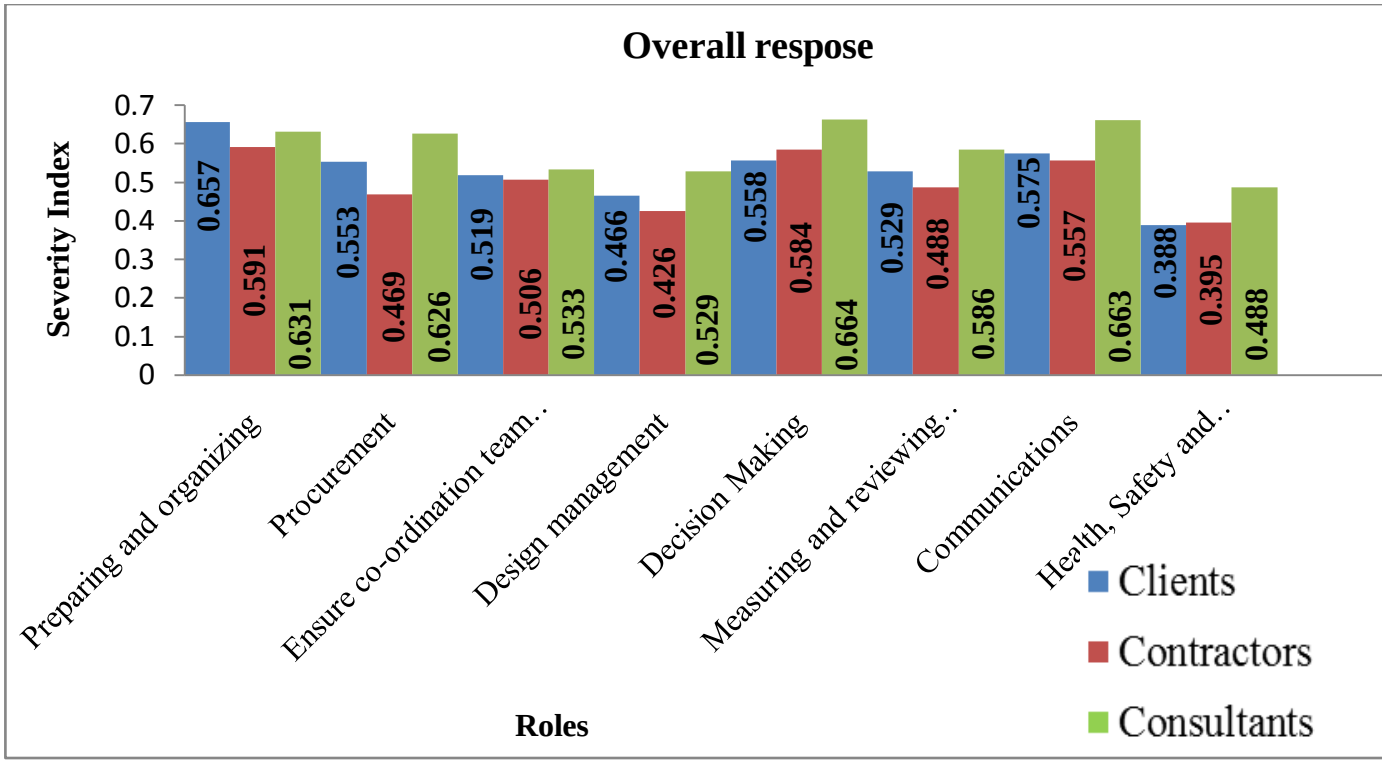

Figure 1. SI and rank of group of factors from overall respondents'

a) Preparing and organizing

This group consists of six roles considered to affect the cost in construction projects. According (Simmons, 2010) to establish policies; develop organizational structures; and delegate authority and responsibility are main duties to set objectives.

According to the client, contractors, and consultants Being responsible for the execution of the project from the initial idea to implementation has been ranked in the first position. Ensure that suitable management arrangements are made for the project also ranked both by the contractors and consultants' respondents in the second position and has been ranked by the clients' respondents in the fourth position. Sequencing and scheduling of work, and carrying out construction ranked both by the contractors and consultants' respondents in the third position and have been ranked by the clients' respondents in the second position.

Both by the contractors and consultants' respondents Establish organizational structures and responsibilities ranked in the fourth position while clients' respondents have been ranked in third position ,Organization on professional, quality, technology, and team building skills was least ranked by client and contractor ,while Consultant have been ranked in fifth position

Table 8 SI and rank of Preparing and organizing

Preparing and organizing	Client		Contractor		Consultant		Overall	
	SI	Rank	SI	Rank	SI	Rank	SI	Rank
Establish organizational structures and responsibilities.	0.679	3	0.579	4	0.609	4	0.614	4
Prepare education and training requirements for all levels of staff.	0.547	5	0.384	5	0.495	6	0.450	5
Organization on professional, quality, technology, and team building skills.	0.511	6	0.363	6	0.566	5	0.435	6
Sequencing and scheduling of work, and carrying out construction	0.729	2	0.718	3	0.631	3	0.711	2
Ensure that suitable management arrangements are made for the project	0.667	4	0.722	2	0.740	2	0.707	3
Being responsible for the execution of the project from the initial idea to implementation	0.810	1	0.783	1	0.749	1	0.787	1

b) Procurement factors

The decisions made on procurement are critical as they affect large sums of money, and can be a key determinant of design quality. (EDUM-FOTWE, 2014.)

Under Procurement factors there are 7 roles listed and each of them are ranked according to their SI in their group and as a whole. Select & appoint a competent and resourced Principal contractor were ranked on first position both by the contractors and consultants' respondents and has been ranked by the clients' respondents in the second position. Here also select & appoint a competent and resourced Principal Designer ranked on second position both by the contractors and consultants' respondents and ranked by clients on first position

According to the client, contractors, and consultants: appoint an election team and Setting criteria to select project participants and advice the main contractor the principles of selection of sub-contractors and vendors were ranked on third and fourth position.

Table 9 SI and rank of Procurement

Procurement	Client		Contractor		Consultant		Overall	
	SI	Rank	SI	Rank	SI	Rank	SI	Rank
Appoint an election team and Setting criteria to select project participants.	0.594	3	0.528	3	0.696	3	0.569	3
Select & appoint a competent and resourced Principal Designer.	0.624	1	0.54	2	0.786	2	0.595	2
Select & appoint a competent and resourced Principal contractor.	0.602	2	0.685	1	0.808	1	0.674	1
When preparing contract document, minimizing unnecessary contract term which impose more risks and liabilities on contractor.	0.523	5	0.270	7	0.438	7	0.3701	7
To pre-qualify Designer and Consultants considering the principles used in the Contractor selection process.	0.469	7	0.447	5	0.473	6	0.457	5
Ensuring that the selected sub-contractors have got enough equipment to satisfy the standard plan.	0.489	6	0.318	6	0.495	5	0.394	6
Advice the Main Contractor the principles of selection of Sub-contractors and vendors.	0.576	4	0.502	4	0.686	4	0.548	4

When preparing contract document, minimizing unnecessary contract term which impose more risks and liabilities on contractor was least ranked by contractor and Consultant ,while clients have been ranked in

fifth position

c) Ensure co-ordination and co-operation team

Table 10 presents the summary of the result obtained in the study under ensure co-ordination and co-operation team group.

Checking that there is good co-operation and communication between designers and contractors has been ranked by the client and contractor in the 1st position. However, this factor has been ranked by the contractor' respondents in the 2nd position and consultants respondents in the 8th position

Providing a common ground for both the client and contractor by maintaining openness and avoiding defensiveness were ranked on 3rd position by the client, contractors, and on 1st position by consultant's respondent. Initiate action in both the clients' team and co-ordination, and keep them focused on the target ranked by the client and consultant in the 4th position while clients have been ranked in 6th position. Recording the agreed action plans and communicates it to the entire organization was least ranked by contractor and 9th ranked by consultant, while clients have been ranked in 10th position.

Table 10 SI and rank of Ensure co-ordination and co-operation team

Ensure co-ordination team and co-operate	Client		Contractor		Consultant		Overall	
	SI	Rank	SI	Rank	SI	Rank	SI	Rank
Initiate action in both the Clients' team and co-ordination, and keep them focused on the target.	0.616	2	0.533	4	0.551	6	0.562	4
Providing a common ground for both the Client and Contractor by maintaining openness and avoiding defensiveness.	0.579	3	0.566	3	0.612	1	0.576	3
checking that there is good co-operation and communication between designers and contractors	0.618	1	0.612	2	0.495	8	0.599	2
Solving disputes immediately with the assistance of team members	0.525	5	0.529	6	0.400	11	0.511	6

Conducting meeting at regular intervals and ensure that all parties attend the meetings continuously.	0.454	9	0.468	8	0.442	10	0.460	9
Ensure co-operation and co-ordination between the client's employees and contractors	0.571	4	0.638	1	0.510	7	0.601	1
Assisting the members to jointly develop action plans for problem solving, resolving disputes,	0.496	8	0.483	7	0.588	4	0.500	7
Assisting the members to establish the joint team and delegate responsibilities and authority to the appropriate personnel.	0.511	6	0.456	9	0.566	5	0.487	8
Depending on the nature of project and problem, assisting the joint team in appointing the goal.	0.497	7	0.53	5	0.601	3	0.530	5
Improving team and corrective action teams	0.420	10	0.443	10	0.610	2	0.456	10
Recording the agreed action plans and communicates it to the entire organization.	0.420	10	0.312	11	0.490	9	0.368	11

d) Design management

According to Mohamed: It will needs to check that the project meets statutory requirements, ensure timely decisions are made, and that it's monitored design quality throughout.

From design management group Providing the designer with necessary design input data was ranked on 1st position by consultant respondent and on 2nd position by both client and contractor respondent. During the pre-bid assessment assessing the design capabilities of designer's professionals and ensure that they have enough design expertise was ranked on 3rd position by both client and consultant and 4th position by contractor position

Ensuring that the detailed design satisfies health and safety regulations and traffic and noise control

regulations was least ranked by clients and contractor 5th position, while by Consultant have been ranked on 2nd position.

Table 11 SI and rank of Design management

Design management	Client		Contractor		Consultant		Overall	
	SI	Rank	SI	Rank	SI	Rank	SI	Rank
During the pre-bid assessment assessing the design capabilities of designer's professionals and ensure that they have enough design expertise.	0.461	3	0.383	4	0.531	3	0.560	4
Consulting the designer and construction professionals for advice during the preliminary design, and achieve constructability in the earlier phase of the design.	0.504	1	0.431	3	0.476	5	0.561	3
Providing the Designer with necessary design input data	0.500	2	0.495	2	0.626	1	0.450	5
Ensuring that they are completely checked and reviewed right at the first time.	0.451	4	0.504	1	0.518	4	0.664	1
Ensuring that the detailed design satisfies health and safety regulations. and traffic and noise control regulations, etc.,	0.415	5	0.316	5	0.533	2	0.653	2

e) Decision making

Decision making factors consider five roles which presented to rank way employer's practice its role on decision making. The results obtained are given in Table 12.

According to clients and consultants respond giving proper instructions for, and to approve the

particulars of claim, and to approve a compromise was ranked 1st with value by client and consultant. While ranked by contractor on 2ndposition. Make decisions and monitor progress at pre-determined stages was ranked by client, contractor and consultant respondent on 2nd, 3rd and 4th position respectively. The client would need to have capacity to make the sort of decisions that arise in litigation was the least ranked role by all respondents.

Table 12 SI and rank of decision making

Decision Making	Client		Contractor		Consultant		Overall	
	SI	Rank	SI	Rank	SI	Rank	SI	Rank
Make decisions and monitor progress at pre-determined stages.	0.607	2	0.610	3	0.533	4	0.600	3
Put in place decision-making structures that support individual roles and responsibilities in relation to the project.	0.526	4	0.540	4	0.735	2	0.560	4
The client would need to have capacity to make the sort of decisions that arise in litigation.	0.482	5	0.435	5	0.460	5	0.453	5
giving proper instructions for, and to approve the particulars of claim, and to approve a compromise	0.617	1	0.639	2	0.898	1	0.664	1
Sound decision making skills	0.556	3	0.699	1	0.694	3	0.653	2

f) Measuring and reviewing performance

Checking, through the joint team, that the corrective action has been implemented was ranked 1st by consultants, 2nd by contractors and 5th by client's respondent. Assessing clients' satisfaction with performance ranked 3rd, 4th, and 5th by consultant, contractor and client's respondent respectively.

Continuously reviewing the results of any performance measurement and identify areas where performance standards are absent or inadequate was least ranked both by client and contractor and first position by consultant.

Table 13 SI and rank of measuring and reviewing performance

Measuring and reviewing performance	Client		Contractor		Consultant		Overall	
	SI	Rank	SI	Rank	SI	Rank	SI	Rank
Measuring the effects of training given to the Client's organization.	0.497	7	0.440	7	0.577	7	0.474	7
Through the joint team conduct a regular measurement of performance and progress.	0.576	2	0.456	6	0.511	8	0.501	6
Identifying problem areas, deficiencies and deviations.	0.562	4	0.544	1	0.602	4	0.550	2
Discussing with team members causes of deficiencies and deviations and suggest corrective actions	0.602	1	0.480	5	0.578	5	0.527	4
Checking, through the joint team, that the corrective action has been implemented.	0.504	5	0.542	2	0.75	1	0.545	1
Continuously reviewing the results of any performance measurement and identify areas where performance standards are absent or inadequate.	0.420	8	0.378	8	0.75	1	0.430	8
Defining a system to measure the performance improvements in terms of cost/benefit.	0.502	6	0.538	3	0.578	5	0.528	5
Assessing Clients' satisfaction	0.571	5	0.525	4	0.622	3	0.547	3

with performance.								

g) Communications

Hari Garbharran believed that a detailed communication plan is necessary for the effective dissemination of information. Establishing a good communication system that keeps all participants aware of the objectives, progress and successful stories of the program was ranked 1st both by contractor and consultant respondent and 2nd by client respondent.

Table 14 SI and rank of communications

Communications	Client		Contractor		Consultant		Overall	
	SI	Rank	SI	Rank	SI	Rank	SI	Rank
Conveying management's commitment to the Client's organization.	0.650	1	0.553	3	0.674	5	0.596	2
Establishing a good communication system that keeps all participants aware of the objectives, progress and successful stories of the program.	0.616	2	0.647	1	0.806	1	0.651	1
Communicating the standards, procedures and systems relating to implementation and performance measurement to relevant participants.	0.609	3	0.52	6	0.752	3	0.573	3
Prompt actions of client to feedback from contractor, supplier, and other professionals.	0.554	5	0.52	6	0.554	6	0.535	7
Communicating the suggestions and required corrective actions to respective parties	0.578	4	0.541	5	0.533	7	0.549	6

Welcome comments and suggestions from participants for process improvement.	0.533	6	0.570	2	0.7	4	0.572	4
Internal and external communication clearly	0.490	7	0.550	4	0.806	1	0.557	5

h) Health, Safety and Environmental management

As mentioned on literature review Joyce says failure to comply with environmental regulation can result in project delay or termination, disqualification from future work opportunities, fines, civil action, and even criminal prosecution.

Health, Safety and Environmental management group consider 9 roles with which related to role of clients on health and safety issue.

According to the client, contractors, and consultants Propose solution for unexpected weather were ranked 1st and checking to make sure that adequate welfare facilities have been provided by the contractor; was the next by both contractor and consultant. Checking that the arrangements which the contractor agreed to make to control key risks on site have been implemented ranked on3rd and 4th by both contractor and consultant and 2nd by client respondent. Ensure to prepare Wastes disposal around the site ranked 3rd, 4th and 5th by consultant contractor and client respondents respectively.

Ensuring that training on health and safety at work is given by the contractors to the workers, was least ranked by clients, contractor and consultant.

Table 15 SI and rank of health, safety and environmental management

Health, Safety and Environmental management	Client		Contractor		Consultant		Overall	
	SI	Rank	SI	Rank	SI	Rank	SI	Rank
Ensuring that training on health and safety at work is given by the Contractors to the workers,	0.331	9	0.336	8	0.367	9	0.337	9
Conducting regular meetings at all levels to discuss health and safety.	0.358	6	0.326	9	0.370	8	0.339	8
The client shall ensure that the co-coordinator is provided with all the health and safety information in the	0.344	8	0.369	5	0.463	6	0.368	5

client's possession								
checking that there is adequate protection for the workers or members of the public;	0.353	7	0.349	6	0.468	5	0.362	7
checking to make sure that adequate welfare facilities have been provided by the contractor;	0.407	3	0.456	2	0.674	2	0.468	2
Checking that the arrangements which the contractor agreed to make to control key risks on site have been implemented.	0.421	2	0.42	3	0.578	4	0.431	3
Ensuring that the co-ordination agreement and safety plans are included in the contract	0.407	3	0.342	7	0.463	6	0.372	5
Ensure to prepare Wastes disposal around the site	0.382	5	0.384	4	0.626	3	0.404	4
Propose solution for Unexpected weather	0.489	1	0.575	1	0.698	1	0.560	1

From the correlation table below, it can be concluded that there is a strong correlation between the attitudes of the respondents in all the three groups. This means that most of the respondents have the same perception about the way of practicing role of employer.

Table 16 Spearman correlation coefficient on way of practicing role of employer

Respondents	Client	Contractor	Consultant
Client	1	0.993	0.986
Contractor	0.993	1	0.989
Consultant	0.986	0.989	1

Practice of employer role on URRAP projects based on general responses of the respondents

Arranging of each role by respondents based on roles' severity index is so much essential in order to give a priority for those roles which have the highest significant impact on URRAP projects. For this

reason all 58 role of employer were ranked as it shown from table 17 below based on their SI from respondent.

As sown in Table: 17 below, it was possible to rank the way of employer practicing its role combining the responses of all respondents. The most ranked roles practiced and have significant impact on successfulness for the URRAP project by all respondents were Being responsible for the execution of the project from the initial idea to implementation (SI=0.787) on 1st position, Sequencing and scheduling of work, and carrying out construction came next with value (SI=0.711) on 2nd position ,Ensure that suitable management arrangements are made for the project followed with the value (SI=0. 0.707) 3rd position , Select & appoint a competent and resourced Principal contractor. (SI=0.674) on 4th and then position giving proper instructions for, and to approve the particulars of claim, and to approve a compromise ranked 5th position. Conducting regular meetings at all levels to discuss health and safety (SI=0.456) and health and safety considerations (RI=0.337) were the least ranked role of employer. The table below show SI and rank of top 15 roles of employers practiced on URRAP projects based on over all respondents'. The other left list of employer role is refer on Appendix B

Table 17 SI and ranking of top 15 role of employers practiced from over all respondents'

Role of employer	Overall Respondents	
	SI	Rank
Being responsible for the execution of the project from the initial idea to implementation	0.787	1
Sequencing and scheduling of work, and carrying out construction	0.711	2
Ensure that suitable management arrangements are made for the project	0.707	3
Select & appoint a competent and resourced Principal contractor.	0.674	4
giving proper instructions for, and to approve the particulars of claim, and to approve a compromise	0.664	5
Sound decision making skills	0.653	6
Establishing a good communication system that keeps all participants aware of the objectives, progress and successful stories of the program.	0.651	7
Establish organizational structures and responsibilities.	0.614	8
Ensure co-operation and co-ordination between the client's employees and	0.601	9

contractors		
Make decisions and monitor progress at pre-determined stages.	0.600	10
checking that there is good co-operation and communication between designers and contractors	0.599	11
Conveying management's commitment to the Client's organization.	0.596	12
Select & appoint a competent and resourced Principal Designer.	0.595	13
Providing a common ground for both the Client and Contractor by maintaining openness and avoiding defensiveness.	0.576	14
Communicating the standards, procedures and systems relating to implementation and performance measurement to relevant participants.	0.573	15

4.2.3. Way of Employers Practicing Its Role

According to clients, contractors and consultants the respondent; 38.88%, 21.86% and 21.86% of rated the client's current way of practicing its role on management URRAP project as very good respectively. It is rated good by clients with 55.56%, contractors35%, consultant42.86%. 5.56% of clients, 3.13% of contractors and 0% of consultants believe that the current way of employers practicing its role on management URRAP projects rating it satisfactory. It is rated poor by few contractors (9.38%) and 28.57% of consultants respectively.

Table 18 Current way of practicing employer role

	Client		**Contractor**		**Consultant**		**Overall**	
	No.	**%**	**No.**	**%**	**No.**	**%**	**No**	**%**
Excellent	0	0	0	0	0	0	0	0
Very good	7	38.88	7	21.86	2	21.86	16	28.08
Good	10	55.56	21	65.63	3	42.86	34	59.65
Satisfactory	1	5.56	1	3.13	0	0	2	3.5
Poor	0	0	3	9.38	2	28.57	5	8.77
Total	18	100	32	100	7	100	57	100%

The following graph shows rate of the client's current way of practicing its role on managing of URRAP projects.

Figure 2. Rate On the client's current way of practicing its role on managing of URRAP projects.

4.2.4. Result and Discussion

The finding on employer's role those most practiced and have significant impact on successfulness of Jimma Zone URRAP project from questioner and desk study survey were discussed as follow; Being responsible for the execution of the project from the initial idea to implementation ; Sequencing and scheduling of work, and carrying out construction ; Ensure that suitable management arrangements are made for the project; Select & appoint a competent and resourced Principal contractor; giving proper instructions for, and to approve the particulars of claim, and to approve a compromise are top five ranked roles from over all respondent , From the question on current way practice employer's role on managing URRAP project in South East of Jimma zone from the overall respondent's were most ranked as good with 59.65 %. Collecting money from society to minimize fund problem; Make close supervision by his own supervisors and consultant ;Solve social problems related to society; Payment approving; Preparing checklist per month; Conduct regular discussion between participant were finding of the desk study survey.

4.3. Gap in employer Role on URRAP Projects

4.3.1. Findings from Desk study Survey

Project A

The gaps observed on project A are late approval of payment and checking that the design would fulfill all standard before entering to work. There is also weak management of consultants.

Project B

The gaps seen on employer role of this project were: the contract document is not completely checked whether there are no missed items like unite rate. These lead to poor decision making and late approval of payment,

Project C

Problem seen on these projects were; it has no habit of collecting feedback from contractors and end user of the road: poor continuous supervision of the site by his own supervisor and processes of payment would take long time.

Project D

Late payment approval; Lack of checking the design whether it is complete; checking whether all needed test are taken and result of test taken would submitted to the office on time were gaps of employer identified on this project.

Project E

Due lack of continuous supervision of consultant and clients supervisors there was many defects occur while construction and it take time and cost on reworking the correction were gaps seen on the client. Lack of communicating the standards, procedures and systems relating to implementation and performance measurement to relevant participants are gaps identified.

4.4.2 Findings from Questioner Survey

Questioner on gaps in employer role on URRAP Projects were determined using 5 point Likert scale, according to frequency of occurrence namely 1 = Never ,2 = Seldom, 3 = Sometimes, 4 = Often ,5 = Always

I. Clients Group

Justin Fischgrund mentioned gap of employer on his paper which aims to examine the quality gaps in construction projects are: lack of adequate finance to run the project and client has ongoing difficulty

with communications are the major one.

From Table 19 below, the respondents of this group responded that the most gaps of employer seen in managing URRAP project was lack of adequate finance to run the project(SI=0.84) followed by Poor project financing (in terms of budget, payment) (SI=0.77). Delay of the client to approve payments and Unavailability of safety officers in the area of health and safety to enforce requirements of the regulation were the 3rd ranked role with (SI=0.68) and Change in requirement of the client 4th. (SI = 0.62).5th role according to the clients was lack of co-ordination and cooperation in managing the project. Client is not familiar with how to read drawings was the least gaps of employer seen in managing URRAP project with value (SI = 0.30).

Table 19 RII and rank of gaps identified from the client group

S.N	Gaps Identified	RII of Client	Rank
1	Change in requirement of the client	0.621	5
2	lack of adequate finance to run the project	0.843	1
3	Client is not familiar with codes	0.401	12
4	Client is not familiar with how job site operates	0.403	12
5	Delay of the client to approve payments	0.681	3
6	Client is not familiar with how to read drawings	0.303	14
7	A client has ongoing difficulty with communications	0.441	11
8	Unavailability of safety officers in the area of health and safety to enforce requirements of the regulation	0.681	3
9	Poor project financing (in terms of budget, payment)	0.774	2
10	Lack of capacity to make the sort of decisions	0.543	7
11	Resistance of the consultant to approve equivalent value of the executed work and resistance to pay for materials supplied to site	0.533	8
12	lack of co-ordination and cooperation in managing the project	0.574	6
13	Problem on choice of inappropriate procurement routes	0.473	10
14	Poor contract management of the client	0.482	9

The following graph 4 shows the relative importance index (RII) and rank of gaps of employer as client respond.

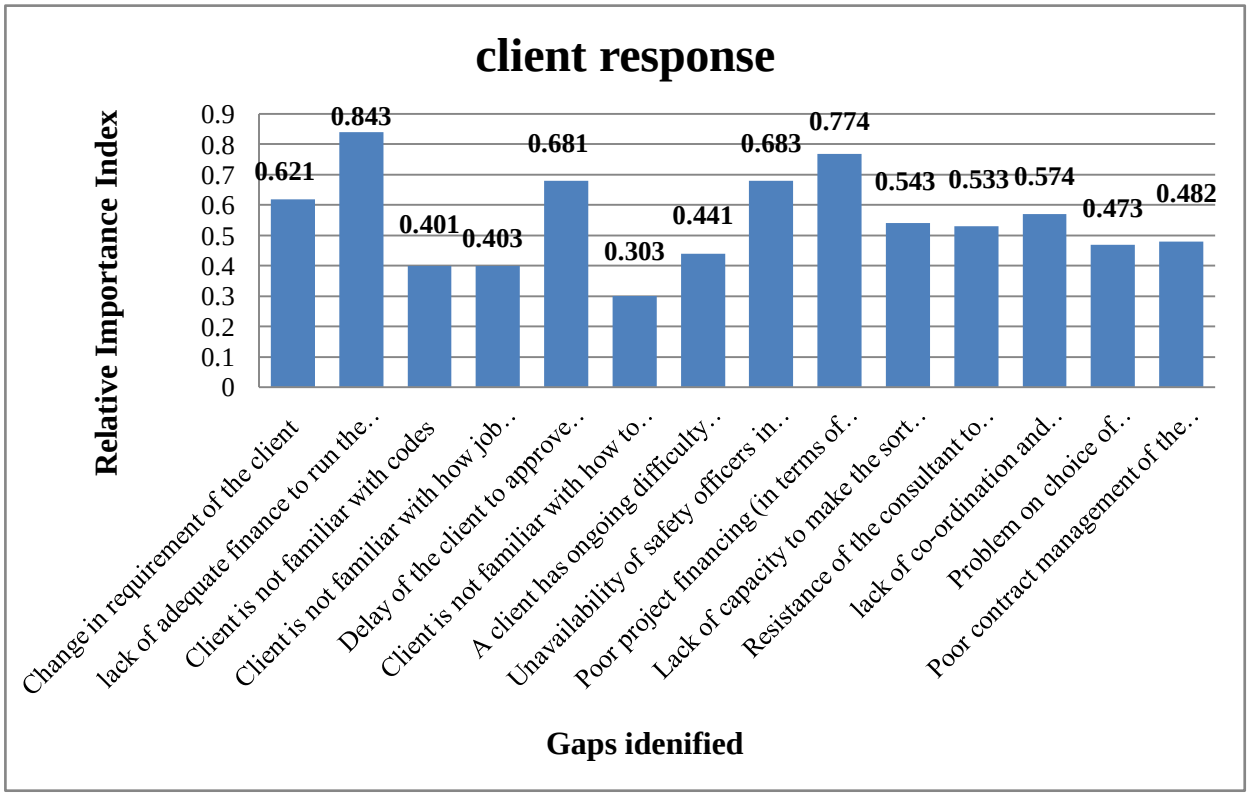

Figure 3. RII and rank of gaps of employer as client respond.

II. **Contractors Group**

From the following Table 20, it was possible to rank gaps of employer by comparing their SI. According to the contractors, lack of adequate finance to run the project (SI=0.837) was the most ranked role and followed by Poor project financing (in terms of budget, payment) (0.758). Delay of the client to approve payments (SI=0.745) and Unavailability of safety officers in the area of health and safety to enforce requirements of the regulation (SI=0.701) were the next most ranked role. Fifthly ranked role was lack of capacity to make the sort of decisions (SI=0.692). According to the contractors, client is not familiar with codes was the least ranked gaps of employer with value (SI=0.366).

Table 20 RII and rank of gaps identified from the Contractor group

S.N	Gaps Identified	RII of Contractor	Rank
1	Change in requirement of the client	0.456	9
2	lack of adequate finance to run the project	0.837	1
3	Client is not familiar with codes	0.366	14
4	Client is not familiar with how job site operates	0.443	10
5	Delay of the client to approve payments	0.745	3
6	Client is not familiar with how to read drawings	0.383	12
7	A client has ongoing difficulty with communications	0.506	8
8	Unavailability of safety officers in the area of health and safety to enforce requirements of the regulation	0.701	4
9	Poor project financing (in terms of budget, payment)	0.758	2
10	Lack of capacity to make the sort of decisions	0.692	5
11	Resistance of the consultant to approve equivalent value of the executed work and resistance to pay for materials supplied to site	0.381	13
12	lack of co-ordination and cooperation in managing the project	0.593	6
13	Problem on choice of inappropriate procurement routes	0.396	11
14	Poor contract management of the client	0.591	7

The following graph 5 shows the relative importance index (RII) and rank of gaps of employer as Contractor respond.

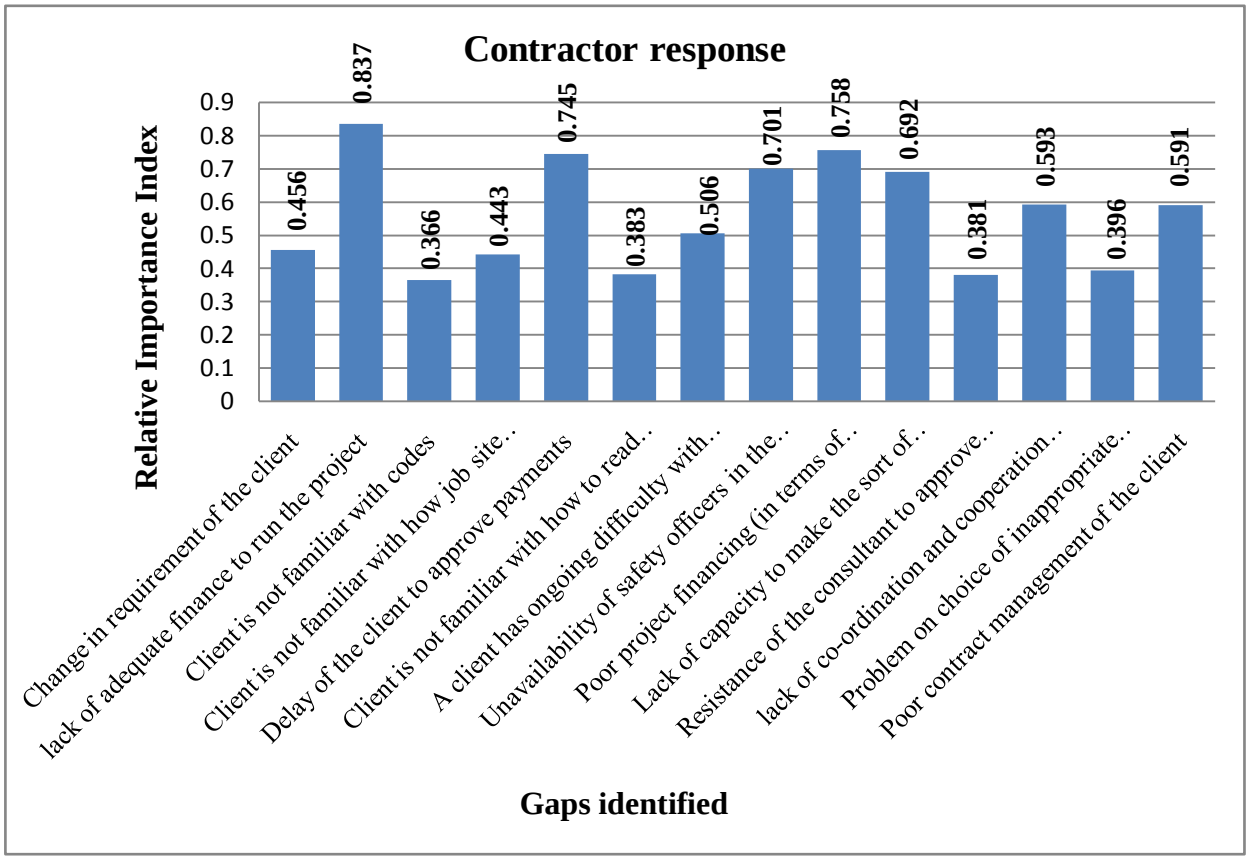

Figure 4. RII and rank of gaps of employer as Contractor respond.

III. Consultants Group

As it can be seen Table 21 below, it was possible to rank the gaps of employer. Lack of adequate finance to run the project; Poor project financing (in terms of budget, payment);Poor contract management of the client were the first, second and third gaps of employer ranked by the consultants with value (SI =0.876, 0.835, 0.734)respectively. Delay of the client to approve payments came next (SI=0.702) and Lack of capacity to make the sort of decisions, followed the rank with (SI=0.677). Client is not familiar with how to read drawings with value (SI=0.432) was the least of gaps of employer on URRAP projects.

Table 21 RII and rank of Gaps Identified from the Consultant group

S.N	Gaps Identified	RII of Consultant	Rank
1	Change in requirement of the client	0.605	7
2	lack of adequate finance to run the project	0.876	1
3	Client is not familiar with codes	0.605	7
4	Client is not familiar with how job site operates	0.576	10
5	Delay of the client to approve payments	0.702	4
6	Client is not familiar with how to read drawings	0.432	14
7	A client has ongoing difficulty with communications	0.576	10
8	Unavailability of safety officers in the area of health and safety to enforce requirements of the regulation	0.504	12
9	Poor project financing (in terms of budget, payment)	0.835	2
10	Lack of capacity to make the sort of decisions	0.677	5
11	Resistance of the consultant to approve equivalent value of the executed work and resistance to pay for materials supplied to site	0.504	12
12	lack of co-ordination and cooperation in managing the project	0.633	6
13	Problem on choice of inappropriate procurement routes	0.605	7
14	Poor contract management of the client	0.734	3

The following graph 6 shows the relative importance index (RII) and rank of gaps of employer as Consultant respond.

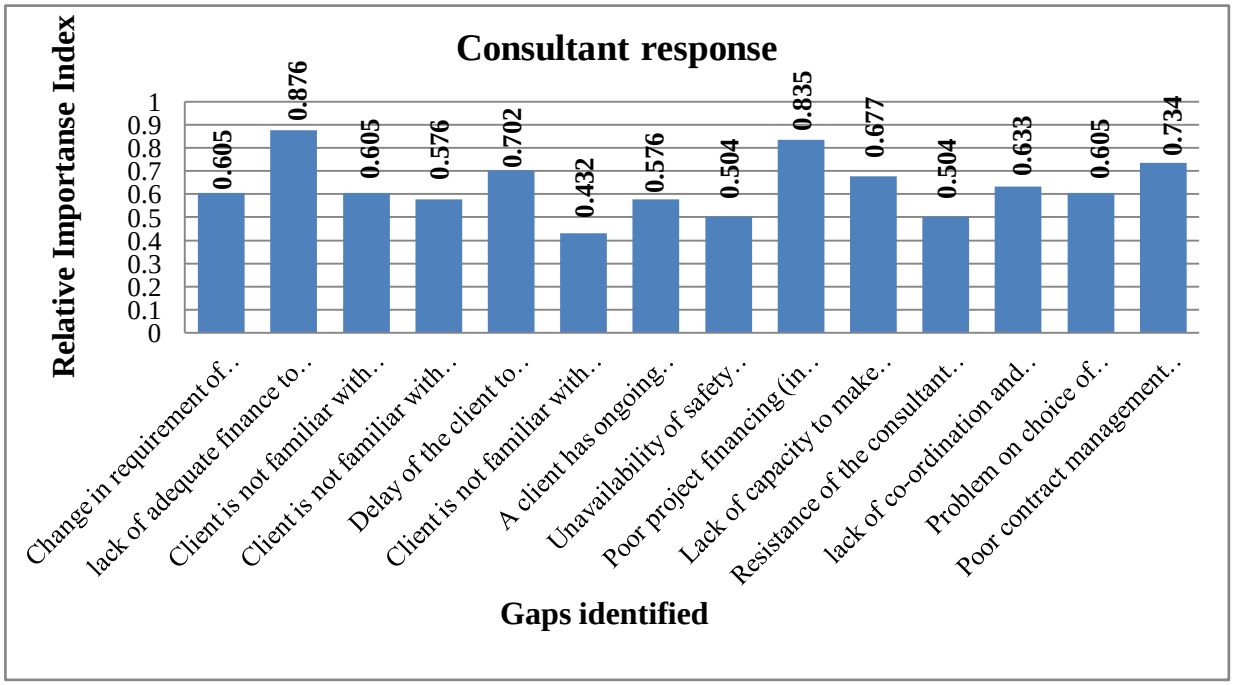

Figure 5. RII and rank of gaps of employer as consultant respond

From the correlation table below, it can be concluded that there is a strong correlation between the attitudes of the respondents in all the three groups. This means that most of the respondents have the same perception about the gap of employer

Table 22 Spearman's Rank Correlation Coefficient

Respondents	Client	Contractor	Consultant
Client	1	0.998	0.993
Contractor	0.998	1	0.995
Consultant	0.993	0.995	1

IV. Overall Responses

Even with today's advanced technology, and management: understanding of project management techniques, construction projects continue to suffer delays and project completion dates still get pushed back (Stumpf, 2000). So special consideration will be taken in identifying problems seen on

management. As it can be seen in Table below, the most ranked gaps of employer from the overall responses of all respondents were lack of adequate finance to run the project (RI=0.835), followed by Poor project financing (in terms of budget, payment)(RI=0.793). Additional payments for contractor (RI=0.742) and progress affection (RI=0.765) were the next and then delay of the client to approve payments (RI=0.712). Unavailability of safety officers in the area of health and safety to enforce requirements of the regulation (RI=0.663) Lack of capacity to make the sort of decisions (RI=0.642) .Client is not familiar with how to read drawings was the least ranked gaps of employer as responded by all participants (RI=0.358.)

Table 23 RII and rank of gaps of employer as overall respond.

S.N	Gaps Identified	Overall RII	Rank
1	Change in requirement of the client	0.519	8
2	lack of adequate finance to run the project	0.835	1
3	Client is not familiar with codes	0.397	13
4	Client is not familiar with how job site operates	0.442	10
5	Delay of the client to approve payments	0.712	3
6	Client is not familiar with how to read drawings	0.358	14
7	A client has ongoing difficulty with communications	0.488	9
8	Unavailability of safety officers in the area of health and safety to enforce requirements of the regulation	0.663	4
9	Poor project financing (in terms of budget, payment)	0.765	2
10	Lack of capacity to make the sort of decisions	0.642	5
11	Resistance of the consultant to approve equivalent value of the executed work and resistance to pay for materials supplied to site	0.439	11
12	lack of co-ordination and cooperation in managing the project	0.593	6
13	Problem on choice of inappropriate procurement routes	0.435	12
14	Poor contract management of the client	0.565	7

The following graph 7 shows the relative importance index (RII) and rank of gaps of employer as Overall respond.

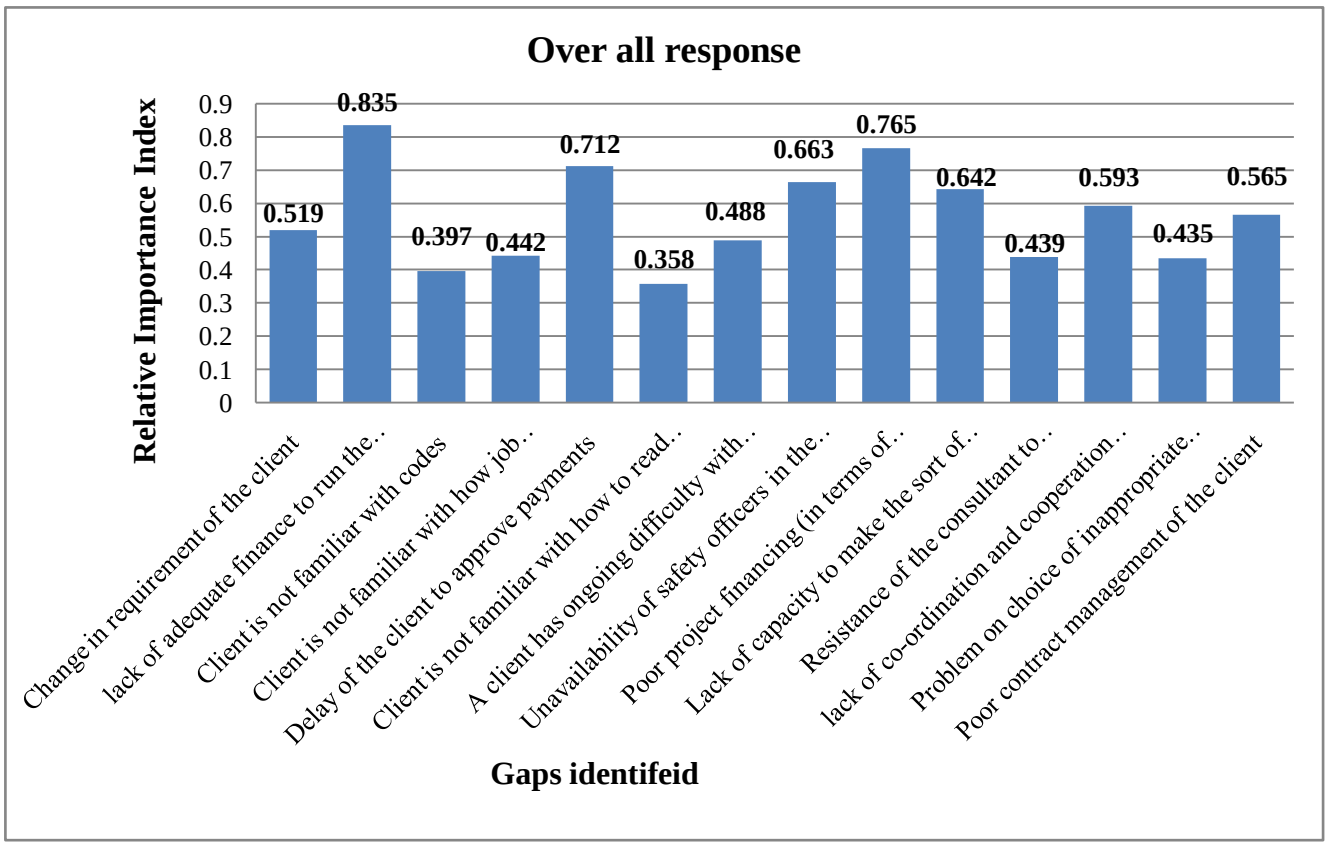

Figure 6. RII and rank of gaps of employer as overall respond.

4.4.3 Result and Discussion

According to (Clough RH, 2000) one of managing cash flow activities is to make sure that there is still enough money to cover the cost of performing project with the established estimation.

Lack of adequate finance to run the project, Poor project financing (in terms of budget, payment), Delay of the client to approve payments, Unavailability of safety officers in the area of health and safety to enforce requirements of the regulation, Lack of capacity to make the sort of decisions are top five most ranked roles from overall respondent.

The findings from desk study survey were; Lack of continuous supervision, Lack of co-ordination and co-operation, Lack of checking the design whether it is complete or not , Poor consultants, contractors and employee management, Lack of taking test and submitting the result of those taken and Poor contract management were gaps identified in employer role in managing URRAP project.

4.5 Improvement Intervention to Minimize Gap in Employer role

4.5.1 Findings from Questioner Survey

The frequency of recommended strategies to minimize gap of employer on URRAP projects was identified using a 5 point Likert scale according to degree of importance, namely Unimportant = 1; Less important = 2;Important = 3; Very important = 4; and Very high important = 5.The recommended strategies to minimize gaps were ranked by comparing their relative index

I. Clients Group

From Table 24, it was possible to rank the recommended strategies to minimize gap of employer by comparing their RII. Ensuring that the participants for the project are acquired in the most effective way. (Bradford, 2013) .According to the client, the most ranked recommended strategies were: The client would need to have the capacity to give proper instructions for, and to approve the particulars of claim, and to approve a compromise (RII=0.837) and followed by establish evaluation criteria for consultant and contractor selection (RII=0.815). Establish realistic project budgets and program timelines come next (RII=0.797). The recommended strategy to have monitoring, performance measurement and reporting mechanisms in Place and Enhance problem solving skills were next with equal value, (RII=0. 0.766) Understand the obligations for inviting tenders (i.e. prices, bids, quotations, and expressions of interest was the least ranked recommendation to minimize gap of employer (RII=0.503).

Table 24 RII and rank of recommended strategies from the contractor group

S.N	Recommended Strategies	RII of Client	Rank
1	Establish evaluation criteria for consultant and contractor selection;	0.815	2
2	Understand the principles and application of project management	0.725	6
3	Have quality systems and procedures in place	0.603	15
4	Effective time management	0.706	8
5	Have monitoring, performance measurement and reporting mechanisms in Place	0.766	4

6	Identify needs; negotiate the procurement package	0.587	16
7	Manage the contract relationships	0.683	10
8	Understand the obligations for inviting tenders (i.e. prices, bids, quotations, and expressions of interest	0.503	18
9	Monitor the delivery and measure suppliers' performance	0.614	14
10	Enhance problem solving skills	0.766	4
11	Understand probity, ethical conduct and fairness, accountability, and adopt these standards throughout the project from initiation to completion	0.697	9
12	Assess and understand the risks and identify who is to manage which risks	0.645	12
13	Establish realistic project budgets and program timelines	0.797	3
14	Develop and outline the project definition and scope	0.524	17
15	Self-motivated and able to work unsupervised	0.645	12
16	The client would need to have the capacity to give proper instructions for, and to approve the particulars of claim, and to approve a compromise	0.837	1
17	Negotiation skills with ability to resolve conflict situations	0.683	10
18	Desire to enhance knowledge and skills by training	0.725	6

The following graph 8 shows RII and rank of recommended strategies from the contractor group

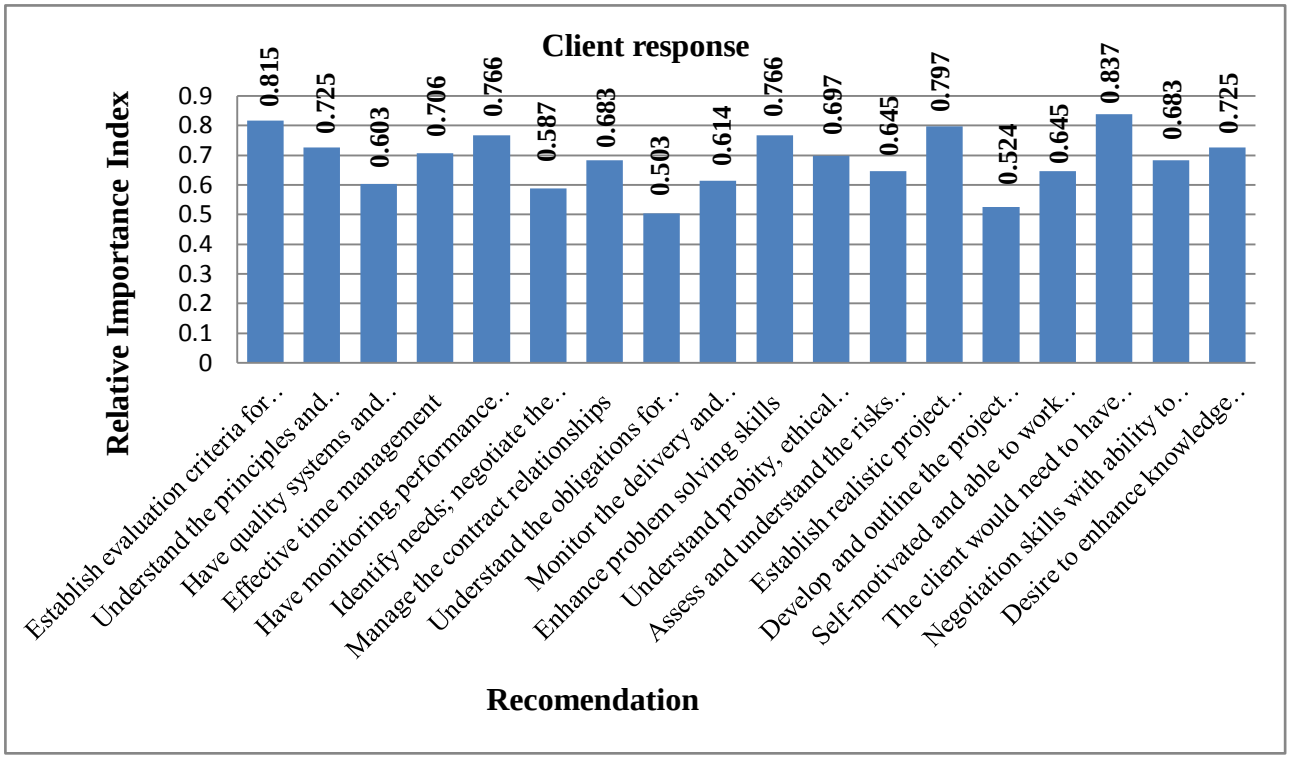

Figure 7. RII and rank of recommended strategies from the client group

II. **Contractors Group**

According to (Chadwick, 2003) The client would need to have the capacity to give proper instructions for, and to approve the particulars of claim, and to approve a compromise and The client would need to understand how the proceedings were to be funded are some of the solutions that may be relevant, for example, in assessing a client's capacity to conduct civil proceedings.

As shown in Table below, the most ranked recommendation to minimize gaps according to the contractors was The client would need to have the capacity to give proper instructions for, and to approve the particulars of claim, and to approve a compromise (RII=0.867), Establish evaluation criteria for consultant and contractor selection (RII=0.837) followed by effective time management, Establish realistic project budgets and program timelines, Negotiation skills with ability to resolve conflict situations with equal value (RII=0.806) Monitor the delivery and measure suppliers' performance was the least ranked recommendation to minimize gap of employer(RII=0.493)

Table 25 RII And Rank Of Recommended Strategies From The Contractors Group

S.N	Recommended Strategies	RII of Contractor	Rank
1	Establish evaluation criteria for consultant and contractor selection;	0.837	2
2	Understand the principles and application of project management	0.665	12
3	Have quality systems and procedures in place	0.717	8
4	Effective time management	0.806	3
5	Have monitoring, performance measurement and reporting mechanisms in Place	0.696	11
6	Identify needs; negotiate the procurement package	0.604	16
7	Manage the contract relationships	0.745	7
8	Understand the obligations for inviting tenders (i.e. prices, bids, quotations, and expressions of interest	0.604	16
9	Monitor the delivery and measure suppliers' performance	0.493	18
10	Enhance problem solving skills	0.665	12
11	Understand probity, ethical conduct and fairness, accountability, and adopt these standards throughout the project from initiation to completion	0.665	12
12	Assess and understand the risks and identify who is to manage which risks	0.633	15
13	Establish realistic project budgets and program timelines	0.806	3
14	Develop and outline the project definition and scope	0.717	8
15	Self-motivated and able to work unsupervised	0.717	8
16	The client would need to have the capacity to give proper instructions for, and to approve the particulars of	0.867	1

	claim, and to approve a compromise		
17	Negotiation skills with ability to resolve conflict situations	0.806	3
18	Desire to enhance knowledge and skills by training	0.775	6

The following graph 9 shows RII and rank of recommended strategies from the Contractors group

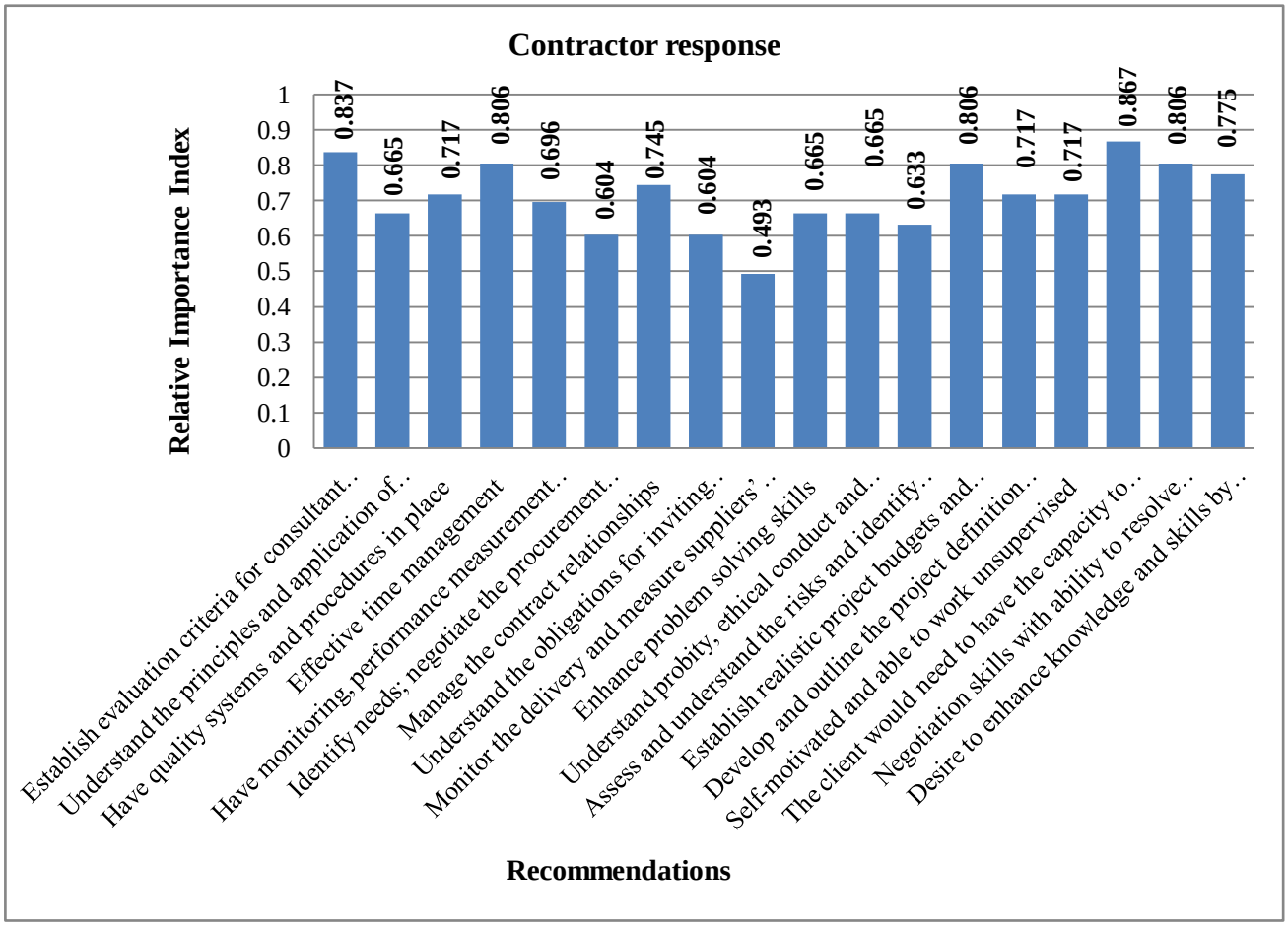

Figure 8. RII and rank of recommended strategies from the contractors group

III. Consultants Group

From Table below, the most ranked recommended strategy to minimize gap of employer according to respondents of this category The client would need to have the capacity to give proper instructions for, and to approve the particulars of claim, and to approve a compromise (RII=0.869). Establish evaluation criteria for consultant and contractor selection was followed with; RII=0.836). The next

recommendations were effective time management , establish realistic project budgets program timelines and negotiation skills with ability to resolve conflict situations ranked equally with value (RII 0.805),monitor the delivery and measure suppliers' performance was the least ranked recommendation to minimize gap of employer(RII=0.492)

Table 26 RII and rank of recommended strategies from the consultants group

S.N	Recommended Strategies	RII of Consultant	Rank
1	Establish evaluation criteria for consultant and contractor selection;	0.836	2
2	Understand the principles and application of project management	0.667	12
3	Have quality systems and procedures in place	0.717	8
4	Effective time management	0.805	3
5	Have monitoring, performance measurement and reporting mechanisms in Place	0.696	11
6	Identify needs; negotiate the procurement package	0.603	16
7	Manage the contract relationships	0.746	7
8	Understand the obligations for inviting tenders (i.e. prices, bids, quotations, and expressions of interest	0.603	16
9	Monitor the delivery and measure suppliers' performance	0.492	18
10	Enhance problem solving skills	0.667	12
11	Understand probity, ethical conduct and fairness, accountability, and adopt these standards throughout the project from initiation to completion	0.667	12
12	Assess and understand the risks and identify who is to manage which risks	0.638	15
13	Establish realistic project budgets and program timelines	0.805	3

14	Develop and outline the project definition and scope	0.717	8
16	Self-motivated and able to work unsupervised	0.717	8
17	The client would need to have the capacity to give proper instructions for, and to approve the particulars of claim, and to approve a compromise	0.869	1
18	Negotiation skills with ability to resolve conflict situations	0.805	3
19	Desire to enhance knowledge and skills by training	0.774	6

The following graph 10 shows RII and rank of recommended strategies from the Consultants group

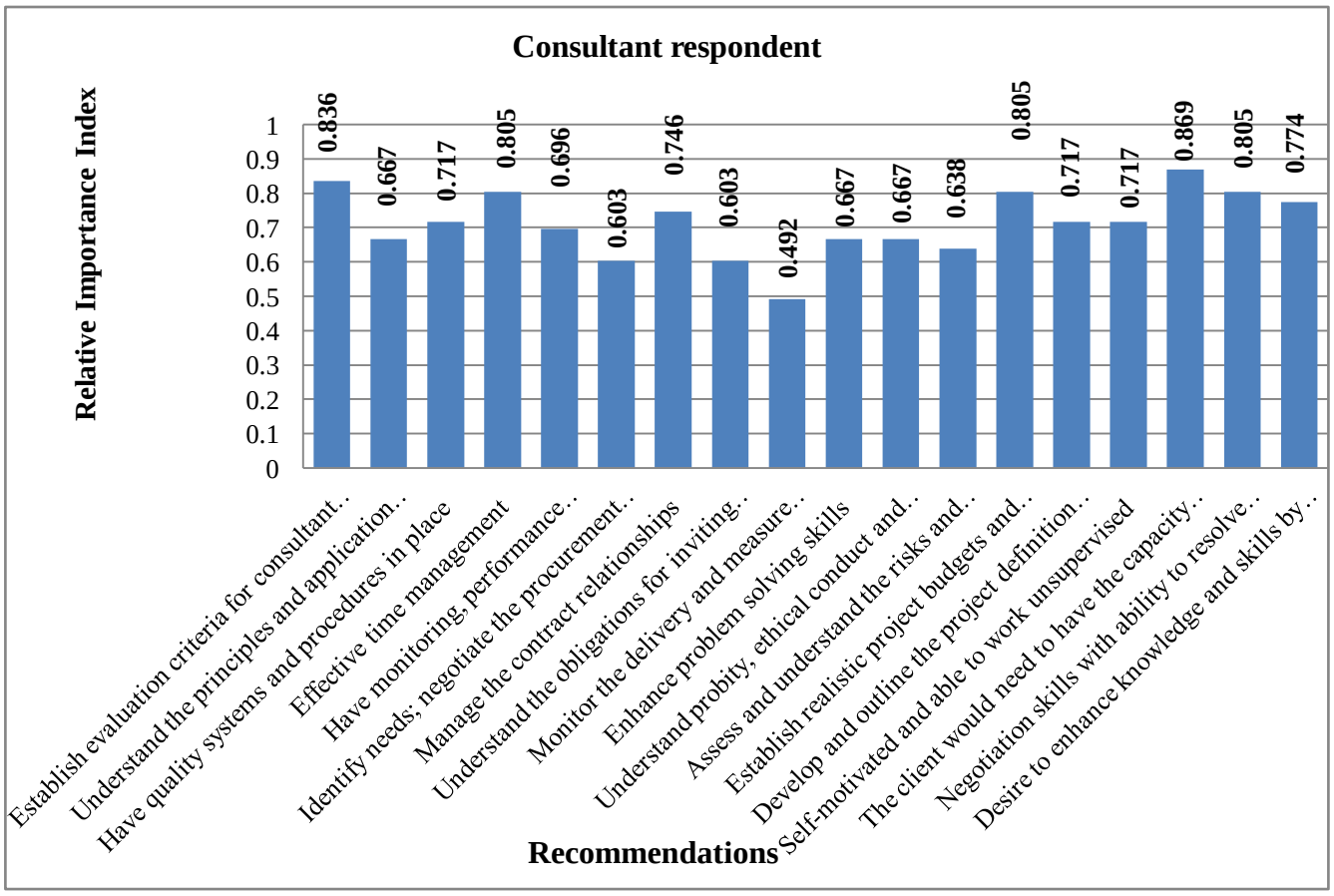

Figure 9.RII and rank of recommended strategies from the consultants group

The summarized spearman correlation coefficient indicates that there is a strong correlation between all the three groups. This means that most of the respondents have the same perception on the recommended strategies to minimize gap of employer.

Table 27 Summary of correlation test on the ranking of recommendations

Respondents	Clients	Contractors	Consultants
Clients	1	0.996	0.987
Contractors	0. 996	1	0.991
Consultants	0.987	0.991	1

IV. Overall Responses

(Marica, 2007) Obtained that the controlling and monitoring works affect the quality, production and management system. From Table 28.It was possible to rank the recommended strategy to minimize gap of employer. The most ranked strategy by all respondents were The client would need to have the capacity to give proper instructions for, and to approve the particulars of claim, and to approve a compromise(RI=0.832) followed by establish evaluation criteria for consultant and contractor selection and Establish realistic project budgets and program timelines with equal value ; (RI=0.821). Effective time management (RI=0.807) understand the principles and application of project management (RI= 0.771) was the next. According to all the respondents, the least ranked strategy was Identify needs; negotiate the procurement package (RI=0.491).

Table 28 RII and rank of recommended strategies from the overall group

S.N	Recommended Strategies	Overall RII	Rank
1	Establish evaluation criteria for consultant and contractor selection;	0.821	2.00
2	Understand the principles and application of project management	0.772	5.00
3	Have quality systems and procedures in place	0.642	13.00
4	Effective time management	0.807	4.00
5	Have monitoring, performance measurement and reporting mechanisms in Place	0.754	6.00
6	Identify needs; negotiate the procurement package	0.491	18.00
7	Manage the contract relationships	0.646	12.00

8	Understand the obligations for inviting tenders (i.e. prices, bids, quotations, and expressions of interest	0.498	17.00
9	Monitor the delivery and measure suppliers' performance	0.561	16.00
10	Enhance problem solving skills	0.737	7.00
11	Understand probity, ethical conduct and fairness, accountability, and adopt these standards throughout the project from initiation to completion	0.663	18.00
12	Assess and understand the risks and identify who is to manage which risks	0.625	14.00
13	Establish realistic project budgets and program timelines	0.821	2.00
14	Develop and outline the project definition and scope	0.575	15.00
15	Self-motivated and able to work unsupervised	0.674	10.00
16	The client would need to have the capacity to give proper instructions for, and to approve the particulars of claim, and to approve a compromise	0.832	1.00
17	Negotiation skills with ability to resolve conflict situations	0.695	9.00
18	Desire to enhance knowledge and skills by training	0.733	8.00

The following graph 11 below shows RII and rank of recommended strategies from the overall group

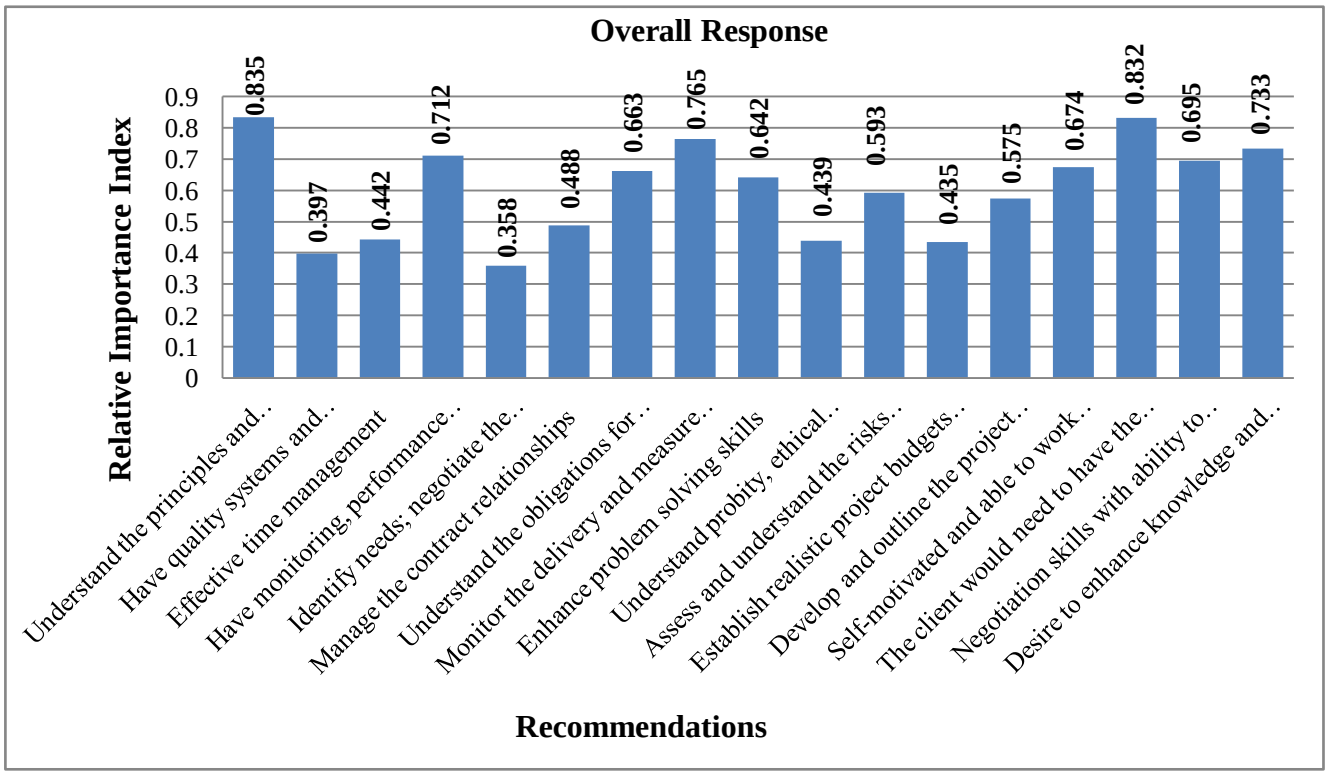

Figure 11. RII and rank of recommended strategies from the overall group

4.5.2 Result and Discussion

From the desk study and overall responses received, it was therefore concluded that the following best five improvement method to minimize gaps of employer on managing URRAP projects:

- Establish evaluation criteria for consultant and contractor selection,
- Self-motivated and able to work unsupervised
- Establish realistic project budgets and program timelines
- Effective time management
- Develop negotiation
- Giving training for employee
- Brief discussion between parties
- Understand the principles and application of project management

CHAPTER FIVE

CONCLUSION AND RECOMMENDATIONS

5.1. Conclusion

This chapter presents the conclusions and recommendations of the research which are based on the results of data analysis and discussion made on the previous chapter.

The objectives of the research were assessing the way of Jimma zone URRAP employers practice its role, identifying gaps seen and, place strategies recommended to minimize gaps of employer on managing URRAP projects. To achieve these objectives, the study used desk study and questionnaire survey as a research instruments. The information gathered from the survey was analyzed using the relative Frequency index, importance index, Severity index and correlated using spearman's correlation coefficient.

Based on the results from the analysis the following conclusions have been derived and summarized in accordance with the objectives of the research.

The first objective of the study was to analyze the way of South East of Jimma Zone's employers practice its role on URRAP projects. Among 58 role of client, the responses received from the clients' showed that were the top five most frequent and significant role which practiced by employer on URRAP projects.

- Being responsible for the execution of the project from the initial idea to implementation,
- Sequencing and scheduling of work, and carrying out construction,
- Establish organizational structures and responsibilities,
- Ensure that suitable management arrangements are made for the project, and
- Conveying management's commitment to the Client's organization

Regarding the contractors', the top five most frequent and significant role on URRAP projects were

- Being responsible for the execution of the project from the initial idea to implementation,
- Ensure that suitable management arrangements are made for the project,
- Sequencing and scheduling of work, and carrying out construction,
- Sound decision making skills, and

- Select & appoint a competent and resourced Principal contractor.

According to the consultants', the top five most frequent and significant role which practiced by employer on URRAP projects were:

- giving proper instructions for, and to approve the particulars of claim, and to approve a compromise,
- Select & appoint a competent and resourced Principal contractor,
- Select & appoint a competent and resourced Principal Designer, and
- Internal and external communication clearly
- Welcome comments and suggestions from participants for process improvement.

The second objective was to identify gaps seen on employer in practicing its role on URRAP project in Jimma zone. The study found that there are numerous gaps seen on ORA on managing URRAP projects

From the 14 gaps of employer identified, the top five most frequently occurred gaps of employer according to the responses of the clients were:

- lack of adequate finance to run the project,
- Poor project financing (in terms of budget, payment),
- Delay of the client to approve payments,
- Unavailability of safety officers in the area of health and safety to enforce requirements of the regulation, and
- Change in requirement of the client As contractor responded,

As contractor ranked; the top five most frequently occurred gaps in employer role were

- lack of adequate finance to run the project,
- Poor project financing (in terms of budget, payment),
- Delay of the client to approve payments,
- Unavailability of safety officers in the area of health and safety to enforce requirements of the regulation, and
- Lack of capacity to make the sort of decisions

According to the responses of the consultants: the following were the top five most frequently occurred gaps seen on Jimma zone road authority on managing URRAP projects.

- lack of adequate finance to run the project,
- Poor project financing (in terms of budget, payment),
- Lack of capacity to make the sort of decisions,
- Poor contract management of the client and
- Client is not familiar with codes,

The correlation between ranking by client and consultant, client and contractor as well as consultant and contractor was strong. This indicated that most of the respondents have the same perception on problems seen on Jimma zone road authority on managing URRAP projects.

From the findings of the desk study and overall responses from questionnaires, it was concluded that the top most frequ ently occurred gaps seen beside Jimma zone road authority on managing URRAP projects on URRAP projects were: lack of adequate finance to run the project,

- Poor project financing (in terms of budget, payment),
- Delay of the client to approve payments,
- Unavailability of safety officers in the area of health and safety to enforce requirements of the regulation,
- Lack of capacity to make the sort of decisions.
- Lack of continuous supervision
- Lack of co-ordination and co-operation
- Lack of checking the design whether it is complete
- Poor employees, consultants and contractors management
- Lack of taking test and submitting the result of those taken

The third objective of the study was to suggest recommended strategies to minimize problems seen on employer on managing URRAP projects in Jimma zone. To achieve this, a questionnaire survey containing nineteen (19) strategies to minimize gaps of employer which were identified from literatures were ranked by respondents based on the degree of importance. The findings revealed the clients' responded that were the most ranked recommended strategies to overcome gaps of employer.

- Self-motivated and able to work unsupervised,
- Establish evaluation criteria for consultant and contractor selection,
- Establish realistic project budgets and program timelines ,
- Have monitoring, performance measurement and reporting mechanisms in Place and
- Enhance problem solving skills

Contractors' response argued on the most ranked recommended strategies to overcome gaps of employer were:

- Effective time management,
- Establish realistic project budgets and program timelines,
- Self-motivated and able to work unsupervised,
- Establish evaluation criteria for consultant and contractor selection; and
- understand the principles and application of project management

According to the responses of the consultants, the top five recommended strategies on managing gaps on URRAP projects were:

- Self-motivated and able to work unsupervised,
- The client would need to have the capacity to give proper instructions for, and to approve the particulars of claim, and to approve a compromise,
- Establish realistic project budgets and program timelines,
- Establish evaluation criteria for consultant and contractor selection and,
- Effective time management

From the desk study and overall responses received, it was therefore concluded that the following improvement method to minimize gaps of employer on managing URRAP projects:

- Establish evaluation criteria for consultant and contractor selection,
- Self-motivated and able to work unsupervised
- Establish realistic project budgets and program timelines
- Effective time management
- Develop negotiation
- Giving training for employee
- Brief discussion between parties
- Understand the principles and application of project management

Studying way of employer practice its role and giving proper improvement method for problem seen produce more chance for successful completion of the project. Problem related to budget, payment and management arrangement are problems identified. The way of Oromia Road Authority practice its role is most rated as good.

5.2 Recommendations

The objective of this thesis was to forward recommendations to improve ruling capacity of the employer on URRAP projects based on the finding from the problems addressed in the literature review through questionnaire survey and desk study. Therefore, the following recommendations are expected from participant in improving successful completion of construction projects.

Recommendations for Employers

- On all projects the client must verify that adequate management arrangements are in place to ensure that the roles, functions and responsibilities of all members of the project team are clear and understood
- Encouraging coordination and cooperation between team members should be established at the earlier stage of the project and assists them to maintain a positive climate to aim for continues improvement,
- The client should establish realistic project budgets and program timelines.
- Client should establish evaluation criteria for consultant and contractor selection.
- The clients are recommended to manage the different stages of any project and to follow the performance percentages, and also able to compare the actual performance with the planned one.
- Establishing a good communication system that keeps all participants aware of the objectives, progress, suggestions and required corrective actions.
- There should be improvement in project management, decision making process on the part of the client during project execution stage.
- Provide a safe work environment, recognize good behavior, show appreciation, set attainable goals, develop a fair pay system and provide adequate training programs

Recommendations for contractors

- During execution of a project contractors should focus on planning (work breakdown structure, scheduling, resource allocating) effort and project managers leading ability which

improves effective site management in utilizing and coordinating man power, equipment and materials towards the success of a project

- The Contractors should have a clear controlling cash flow mechanisms that are released by the owners or owners' representatives
- Create good co-operation, co-ordination and communication between employer and consultant

Recommendations for Consultants

- Consultants are advised to hire a qualified technical staff to manage the project in a good way, so he would be able to overcome any technical or management problems that happen.
- Should prepare completed contract document and should be avoid complex design and incomplete drawings and care should be taken to avoid confusion among the various construction agencies. at early stage
- Recommended to continuously supervise the work; to administer the contract; and to authorize payments or issue certificates on time.
- Create good co-operation, co-ordination and communication between employer and contractors

Recommendations for researchers:

- Since this study focused on URRAP projects, it would be interesting to study the role of employer in other road projects and compare the results.
- The results of this research should help construction practitioners, policy makers and researchers in the field of construction management

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Appendix A: Questionnaire

Jimma University

School Of Graduate Studies

Jimma Institute of Technology

Department of Civil Engineering

Construction Engineering and Management Stream

Questionnaire

Assessment on Employers Role to Improve Successful Completion of URRAP Project at Jimma Zone,

Dear Sir/Madam,

The aim of this questionnaire is to obtain professional opinion on; way of employer Jimma Zone URRAP projects way of practice its role in managing URRAP projects; gaps seen on practicing its role and recommendation for handling gaps identified for improving URRAP projects. This questionnaire is required to be filled with exact and relevant facts as much as possible. All data included in this questionnaire will be used only for academic research purpose and will be strictly confidential.

For unclear questions (if there is) or any questions related to the questionnaire use my addresses.

Sincerely

Submitted by: Aynalem Feyisa (B.Sc)

Main Advisor: Wubishet Jekale (Dr. Ing)

Co-Advisor: Mr Getachew Kebede, Msc

E-mail – ayniyef@gmail.com

April, 2016

Company Data

I. Name of Firm: ……..

ii. Classification of Firm: ……

iii. Location of site: ……

PART ONE: General / Organization Information

1.1. Type or origin of your organization

☐ Project Owner/Client ☐Contractor

☐Consultant ☐Others (please specify)_____

1.2. Education level:

☐ Diploma ☐ Bsc. degree ☐Msc degree ☐others (state): …….

1.3. What's your Profession?

☐Engineer☐Quantity Surveyor

☐ Materialist ☐Others (State)…..……

☐ Forman

1.4. Years of experience of the respondent:

☐Less than 5 years ☐ from 6 to 10 years

☐From 10 to 15years ☐ Over 15 years.

1.5. How many road projects you have been involved in?

☐Less than 5 projects ☐ 6-10 projects ☐more than 10 projects

PART TWO: The following various role of employer's are identified from different literature which are main tools for successful construction projects. From your experience please rate frequency of occurrence as well as the degree of significance to project improvement on your site.

Tick once (√) as appropriate the following:

Occurrence: 1–Never 2 –Sometimes 3 - Always

Significance: 1 = None 2 = Neutral 3 = Moderate

4 =High 5 =Very high

S. N	Role of employer and productivity at work	Frequency of Occurrence			Degree of Significance				
		1	2	3	1	2	3	4	5
	Preparing and organizing								
1	Establish organizational structures and responsibilities.								
2	Prepare education and training requirements for all levels of staff.								
3	Organization on professional, quality, technology, and team building skills.								
4	Sequencing and scheduling of work, and carrying out construction								
5	Ensure that suitable management arrangements are made for the project								
6	Being responsible for the execution of the project from the initial idea to implementation								
	Procurement								
7	Appoint an election team and Setting criteria to select project participants.								
8	Select & appoint a competent and resourced								

	Principal Designer.								
9	Select & appoint a competent and resourced Principal contractor.								
10	When preparing contract document, minimizing unnecessary contract term which impose more risks and liabilities on contractor.								
11	To pre-qualify Designer and Consultants considering the principles used in the Contractor selection process.								
12	Ensuring that the selected sub-contractors have got enough equipment to satisfy the standard plan.								
13	Advice the Main Contractor the principles of selection of Sub-contractors and vendors.								
	Ensure co-ordination team and cooperate								
14	Initiate action in both the Clients' team and co-ordination, and keep them focused on the target.								
15	Providing a common ground for both the Client and Contractor by maintaining openness and avoiding defensiveness.								
16	checking that there is good co-operation and communication between designers and contractors								
17	Solving disputes immediately with the assistance of team members								
18	Conducting meeting at regular intervals and ensure that all parties attend the meetings continuously.								
19	Ensure co-operation and co-ordination between the client's employees and contractors								
20	Assisting the members to jointly develop action plans for problem solving, resolving disputes,								
21	Assisting the members to establish the joint team and delegate responsibilities and authority to the appropriate personnel.								

22	Depending on the nature of project and problem, assisting the joint team in appointing the goal.								
23	Improving team and corrective action teams								
24	Recording the agreed action plans and communicates it to the entire organization.								
	Design management								
25	During the pre-bid assessment assessing the design capabilities of designer's professionals and ensure that they have enough design expertise.								
26	Consulting the designer and construction professionals for advice during the preliminary design, and achieve constructability in the earlier phase of the design.								
27	Providing the Designer with necessary design input data								
	Ensuring that they are completely checked and reviewed right at the first time.								
28	Ensuring that the detailed design satisfies health and safety regulations. and traffic and noise control regulations, etc.,								
	Decision Making								
29	Make decisions and monitor progress at pre-determined stages.								
30	Put in place decision-making structures that support individual roles and responsibilities in relation to the project.								
31	The client would need to have capacity to make the sort of decisions that arise in litigation.								
32	giving proper instructions for, and to approve the particulars of claim, and to approve a compromise								
33	Sound decision making skills								
	Measuring and reviewing performance								
34	Measuring the effects of training given to the								

	Client's organization.								
35	Through the joint team conduct a regular measurement of performance and progress.								
36	Identifying problem areas, deficiencies and deviations.								
37	Discussing with team members causes of deficiencies and deviations and suggest corrective actions								
38	Checking, through the joint team, that the corrective action has been implemented.								
39	Continuously reviewing the results of any performance measurement and identify areas where performance standards are absent or inadequate.								
40	Defining a system to measure the performance improvements in terms of cost/benefit.								
41	Assessing Clients' satisfaction with performance.								
	Communications								
42	Conveying management's commitment to the Client's organization.								
43	Establishing a good communication system that keeps all participants aware of the objectives, progress and successful stories of the program.								
44	Communicating the standards, procedures and systems relating to implementation and performance measurement to relevant participants.								
45	Prompt actions of client to feedback from contractor, supplier, and other professionals.								
46	Communicating the suggestions and required corrective actions to respective parties								
47	Welcome comments and suggestions from								

	participants for process improvement.								
48	Internal and external communication clearly								
	Health, Safety and Environmental management								
49	Ensuring that training on health and safety at work is given by the Contractors to the workers,								
51	Conducting regular meetings at all levels to discuss health and safety								
52	The client shall ensure that the co-coordinator is provided with all the health and safety information in the client's possession								
53	checking that there is adequate protection for the workers or members of the public;								
54	checking to make sure that adequate welfare facilities have been provided by the contractor;								
55	Checking that the arrangements which the contractor agreed to make to control key risks on site have been implemented.								
56	Ensuring that the co-ordination agreement and safety plans are included in the contract								
57	Ensure to prepare Wastes disposal around the site								
58	Propose solution for Unexpected weather								
	If other specify……								

2.2. What do you say about current client's management practicing on URRAP project?

☐Excellent ☐Very good ☐Good ☐Satisfactory ☐Poor

PART THREE: Gaps Identified

The following are gap of employer seen on practicing its role which affects successful completion of the rural road project. From your experience, please express your opinion by rating frequency of occurrence based on the representative numbers listed below by marking (√) under each preference.

1 = Never 2 = Seldom 3 = Sometimes4 = Often5 = Always

S.N	Gaps Identified	Frequency of Occurrence				
		1	2	3	4	5
1	Change in requirement of the client					
2	lack of adequate finance to run the project					
3	Client is not familiar with codes					
4	Client is not familiar with how job site operates					
5	Delay of the client to approve payments					
6	Client is not familiar with how to read drawings					
7	A client has ongoing difficulty with communications					
8	Unavailability of safety officers in the area of health and safety to enforce requirements of the regulation					
9	Poor project financing (in terms of budget, payment)					
10	Lack of capacity to make the sort of decisions					
11	Resistance of the consultant to approve equivalent value of the executed work and resistance to pay for materials supplied to site					
12	lack of co-ordination and cooperation in managing the project					
13	Problem on choice of inappropriate procurement routes					
14	Poor contract management of the client					
	If other specify					
16						
17						
18						

19						
20						

PART FOUR: Recommended strategies to overcome gaps

The following are suggested strategies or recommendations used for successful completion of the road project by overcoming problems identified on practicing client role. From your experience, what is the best strategic action can be taken to minimize the problem on employer?

1-Unimportant, 2- Less important 3– Important

4– Very important 5– Extremely important

S.N	Recommended Strategies To Improve Employer Gap	Degree of importance				
		1	2	3	4	5
1	Establish evaluation criteria for consultant and contractor selection;					
2	Understand the principles and application of project management					
3	Have quality systems and procedures in place					
4	Effective time management					
5	Have monitoring, performance measurement and reporting mechanisms in Place					
6	Identify needs; negotiate the procurement package					
7	Manage the contract relationships					
8	Understand the obligations for inviting tenders (i.e. prices, bids, quotations, and expressions of interest					
9	Monitor the delivery and measure suppliers' performance					
10	Enhance problem solving skills					
11	Understand probity, ethical conduct and fairness, accountability, and adopt these standards throughout the project from initiation to completion					
12	Assess and understand the risks and identify who is to manage which risks					
13	Establish realistic project budgets and program timelines					
14	Develop and outline the project definition and scope					
15	Self-motivated and able to work unsupervised					

16	The client would need to have the capacity to give proper instructions for, and to approve the particulars of claim, and to approve a compromise					
17	Negotiation skills with ability to resolve conflict situations					
18	Desire to enhance knowledge and skills by training					
	If other specify					

Thank You for Your Cooperation

Appendix B: SI and rank of practice of employers role from overall respondent

Role of employer	Overall Respondents	
	SI	Rank
Establish organizational structures and responsibilities.	0.614	8
Prepare education and training requirements for all levels of staff.	0.450	45
Organization on professional, quality, technology, and team building skills.	0.435	46
Sequencing and scheduling of work, and carrying out construction	0.711	2
Ensure that suitable management arrangements are made for the project	0.707	3
Being responsible for the execution of the project from the initial idea to implementation	0.787	1
Appoint an election team and Setting criteria to select project participants.	0.569	18
Select & appoint a competent and resourced Principal Designer.	0.595	13
Select & appoint a competent and resourced Principal contractor.	0.674	4
When preparing contract document, minimizing unnecessary contract term which impose more risks and liabilities on contractor.	0.370	52
To pre-qualify Designer and Consultants considering the principles used in the Contractor selection process.	0.457	41
Ensuring that the selected sub-contractors have got enough equipment to satisfy the standard plan.	0.394	51
Advice the Main Contractor the principles of selection of Sub-contractors and vendors.	0.548	25
Initiate action in both the Clients' team and co-ordination, and keep them focused on the target.	0.562	19
Providing a common ground for both the Client and Contractor by maintaining openness and avoiding defensiveness.	0.576	14
checking that there is good co-operation and communication between designers and contractors	0.599	11
Solving disputes immediately with the assistance of team members	0.511	33
Conducting meeting at regular intervals and ensure that all parties attend the meetings continuously.	0.460	40

Ensure co-operation and co-ordination between the client's employees and contractors	0.601	9
Assisting the members to jointly develop action plans for problem solving, resolving disputes,	0.500	35
Assisting the members to establish the joint team and delegate responsibilities and authority to the appropriate personnel.	0.487	37
Depending on the nature of project and problem, assisting the joint team in appointing the goal.	0.530	29
Improving team and corrective action teams	0.456	43
Recording the agreed action plans and communicates it to the entire organization.	0.368	53
During the pre-bid assessment assessing the design capabilities of designer's professionals and ensure that they have enough design expertise.	0.426	49
Consulting the designer and construction professionals for advice during the preliminary design, and achieve constructability in the earlier phase of the design.	0.457	42
Providing the Designer with necessary design input data	0.519	32
Ensuring that they are completely checked and reviewed right at the first time.	0.487	30
Ensuring that the detailed design satisfies health and safety regulations. and traffic and noise control regulations, etc.,	0.367	54
Make decisions and monitor progress at pre-determined stages.	0.600	10
Put in place decision-making structures that support individual roles and responsibilities in relation to the project.	0.560	21
The client would need to have capacity to make the sort of decisions that arise in litigation.	0.453	44
giving proper instructions for, and to approve the particulars of claim, and to approve a compromise	0.664	5
Sound decision making skills	0.653	6
Measuring the effects of training given to the Client's organization.	0.474	38
Through the joint team conduct a regular measurement of performance and progress.	0.501	34
Identifying problem areas, deficiencies and deviations.	0.550	23

Discussing with team members causes of deficiencies and deviations and suggest corrective actions	0.527	31
Checking, through the joint team, that the corrective action has been implemented.	0.546	27
Continuously reviewing the results of any performance measurement and identify areas where performance standards are absent or inadequate.	0.430	48
Defining a system to measure the performance improvements in terms of cost/benefit.	0.528	30
Assessing Clients' satisfaction with performance.	0.547	26
Conveying management's commitment to the Client's organization.	0.596	12
Establishing a good communication system that keeps all participants aware of the objectives, progress and successful stories of the program.	0.651	7
Communicating the standards, procedures and systems relating to implementation and performance measurement to relevant participants.	0.573	15
Prompt actions of client to feedback from contractor, supplier, and other professionals.	0.535	28
Communicating the suggestions and required corrective actions to respective parties	0.550	24
Welcome comments and suggestions from participants for process improvement.	0.572	16
Internal and external communication clearly	0.557	22
Ensuring that training on health and safety at work is given by the Contractors to the workers,	0.337	58
Conducting regular meetings at all levels to discuss health and safety	0.338	57
The client shall ensure that the co-coordinator is provided with all the health and safety information in the client's possession	0.368	56
checking that there is adequate protection for the workers or members of the public;	0.362	55
checking to make sure that adequate welfare facilities have been provided by the contractor;	0.468	39
Checking that the arrangements which the contractor agreed to make to control key risks on site have been implemented.	0.430	47

Ensuring that the co-ordination agreement and safety plans are included in the contract	0.372	52
Ensure to prepare Wastes disposal around the site	0.404	50
Propose solution for Unexpected weather	0.560	20