Factors Influencing Quality of URRAP projects in some selected districts of Jimma Zone

Research Thesis Submitted to the School of Graduate Studies of Jimma University Partial Fulfillment of the Award of the Degree of Masters of Project Management and Finance

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Declaration

I declare that the research thesis entitled: “Factors Influencing Quality of URRAP projects in some selected districts of Jimma Zone” has been carried out by me under the guidance and supervision of *Dr.Arega seyoum (PHD)* and *Mr. Mohammed sultan* The research proposal is original and it has not been submitted for the award of degree of diploma at any university or institutions.

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Certificate

*This is to certify that the research thesis entitled: "*Factors Influencing Quality of URRAP projects in some selected districts of Jimma Zone*" submitted to Jimma University for the award of the Degree of Master of project management and finance Program and is a record of valuable research work carried out by Keru Umer Hussen, under our guidance and supervision*

Therefore, we hereby declare that no part of this research thesis has been submitted to any other university or institutions for the award of any degree of diploma.

Name of Main Advisor	*Signature*	*Date*
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Name of Co Advisor	*Signature*	*Date*
_____	_____	_____

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Approval Sheet of Thesis

As members of the Examining Board of the Final Open Defense, we certify that we have read and evaluated the thesis prepared by Keru Umer Hussen, entitled “Factors Influencing Quality of URRAP projects in some selected districts of Jimma Zone”, and recommend that it be accepted as fulfilling the thesis requirements for the award of the Degree of Master of project management and finance.

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Abstract

The main aim of this study was to assess Factors Influencing Quality of URRAP projects in some selected districts of Jimma Zone. To accomplish this objective, descriptive and explanatory survey design was used which were supplemented by both quantitative and qualitative data, the target population of this research paper was contractors, wereda rural road authority employers, zone consultants, construction bureau experts, contractors members, zone construction head office and zone rural road authority head office their total number is 83, Sampling techniques of the study was census. The method of data collection was through survey method and the tools are questionnaires, interview and document analysis. The data obtained through questionnaire was analyzed quantitatively using descriptive, inferential statistical, regression analysis and correlations were used to analyze using SPSS version 23, while data obtained through interview were analyzed qualitatively. T*he major findings of the study inadequate and experienced human resources on the owner side, lack of a prompt payment system, an ineffective project management system, together with design error and omissions and insufficient data for design by consultant and construction in predicting underground conditions were some of the critical factors influencing quality of URRAP projects. The study establishes that good communication of client, consultant, contractor and project stage of the project team was found to enhance proper and quick project quality, Poor knowledge of project management unable to walk or move properly project quality and supervision during construction is significant to ensure excellence quality and timely delivery of project. The study findings also showed that contractor in construction projects has an influence on its quality. The study in addition establish that there was statistically significant and positive relationship between clients, contractors, consultants and project stage and quality rate of URRAP projects. As a recommendation, the government should be enforce to all clients in rural road bureau understand the importance of quality standard and evaluations of contractors and their organizations members to determine their level of factors deficiency of quality standards as set as government regulations or regulatory body by public, private professional bodies and government bodies to ensure successful quality of the rural road projects.*

Keywords*: consultants, contractors, clients, project stage and rural road quality, deficiency.*

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CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Rural road access is key determinant to poverty. Without physical rural road access rural communities face greater obstacles in obtaining health, education and other social services. Roads are key elements in the provision of physical access. This plays a vital role in determining the chances for reaching a number of sustainable development goal (SDGs)/Millennium development goals (MDGs) which is to allow the great majority of the rural population access to socio-economic services (W.T Consult, 2017). Rural roads are often treated as the last link of the transport network. Despite this, they form the most important link in terms of providing access for the rural population. Quality in its simplest form can be defined as 'meeting the customer expectations', or 'compliance with customer specification'. Ethiopia is the second most populous country on the African Continent, nearing 97 million of which 81% lives in rural areas (estimated in 2016 by the World Bank), highly scattered around the country. Federal Roads, accounting for 25,756 km of the total road network, are maintained by ERA, and the remaining 32,582 km and 27,628 km of rural roads (all unpaved) and the Universal Rural Roads Access Program (URRAP) roads respectively, generally fall under the Regions as reported by the world bank on Africa region transport sector department (January, 2014). The road sector development program was enacted in 1997 and accomplished the plan for the last 15 years in three phases. Unlike earlier phases of the Road Sector Development Program (RSDP), RSDP IV places a high emphasis on the construction of engineered low volume roads and includes a major investment in Woreda and kebele access rural roads under the universal rural road access program (FDREMTERA, 2011).The objective of Universal Rural Road Access Program is to connect all kebeles by road with all-weather, year-round access; this is designed to improve rural livelihoods by reducing the isolation of rural populations from their markets, social centers and other services centers. URRAP is an ambitious programme, targeting the construction of 71,523 km access roads to all-weather standards (ERA, 2014)." The programme uses [the] least expensive and most abundant resources, labour as well as naturally occurring road construction materials. Road works implemented under the programme will be predominantly labour or intermediate equipment based" (TOR, 2010). The programme aimed to construct gravel roads with low cost mechanism by using local materials and labour force.

Due to the rise of the construction project boom trend related to gravel roads network in the recent years, URRAP has been experiencing complaints about the lower quality of service on gravel rural roads. Frequently these roads have problems of crown, slope rate, super elevations, sight distances, curves, road gradient, oversize, ruts, potholes and drainage conditions. It is important to identify road project defects leading to failure, to provide the client with a better guarantee that delivers road projects with the required functions, and to be attentive to deficiency

causes which should then help clients concentrate on preventative measures and the execution of controlling mechanisms.

Gravel roads account for a large portion of the rural roads in Ethiopia. In general, the causes of present problems of meeting standard requirements are not well identified to all parties involved in the construction process, due to the scarcity of studies that address the impact of this practice on social and direct costs.

Therefore, the purpose of this study is to close this gap by identifying areas of deficiencies and their causes in selected client projects and forward recommendations which would help to avoid or to minimize defects in URRAP road construction projects based on the findings of the study.

1.2 Statement of the problem

Ethiopia has remained one of the least developed countries on a global scale until recent times when some signs of actual economic improvement were registered. Also regarding rural roads accessibility in Ethiopia remain a challenge towards poverty reduction and achievement of sustainable development despite their importance towards economic development. Merely twenty years ago, the national road network stood at a physical size of 26,550 kms. Since then, significant rise in population and a need for economic interaction were witnessed; and road as the most dominant mode of transportation within the country, it was pretty evident some desperate measures had to be taken. Accordingly, in 1997, the GoE launched a series of road network transformation plans through the RSDP consisting of multiple phases.

With different national road sector agencies such as ERA, Regional Roads Authorities (RRAs) and Woreda Road Offices (WROs) overseeing projects within their respective territories, significant advances have been made over the past 19 years. Nearly all road agencies on the national level have been under reform in addition to carrying out physical works on road projects.

However, some important projects such as Universal Rural Road Access Program (URRAP) launched under the fourth stage of the RSDP and also continuing in the ongoing fifth phase were prematurely handed over to WROs. Putting aside physical accomplishment rates, it is possible to see that there are some rather debatable executive and monitoring policy issues. Some risks were taken by entrusting the physical work to infant small enterprises (the researcher believes that was an excellent move by the government towards job creation but doubts the uniformity of competence on the part of these enterprises) on top of letting WROs oversee the implementation.

Levels of accomplishment varied among different regions as the ones with weak monitoring schemes registered disappointing level of accomplishment. Benishangul-Gumuz, Gambella and Afar regions showed terrible accomplishment compared with the likes of Oromia, Amhara and Tigray which registered better success rates (Tsegaye, 2014). Furthermore, these WROs in collaboration with RRAs are expected to come up with the financial and planning program for preserving the vast stretch of URRAP roads. Given the importance of road surface condition in

sustaining increased transport activities, such a responsibility could prove to be a herculean task for the agencies to handle alone with their current capacity. ERA has also identified foreign exchange deficit and lack of finances for further road projects as serious threats to the journey towards lower middle income status by 2025 (ERA, 2015). And even though appreciable finance from Development Partners (DPs) has been secured for the road sector over the past 20 years, international contractors have kept on undertaking mega road projects and precious foreign currency still keeps on moving away from the country. Furthermore, extra effort might be required from the Ministry of Transport (MoT) and Ministry of Finance and Economic cooperation (MoFEC) in terms of policy dialogue as non-traditional DPs, particularly China, with some strategies and partnership policies that seriously differ from the approach of traditional DPs (Such as: the European Union (EU); African Development Bank (AfDB); and the World Bank Group) are now taking the lead in financing large scale roads. Additionally, the budget and focus balance between maintenance of existing roads on one hand and new construction on the other is still a long way from finding harmony. That is particularly magnified as the Office of Road Fund (ORF) which was established for the sole purpose of generating revenue through fuel levy to cover the cost of road asset preservation is barely doing enough in the sector. In stating so, the researcher realizes that there are not too many vehicles in the country from which sufficient fuel levy could be secured annually for road asset management. But even so, the current level of revenue collection is below what one might expect given the current national motor vehicle fleet.

Rural roads are of vital importance in order to bring development of areas they serve and make a nation grow and develop (Ikiara et al., 2000). In particular, road links between nations will have to be strengthened to meet the large-scale demand for intra- and inter-national goods traffic. Also its multiple function of providing access to employment, social, health and education services makes road network crucial in fighting against poverty by opening up more areas and stimulating economic and social development. Development and quality of physical infrastructure are key to rapid economic growth and poverty reduction. Production costs, employment creation, access to markets, and investment depend on the quality of infrastructure, especially transport. The study to solve problem facing different deficiency and factors influencing quality of URRAP projects in jimma zone some selected wereda's. It is important to know source of deficiency and the most factors influencing quality of URRAP and the mechanism to solve the factors. This study by identifying areas of deficiencies and their causes in selected client projects and forward recommendations which would help to avoid or to minimize defects in URRAP road construction projects .Therefore, this study seeks to fill the research gap by examining source of deficiency and the factors influencing quality of URRAP projects.

1.3. Research Questions

1. To what extent does client influence the quality of the URRAP construction projects in some selected districts of Jimma zone?

2. How does consultant influence quality of URRAP projects in some selected districts of Jimma zone?
3. In what ways does Contractors influence quality of URRAP projects in some selected districts of Jimma zone?
4. In what ways does project stage influence quality of URRAP projects in some selected districts of Jimma zone?

1.4 Objectives of the study

1.4.1 General objective of the study

The main objective of the study was to assess factors influencing quality of URRAP construction projects in some selected districts of Jimma zone.

1.4.2 Specific objective of the study

- To examine the effect of client related factors influences quality of URRAP projects in the study area.
- To investigate the deficiency related consultants influences the quality of URRAP projects in some selected districts of jimma zone.
- To assess the effect of contractor related factors influences on the quality of URRAP projects in some selected districts of Jimma zone.
- Although to examine the extent to which project stage influences the quality of URRAP **projects in the study area.**

1.5 Research Hypothesis

The test is significant when p- value is less than 0.05 and insignificant when p- value is greater than 0.05.

Test of Hypothesis: General hypothesis is made relating quality to other factors.

Null Hypothesis: The relation between quality and identified factors is less significant.

Alternate Hypothesis: The relation between quality and identified factors is highly significant.

The following hypotheses are proposed to factors influencing quality of URRAP projects:-

1. Client significantly influences the quality of the URRAP projects in some selected districts of Jimma zone.

2. Consultant significantly influence quality of URRAP projects in some selected districts of Jimma zone.
3. Contractors significantly influence quality of URRAP projects in some selected districts of Jimma zone.
4. Project stage significantly influences quality of URRAP projects in some selected districts of Jimma zone.

1.6 Significance of the Study

This study may help all participants of URRAP construction projects increase the quality of rural road projects quality by managing well the factors that will help their successful quality of URRAP projects. The contractors, clients, consultant, construction bureau expert and site agents may benefit from this study by applying the results of its findings while carrying out rural road projects. The finding of this study will have both theoretical and practical implications for the future study on factors influencing quality of URRAP projects. Theoretically, the study is expected to contribute to the improvement of knowledge about factors influencing quality of URRAP projects.

Clients may also benefit from the findings of this study and therefore achieve greater success in their rural road projects. This is because they may apply the findings of this study in ensuring the risk factors that may cause their projects not be qualified successfully are mitigated. The implication from the study will also show the way to policy makers' new direction in formulation and implementation of policies. The researcher expects the research is important to all concerned with county's economic development. Specifically For political leaders, it provides clearness and specificity concerning the economic, social, leadership and technological practices of factors influencing quality of URRAP projects with the strongest relations to development. It will also be a reference for many policy makers, researchers, students, NGOs and even other people who have close interest on the subject matter; researchers on the subject matter will also refer this study as a literature review. Finally it was envisaged that the study will add new knowledge to the existing literature on factors influencing quality of URRAP projects. It was also expected to enable scholars and policy-makers to design more progressive leadership programmers and policies aimed at ensuring factors influencing quality of URRAP projects.

1.7 Scope of the Study

The research concentrates on the discussion relating to the factors influencing quality of URRAP projects in the some selected districts of Jimma zone. Several factors cause for the problem of quality of URRAP projects, but in the case of research it had chosen to focus on only how clients ,contractors, consultants and project stage involvement factors for influencing quality of URRAP projects. It does not include other variables beyond the clients, contractors, consultants and project stage involvement factors. The study area is conduct at only in Jimma zone. The researcher is selecting the study for a number of reasons. First, Jimma zone as compared to the rest of other possibly will relatively be a good representative and is helpful to get valuable information for the study. Second, the researcher is well aware of the problem in the zone (lived and worked in the zone in some districts of Jimma zone). Jimma zone is easily accessible to the center of the country due to Jimma zone closely located to Addis Ababa and finally to save researcher's money and time.

1.8 Limitation of the Study

It is comprehensible that research pay can't be totally free of charge of from constraint. The constraint of the study was geographically the investigate have be done only at some selected district of Jimma zone, if it would have been ways at region and country in general, having comparable or similar context with wide area coverage and a much larger number of respondents would have provided much deeper and useful information concerning the factors affects quality of URRAP projects. The further limitations were methodologically there are extraneous variables which were beyond the researcher control such as respondents' honesty; personal biases and uncontrolled setting of the study. The research instruments on the effect of performance appraisal on employee performance are not standardized. Therefore a validity and reliability test was being done to produce a credible measurement of the research variables. Additional restraint of the research was the respondents' reaction towards the questionnaires. Due to the main source of primary data were the organization employees and top leadership position and most of them does not timely responding which have an impact on the research schedules. Thus the researcher was forced to gather important information from the staff list and informants, and this made the data collection lengthy and difficult. Even though the researcher planned to use tape recorder during the interview, respondents were not voluntary and the researcher was forced to use writing on

notes. However, favorable situations were considered for the respondents to minimize situational factors that affect the quality of the data.

1.9 Definition of Terms

- **Project:** Is an individual or collaborative enterprise that is carefully planned and designed to achieve a particular aim.
- **Construction:** Is the process by which material, equipment, machinery are assembled into a permanent facility.
- **Road :** a long, narrow stretch with a smoothed or paved surface, made for traveling by motor vehicle, carriage, etc., between two or more points; street or highway.
- **Project Plan**: A formal document designed to guide the control and execution of a project (Project Management Body of Knowledge, 2012).
- **Project managemen**t: Understanding the needs of stakeholders, Planning what needs to be done, when, by whom, and to what standards, Building and motivating the team, Coordinating the work of different people, Monitoring work being done, Managing any changes to the plan, and Delivering successful results Martin Barnes (2012).
- **Funding:** Act of providing resources, usually in form of money or other values such as effort or time.
- **Management and leadership:** influencing other people to do the right thing.
- **Project managers:** Person in charge of projects
- **Gravel:** The natural material used for road construction, sometimes referred to as murram.
- **Road Network:** a continuous segment of a road straight or curved with a constant number of lanes throughout its whole length.
- **Contractor** is an independent entity that agrees to furnish certain number or quantity of goods, material, equipment, personnel, and/or services that meet or exceed stated requirements or specifications, at a mutually agreed upon price and within a specified timeframe to another independent entity called contracted, principal, or project owner or a person or firm that undertakes a contract to provide materials or labour to perform a service or do a job.
- **Consultant:** a person who provides expert advice professionally.
- **Client:** a person or organization using the services of a lawyer or other professional person or company.

- **Project stage:** is refers to a collection of activities within a project. Each project stage is goal oriented and ends at a milestone. Reaching these milestones means the project progresses. Each phase can be divided into sub-phases.

1.10 Acronyms

AADT Annual Average Daily Traffic

AASHTO/AASHO American association of state highway and transportation officials or American association of State highway officials

ACV Aggregate crushing value

ASTM American society for testing materials

ERA Ethiopian Roads Authority

ERTTP Ethiopian Rural Travel and Transport Programme

Esa Equivalent standard axles

ETB Ethiopian birr

FDREMTERA Federal Democratic Republic of Ethiopia Ministry of transport Ethiopia

GoE Government of Ethiopia

GTP Growth and Transformation Plan

Ha hectare

KM Kilometer

MDG Millennium Development Goal

MoFED Ministry of Finance and Economic Development

MTRD Material Testing and Research Department

ORA Oromia Roads Authority

PIARC Permanent International Association of Road Congress

RICS	Roads Inventory and Conditions
RRA	Regional Road Authority
RSDP	Road Sector Development Program
URRAP	Universal Rural Road Access Programme

1.11 Organization of the Paper

This study is organized in five chapters. Chapter one provide a background on factors influencing quality of URRAP projects in study area, statement of the problem, research objectives, and research questions that the study looks forward to answer, purpose of the study, and significance of the study and scope of the study. It also provides definitions of significant terms used in the study and organizational of the study. Chapter Two outlines the various schools of thought literature review on factors influencing quality of URRAP construction projects. Chapter three outlines the research design and methodology that was used for purposes of completing the study. It also describes research design, target population, sample, sampling procedure and data collection instruments, pilot testing of the instruments, data collection procedures and data analysis techniques, ethical considerations and operational definition of the variables. Chapter four covers data analysis and presentation of results, while Chapter five presented the summary of major findings, discussions of the findings, conclusions and recommendations of the study.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter provides an overview of the literature ranging from academic books and journals that address the factors affecting rural road quality for the purpose of this study. Academic articles stimulate and provide theoretical understanding relevant literature on the aspects pertaining to the efficient performance on road construction among URRAP. The quality is a key function in all infrastructure development environments like cost and time. The very nature of construction appears to be the real barrier to quality management success (Loushine, et al., 2002). Traditional quality management systems are often unrepresentative of workface and, are usually preoccupied with instruments of control and its administration rather than the outputs that are important to the customers (Thomas, R. et al., 2002).Many researchers have been carried out both in developed and developing countries to investigate the factors that have a substantial effect on the quality of construction projects. Some literature is explained below to highlight the factors affecting quality of URRAP projects.

Defective works were caused by unskilled labour, lack of supervision, changes in design, incorrect construction methods and unordered sequences of work. These defective works required extra budgets to complete or repair them. Clearly, this factor would cause construction cost overrun (wiguana and Scott, 2005). Dercon *et al*. (2009) used a panel data from fifteen rural villages in Ethiopia and examined the impact of agricultural extension program and roads access on poverty and consumption growth. The study finds, based on GMM estimation, that access to all-weather roads reduces poverty by 6.9 percent and increases average consumption growth by 16.3 percent after controlling for regional fixed effects and seasonal shocks.

2.2 Definition of gravel

Gavel is naturally occurring, rounded granular material with a particle size of from 2mm to 60mm. (It does not apply to gravel wearing courses) according to ERA standard specification and method of measurement labor based construction of wereda roads , final draft , November 2011,p.8). A gravel road generally serves as the first stage in the making an all weather road designed to particular standards of alignment and traffic carrying capacity.

2.3 Defects in Gravel Roads

Gravel roads are the main constituent of the road network in most developing countries (SDCMUR, 1990). In Ethiopia unpaved roads comprise a significant portion of the network and the overall percentage of unpaved roads will likely increase significantly in the future, due to the URRAP gravel road project. " URRAP roads have a designed layer of imported material, which is typically constructed to a specified standard width and provides an all-weather function

according to design code 2 of Ethiopian Road Authority low volume standards and traffic carrying capacity between 25 to 75 AADT " (ERA LVM, 2011). Low volume design class 2 standard of ERA pavement structure consists of a wear layer and a base layer. Due to this technique for improving the unpaved road, networks are becoming increasingly important.

Numerous gravel roads are currently designed with very low technical input and are built from the immediately obtainable resources (Haghbin, S, et al., 2014). "Minimal attention is directed towards providing an adequate formation or effective drainage, or towards selecting suitable material for the prevailing conditions" (Mahgoub, H, et al., 2011). Worthwhile benefits can be obtained from an appropriate level of engineering input (Ferry, 1986).

It is difficult to precisely define the term "defect". We start with the SVENSK STANDARD (SS) 02 01 04 (1987), which defines a defect as "the non-fulfillment of intended usage requirements". A defect refers to the observable facts of an unwanted circumstance in the road affecting serviceability, structural condition or appearance. Similarly, URRAP projects are experiencing complaints about the lower quality of service on gravel roads, particularly defects affecting the functional requirement of crown, slope rate, super elevations, sight distances, curves, road gradient, oversize, ruts, potholes and drainage conditions.

2.4 Source of Deficiencies

While defects appear in construction projects, an improved understanding would require their categorization into their roots or origin agents and causes. The origin agents are major stockholders of the project such as the client, contractor and defects which are and were not directly related to the participants, such as weather conditions and unforeseen problems. The causes of defects can be categorized according to the originators identified in literature review and are discussed below.

2.4.1 Owner-related Deficiencies

In some cases, the owner directly initiates shortcomings or the shortcomings materialize because the owner fails to fulfill certain requirements for carrying out the project. Clients cause defects due to a lack of adequate and experienced human resources, lack of sufficient project briefs and poor specifications, poor communication and slow decision-making in project management, owner-related financial difficulties, lack of a prompt payment system as the result of project cash flow problems, and right-of-way problems. In 2009 there were many projects which finished with poor performance because of many evidential reasons such as: obstacles by client, non-availability of materials, road closure, amendment of the design and drawing, additional works, waiting the decision, handing over, variation order, amendments in Bill of Quantity (B.O.Q) and delay of receiving drawings (Strenman, 2012).

Studies indicate that little attention is given to the performance of the clients in the construction industry and there is a paucity of research that allows one to better under-stand the key roles of clients (Alinaitwe, 2008). Low and Chuan (2006) argue that poor project performance may not necessarily be due to the incompetence of anyone else but the client's actions before, during and

after the project. Client's influence is one of the key contributing factors resulting in lack of commitment and contractor's inefficiency in the project (Hemanta, Sawhney & Iyer, 2012).

2.4.2 Contractor-related Deficiencies

The shortcomings may occur because the contractor fails to fulfill certain requirements for carrying out the project. The problem could have been avoided if the contractor had been experienced and are aware of possible adverse situations. Some of the faults of the contractor that lead to defects are contractor financial difficulties, contractor desire to improve his financial state, lack of experienced labor and necessary equipment, use of defective workmanship and the contractor's lack of experience. Construction contractors play an important role in the construction business as they execute most of the construction works. A competent construction contractor is one of the indispensable conditions of a proper process and completion of a construction project according to Xiaohong (2011).

2.4.3 Deficiency Related to consultants

The nature of the tasks assigned by the clients to consultants varies (Chitkara, 2005 & Anderson, 2009) but generally consists of: Project feasibility engineering investigations, coordination of designs and drawing works. They also estimate, plan; budge; prequalify construction agencies; and award contracts to the successful bidders; designing project organizations for executing works and developing standard operating procedures and systems; developing detailed construction plans and drawings; supervising works; including administration of contracts and controlling of project quality. These are the activities that determine the future actions and success.

2.4.4 Deficiency Related to Different Project Stage

The deficiencies were grouped under three stages of project activities: the design stage, construction stage and preservation stage. Construction defects can result from deficiencies in how something is designed, built, operated or maintained (Mikhail, C. and Chris, H.M., ASCE, 2005). These groups assisted in developing a comprehensive enumeration of potentials of construction defect areas settled on four general categories of deficiencies – design, material, construction, and the way the structure is operated and maintained, in the following manner (Okuntade, T. F., 2014).

Gravel roads are susceptible to poor road geometry and pavement distress. These deficiencies are manifested in the three attributes of cost, time and quality in construction projects. There are common types of deficiencies, which include poor road geometry and pavement distress.

The geometric design of gravel roads should be the result of a careful balance between the purpose of the road, traffic volume, terrain, design standards, costs and the standard of maintenance to be adopted. The wide variety of topography, vegetation, climatic, economic and community factors result in the designer needing to input local knowledge of conditions to any economic procedure used (Henning, T. F. P., et al., 2008). In literature review, poor vertical alignment, excessive road gradient, improper crown, inadequate super elevations, and cross-fall,

poor drainage elements/improper drainage, widening problems, poor geometry of cross section elements, poor horizontal alignment and inconsistency (change) of road character without warning signs are major defects related to geometric design and construction features. According to Jones, D. and Paige-Green, P., (2000), typical types of distress encountered on unsealed roads include “loss of gravel, potholes, rutting erosion, corrugation, loose material, stoniness, dust and cracking.”

Surface distress is defined as the visible manifestation of deterioration of pavement with respect to either serviceability or structural capacity (MoW, 1999). Some gravel surface defects that reduce effective utilization for the entitled purpose are surface roughness, surface cracks, excess oversize/stoniness on the surface and corrugations. According to US.DTFHA, (1998) “Surface aggregate [is] lost in three ways: by dusting, by raveling, and by a process called sinking”

As the previous study (Alinaitwe *et al*., 2007) a number of factors that are influenced by the clients and can affect the progress of work were found to include; design changes, stoppages due to disputes between contractors with owners, stoppages because of insolvency, lack of adherence to regulatory requirements, and inspection delays. Majority of a ditch system plugged debris causing water to flow onto the road surface. Ditch water captured by the road surface can cause severe erosion and wash out the road completely (Kocher et al., 2007).

Controls of Deficiency

Developing an effective construction deficiency management process is a challenging task, as it requires an integrated solution for coordinating everything involved for the purpose of the deficiency management. Deficiency controls in construction require an integrated solution to discipline and coordinate the documentation, drawing, process, flow, information, cost, schedule and personnel. The construction industry needs an effective construction deficiency controls mechanisms. From a literature review, different deficiency control mechanisms have been identified. The controls are group into four categories: conception stage, design stage, construction stage and controls for both design stage and construction. These groups assisted in developing a comprehensive enumeration of potential controls for deficiency.

Conception Stage Controls

Planning & preparation: The requirements of the client are identify and the constructive aspects and the standards of quality are define through procedures (Alarcon, L.F and Mardones, D.A., 1998).

Design Phase Controls for Deficiency

When considering design quality, McGeorge (1988), stated that "a good design will be effective and constructible with the best possible economy and safety". But whilst the design itself needs to be "effective", it also needs to be communicated effectively through the documentation (Tilley, P.A., et al, 1997) i.e. drawings, specifications, etc.

According to Tiley, P.A., (1998), criteria to determine the level of documentation quality are timeliness, accuracy, completeness, coordination, and conformity. Some design stage controlling mechanisms of defects are the owner's involvement in the planning and design phase, clearer detailing of design and organizations and approvals of design works.

Construction Phase Controls for Deficiencies

The ability to discuss problems with quick approval, decision procedures and managing construction quality, time and cost: Kress (1994) asserts that the key objective of project administration is to achieve or surpass the expectations of the owner or user of the project. These expectations are typically expressed within quality, cost and time categories. Therefore, it is necessary to successfully manage the projects through appropriate preparation, scheduling and control, as the project needs a serious outlay and is connected with risks and uncertainties (Telsang, 2005).

Information clarification: Control of the flow of information, step-by-step verification of the needs prior to the process to make sure they are met or not, in order to avoid that design defects arrive at the construction site (Mardones, D. 1997). This includes clarification of conflicting information, incorrect information, insufficient information and questionable information.

Both Design & Construction Stage Controls for Defects

Comprehensive site investigation: Comprehensive site investigations assist in proper planning for construction activities (Fisk, 1997).

Knowledge base of previous similar projects: From the outset, project strategies and philosophies should take advantage of lessons learned from past similar projects (CII, 1994b).

2.5 Theoretical frame work

This study will employ stakeholder's theory which as a field of research, has tended to focus on planning and managing the complex array of activities required quality a construction project, such as a road or building. Interest in stakeholders has grown considerably since Freeman‟s (1984) seminal work Strategic Management: A Stakeholder Approach was published. Over 100 articles were published on „stakeholder theory‟ by 1995 (Donaldson & Preston 1995, p. 65), with many more published since. Increasingly the notion of stakeholder has gained purchase in academic texts, media and government publications (Friedman & Miles 2002).

As interest in stakeholder concepts has increased, so too has the number of views on the subject (Friedman & Miles 2002). Some attempts at harmonization of disparate views have been made with Jones‟ (1995) summary the most widely accepted. Jones (1995) argues that stakeholder theory can be divided into three main approaches: descriptive approaches, which depict "what happens", instrumental approaches which outline "what happens if", and normative approaches which suggest "what should happen". While having its‟ origins in strategic management, stakeholder theory has been applied to a number of fields of enquiry including corporate social responsibility (Hillman and Keim 2001) and more recently construction project management

(Bourne and Walker 2005). This review will focus on the utility of stakeholder theory for examining multiple stakeholders in the implementation of public works procurement.

In response, Freeman and McVea (2001) called for future stakeholder research to eschew theoretical debate, and instead use stakeholder theory's insights to examine real world problems. Construction management, as a field of research, has tended to focus on planning and managing the complex array of activities required delivering a construction project, such as a 26 roads or building (Freeman & McVea, 2001). Being able to manage construction stakeholders expectations and concerns is a crucial skill for managers of construction projects as failure to address these has resulted in countless project failures (Bourne & Walker 2005), primarily because construction stakeholders tend to have the resources and capability to stop construction projects (Lim et al. 2005). Successful quality of construction projects is therefore dependant on meeting the expectation of stakeholders. Stakeholders, include clients, project managers, designers, subcontractors, suppliers, funding bodies, users, owners, employees and local communities. As a consequence a robust construction management literature has developed on how to identify and manage stakeholder interests and relationships. This research follows this call by using stakeholder theory to examine factors influencing quality of URRAP projects in Ethiopia with focus to some selected districts of Jimma zone.

2.6 Conceptual Framework the Study

The conceptual framework for the study as illustrated in figure 2.1 below indicates the relationship between the variables. The defining premise for the framework as derived from the literature review is that manipulation of the independent (Predictor) variables consisting of owner, contractor, consultant and different project stage, affects quality of URRAP projects is (dependent variables).

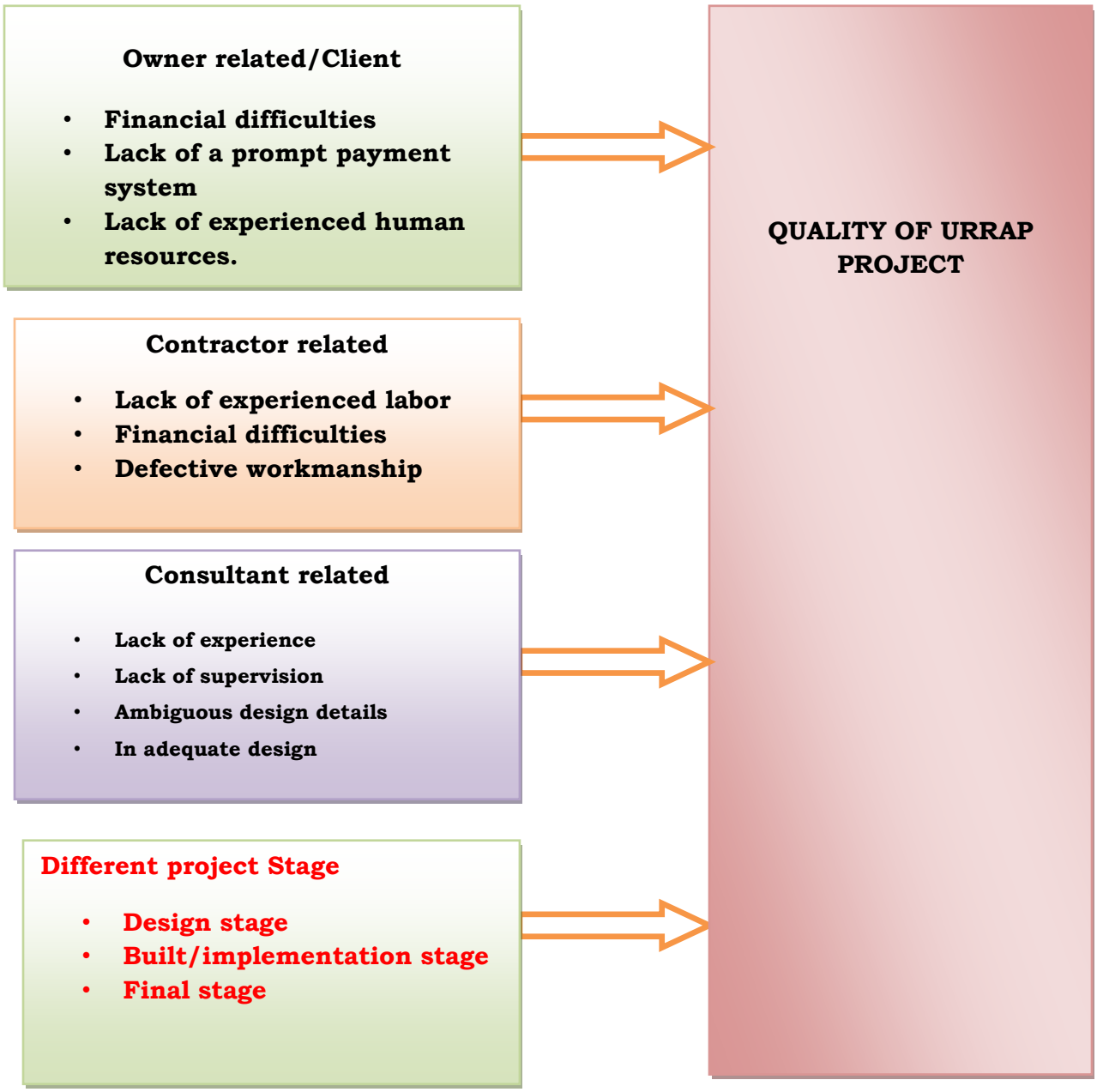


Figure 2.1 conceptual frame work of the study (Demeke .F & Gebissa .A, 2016, Analysis of gravel road problem in Ethiopian mountainous terrain

CHAPTER THREE
RESEARCH METHODOLOGY

Introduction

This part explains how the study was carrying out in order to achieve the preferred objectives. It includes research design, study area, target population, source of data, and method of data collection, validity and reliability and method of data analysis, model specification and finally ethical issues that was considered in the study.

3.1. The Study Area

The study was conducted in seven selected (Kersa,Seka,Manna,Gomma,Guma,Limmu kossa, Omo nada)wereda's will also be purposively included from jimma zone, Oromia region, Ethiopia. Jimma is located to south west Ethiopia at 352.3km away from Addis Ababa. Its astronomical location is 7º 4' North Latitude and 36º 5' East Longitude.

3.2. Research Design

Research design is the plan of action that links the philosophical assumptions to specific methods Creswell (2007). The study was used descriptive and explanatory research design by combining both quantitative and qualitative research approaches to analyze data and obtain adequate information about realities of the study. Descriptive Design is preferred over other design as it enables to make investigations with predictions, narration of events, and drawing of conclusions based on the information obtained from relatively large and representative samples of the target population. Moreover, Descriptions of existing phenomena with the intent of employing the data to justify current conditions and practice or to make more intelligent plans for improving social, economic, or educational conditions and process.

According to Kothari (2004) the emphasis of explanatory research is on studying a situation or a problem in order to explain the relationships between variables. In this case the researcher will be used to examine the relationship between Clients; consultant, contractor and quality of URRAP projects, in addition to see their cause and effect relationship on each other.

3.3. Research Approaches

The method employed in this research is both quantitative and qualitative research method. Since the research is survey it more emphasizes quantitative research approach. Using multiple

approaches can capitalize on the strengths of each approach and offset their different weaknesses and provides a better understanding of the research problems than either approach alone. It could also provide more comprehensive answers to research questions going beyond the limitations of a single approach Woodley(2004). It is also practical in the sense that the researcher is free to use all methods possible to address a research problem (Cresswell,2006).Furthermore, triangulation strategy was employed to confirm, cross-validate or corroborate findings with in a study. A mixed methods approach is one in which the researcher tends to base knowledge maintain on practical grounds. It makes use of strategies of inquiry that involve collecting data either simultaneously or sequentially to best understand research problem. The data collection also involves gathering both numeric information as well as text information (e.g. on interviews) so that the final database represents both quantitative and qualitative information. Additionally it helps the researcher for triangulation purpose.

3.4. Target population

Population is the entire group of people to which a researcher intends the results of a study to apply. Kothari (2004) uses the term "target population" to refer to the intended population covered by a study in a specific geographical area such as country, region and town in terms of age group and gender. Accordingly, the target population of this research paper was wereda rural road head office 7, wereda's rural road employee 42, wereda rural road professionals (mehandis) 7, , Jimma zone rural road head office 1, Jimma zone rural road consultants 4, Jimma zone construction bureau head office 1, Jimma zone construction bureau professionals 5, contractor member 14 and their total number is 83**.**

3.5. Sources of Data

To respond the stated research questions and to achieve the intended objectives, the study used both quantitative and qualitative type**.** For the proper achievement of the objectives of the study; the researcher would be used primary data and secondary data source. The primary source of data will be the main basis for this study. Primary data was collected by using structured questionnaires. Secondary sources of data was gathered from various documents, annual reports, directives, and various books written on issues related to the topic.

3.6. Method of Data Collection

The method of data collection which has been member of staff to this study was survey method, Survey research method was used for this research because it is an appropriate method for measuring respondent's opinion and attitude towards the factors influencing quality of URRAP project. The data collection tool that has been used to gather data from sample respondents is questionnaire interview and document analysis.

3.6.1 Questionnaire

To secure the reliability and adequacy of information, questionnaire comprising both open and close ended questions was collected. This is because questionnaire is convenient to collect large amount of information from large number of respondents with in short period of time and in a relatively cost effective way. It allows the respondents to give information with no threat. In line with this, it makes likely an economy of time and expanse and high proportion of usable response (Best &Kan, 2003).Questionnaire is an instrument by which information is obtained from respondents in written form. The questionnaire would be prepared for wereda rural road head office, wereda's rural road employee , wereda rural road professionals (mehandis) , Jimma zone rural road head office , Jimma zone rural road consultants , Jimma zone construction bureau head office, Jimma zone construction bureau professionals and contractor member . Questionnaires would be prepared in English and translated to local language in order to be easily understood for the respondents. The questionnaire arranged has two parts; the first part was designed to collect information about the demography of the respondent. The second part is major factors influencing quality of URRAP construction project indicated. In this part each items was prepared in the form of five likert scale type scale ranging from strongly agree to strongly disagree that would help to measure the level of conformity of the respondents.

3.6.2 Interview

Besides questionnaire, semi- structured interview questions were conducted. The main reason to select the semi-structured interview is because it helps to find out different persons perspectives and views deeply and to triangulate the validity of the information with the questionnaire. In addition to the questionnaires the researcher would be prepared interview questions too purposively. The interview guide contained semi-structured questions focusing on factors influencing quality of URRAP project. Interview would be selected because it helps to

get some facts related to the issue under the study from summit official of the management those implement the government policy and it also help for triangulation. The interview is used based on the supposition that the participants' perspectives are meaningful, and they have the knowledge in the area, and able to make precise points, and their perspective affect the accomplishment of the investigation.

3.6.4 Procedure of Data Collection

To answer the research questions raised, the researcher goes through a series of data gathering procedures. These procedures help the researcher to get genuine and relevant data from the sample units, thus, after having letters of authorization from Jimma University. The primary step in the data collection process is to get motivation of the subjects to fill the questionnaire by self introducing, once the subjects will to fill the questionnaire and able to return the papers within a short range of time to voluntarily collect the papers collaborating with leaders from each sector. Finally, questionnaires will be distributed to each respondent**.**

3.7 Validity of Research Instruments

Mugenda (2003) defines validity as the accuracy and meaningfulness of inferences which are based on the research results. In other words, validity is the degree to which instrument to measure what it is designed to measure, results obtained from the analysis of the data actually represent the phenomenon under study. defines validity as the degree to which the researcher has measured what he set out to measure. It is the accurateness and meaningfulness of inferences which are based on research results. Validity therefore is whether an instrument is on target in measuring what is expected to measure. To check the validity of the instrument the researcher worked with the supervisor as the expert and agreed whether the instrument was valid or not. The tool was also subjected to peers review to ensure its validity. The instrument was subjected to face validity, content validity test and construct validity test through testing it using the research done in the past.

3.8. Reliability of Research Instruments

Reliability is a measure of the degree to which a research instrument yields consistent results or data the same way each time it is used under the same condition with the same subjects. If consistent results are obtained by the same participants in the same repeated measurements then the higher the reliability of the measuring procedure. If a research tool is

consistent and stable, and hence, predictable and accurate, it is described as reliable. Inter-item reliability test will be applied to test the reliability of the research instrument. Multiple items will be used to measure a single concept in the questionnaire. This involved a set of related questions which will be designed to measure a certain concept being associated with each other. Cronbach's coefficient α test will be applied to test the reliability. This was applied for each of the four research questions.

Table 1: Below Indicates the Computed Internal Reliability Coefficients.

No	Detail description on the title of the questions	No of items	Cronbach's alpha
1.	Clients	5	0.778
2.	Consultants	6	0.845
3.	Contractors	5	0.982
4.	Project stage	5	0.866
	Overall reliability result	21	0.909

The reliability of the instrument was measured by using Cronbach's alpha test. A reliability test is performed to check the consistency and accuracy of the measurement scales. According to William's (1986) he suggested that the reliability coefficients of the Cronbach's alpha result >0.9 excellent, >0.8 good, >0.7 acceptable, < 0.6 questionable, and < 0.5 poor. The internal consistency reliability results the study was 0.90 that is classified under excellent categories.

3.9 Method of Data Analysis

3.9.1 Descriptive Statistics

Both quantitative and qualitative data analysis method was employed in order to answer the basic research questions and to achieve the objectives of the study. In the case of quantitative data analysis, the data from the questionnaire was entered into computer using statistical package for social science (SPSS) version 23 computer programs for data analysis and quantitatively analyzed by using descriptive statistics such as percentage , frequency and mean. The way of the researcher analyze the data, for understanding and successful accomplishment of the study, data collect from different primary and secondary sources were record, edited, organized, analyzed, interpreted and presented in relation to research questions. Data collected using the above mentioned instruments were analyzed using both qualitative and quantitative. Quantitative data would be interpreted through questionnaire survey and presented in graphs and tables with

frequency distributions, standard deviation and means. The qualitative data those are meeting would be read between the lines from side to side narration.

3.9.2 Inferential Statistics

Inferential statistics was used to identify the degree of correlation between the variables using Pearson's Correlation. Further regression analysis would be done to determine the degree of relationship between dependent and independent variables meaning clients, consultants, contractors, project stage affects the quality of URRAP projects is (dependent variables).

3.9.3 Model Specification

In this study multiple linear regression models were used to achieve research objectives. The basic objective of using multiple linear regression analysis in this study is to make the research more effective in analyzing impacts dependent and independent variables. According to Gujarati (1995) defines a regression function as follows:

$$\mathbf{Y = \beta\ 0 + \beta\ 1X1 + \beta\ 2X2 + \ldots + \beta\ n\ Xn + ui}$$

Where Y is the dependent variable (Quality of URRAP project)

$\boldsymbol{\beta n}$is the coefficient of independent variables

Xn is independent variables (clients, consultants, contractors, project stage)

Ui is error term. Ui can be described as;

$$\mathbf{Ui = Y - \beta\ 0 - \beta\ 1X1 + \beta\ 2X2 + \ldots + \beta\ n\ Xn}$$

β1 is the intercept term- it gives the mean or average effect on Y of all the variables excluded from the equation, although its mechanical interpretation is the average value of Y when the stated independent variables are set equal to zero. Multiple linear regression model assumptions were conducted based on a Gujarati (1995). Checking goodness-of-fit carry significant benefits for the research; because once the model is fitted, it is effective in describing the outcome of variables. Let summarize each assumptions one by one;

3.9.3.1 Multicollinearity

It meant the existence of a perfect or exact, linear relationship among some or all explanatory variables of a regression model. If there is perfect collinearity among the independent variables, their regression coefficients are indeterminate and their standard errors are not defined. Therefore, independence of independent variables was tested by Variance inflation factor (VIF) and tolerance.

$$VIF(Xj) = \frac{1}{1 - RJ} 2$$

Tolerance 1-R^2

Where; Xj = the j^{th} explanatory variables regressed on the other independent variables.

RJ^2= the coefficient of determination when the variable Xj regressed on the remaining explanatory variable.

3.9.3.2Normality

The distribution of residuals should be normal at each value of the dependent variable is one of multiple linear regression assumption. This means that errors are normally distributed, and that a plot of the values of the residuals was approximated a normal curve (Keith, 2006). According to Gujarati (1995) ui are independently and normally distributed with mean zero and a common variance α^2 was given as; ui˜IN (0, α^2)

3.9.3.3Homoscedasticity

The variance of the residuals for every set of values for the independent variable is equal and violation is called Heteroscedasticity. This means that researcher assume that errors are spread out consistently between the variables. Symbolically described as follow;

$$\text{var} = \left(\frac{ui}{x1,\ldots..,xk!}\right)\alpha^2$$

For all I *Ui* is disturbance term or error term Xk is explanatory variable α2 is the constant or homoscedastic variance of *ui*

Pilot Test of Research Instruments

A pilot study is one of the important stages in a research project and conducted to identify potential problem areas and deficiencies in the research instruments prior to implementation during the full study. Generally, 10–20% of the main sample size is a reasonable number for conducting a pilot study (Hazzi and Maldaon, 2015). Pilot study was conducted to ensure that the measurement instrument (questionnaire) would comprehensible and appropriate, and that the questions would well defined, clearly understood and presented in a consistent manner. The questionnaire and the interview schedule were tested on 8 respondents (10% of the main sample size) selected who were wereda rural road employers, construction bureau experts, zone rural road consultants , contractors members and key informants project selected for the study.

The responses were then assessed to ensure that they were clearly stated and meaningful to the respondents. The result of the pilot were analyzed and later used to improve the data collection tool by correcting some of the ambiguous statements hence making the tool more effective and reliable. The pilot also allowed the researcher to check if the variables could be easily processed and analyzed.

3.10 Ethical Considerations

These are the principles or standards that protect the rights of participants in a research study. They are actions taken to assure safety and rights of participants are not violating whatsoever. These standards include voluntary participation, informed permission, and confidentiality of information, ambiguity to research participants and approval from relevant authorities. In this study, participants will voluntarily allow participating and prospective research participants will fully inform on procedures, benefits and risks involved in the research after which they were voluntarily ask to fill informed consent forms to participate. They was guaranteed of confidentiality of the information and to ensure this was achieved participants will not ask to give their names or indicate anything on the research instruments that could be used to identify or link them to the study documents or reports .

CHAPTER FOUR

DATA INTERPRETATION AND PRESENTATION

Introduction

This chapter presents findings and analysis, interpretation and discussion from the study about the factors affecting quality of URRAP project in public sector. It deals with results and discussions of the data that are categorized into two parts. The first part treats the characteristics of the respondents which describe the study population by sex, age and marital status, while the second part deals with the analysis of findings of the study that were gathered through questionnaire and interview.

4.1 Response Rate of Respondents

After a letter submitted from Jimma University to the selected districts of Jimma zone in order to cooperate in providing the necessary data office head assigned the process owners to take the responsibility in handling the case. So the process owners arranged how to access those respondents and their sections. Thus based on the prepared schedule 83 questionnaires were distributed to the participants and from these only 2 respondents did not return back the questionnaire. Due to this reason81 (96.8%) of the distributed questioners are collected, almost all respondent express their view properly. The participants of an interviewee clearly share their

idea and the practical knowledge for semi structured interview questions; in addition to this the interviews were conducted with more than one time contact, which means the contact does not include the introduction and informed consent confirmation time.

4.2 Demographic Characteristics of the Respondents

4.2.1 Gender of respondents.

Number	Categories	Frequency	Percentage
1.	Male	61	75.3
2.	Female	20	24.7
3.	Total	81	100

Table 2: Gender of respondents

Source survey 2020

Table 2 shows that, 61 (75.3percent) percent of the respondents are male whereas 20 (24.7percent) percent of respondents are female. This trend shows male supremacy over female counterparts in the population.

4.2.3 Age of respondents

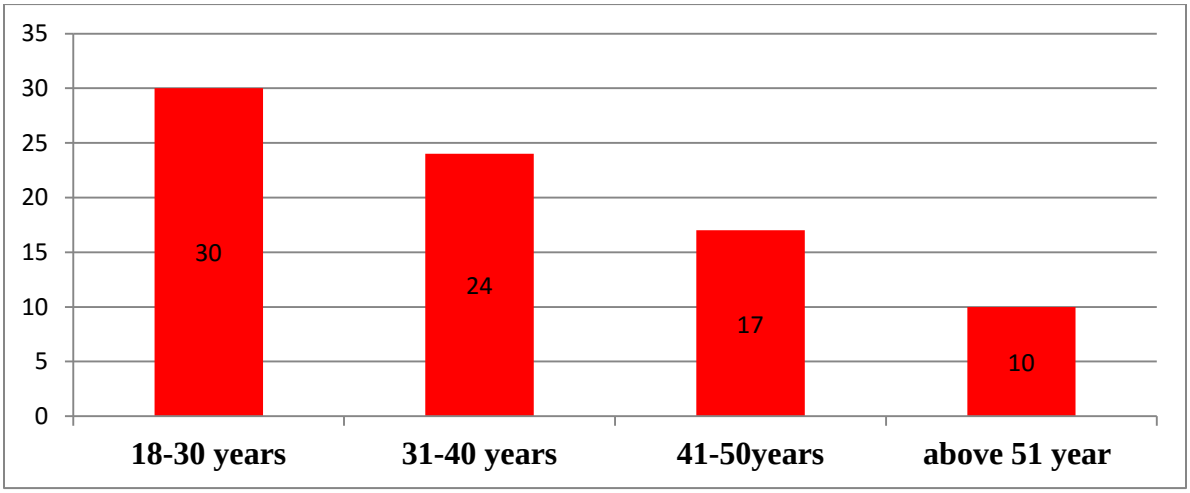


Figure 2: Age of respondent

Source; survey 2020

The figure 2 shows that age of respondents 30 (37%) were at the age category of 18-30 years, 24 (29.6%) the age category of 31-40, 17 (20.9%) of them at the category of 41-50, 10 (8.1%) of them at the category of > 51.

4.2.4 Education Level of Respondents

Education signifies one of the vital success factors that an organization needs in order to succeed in their project activities.

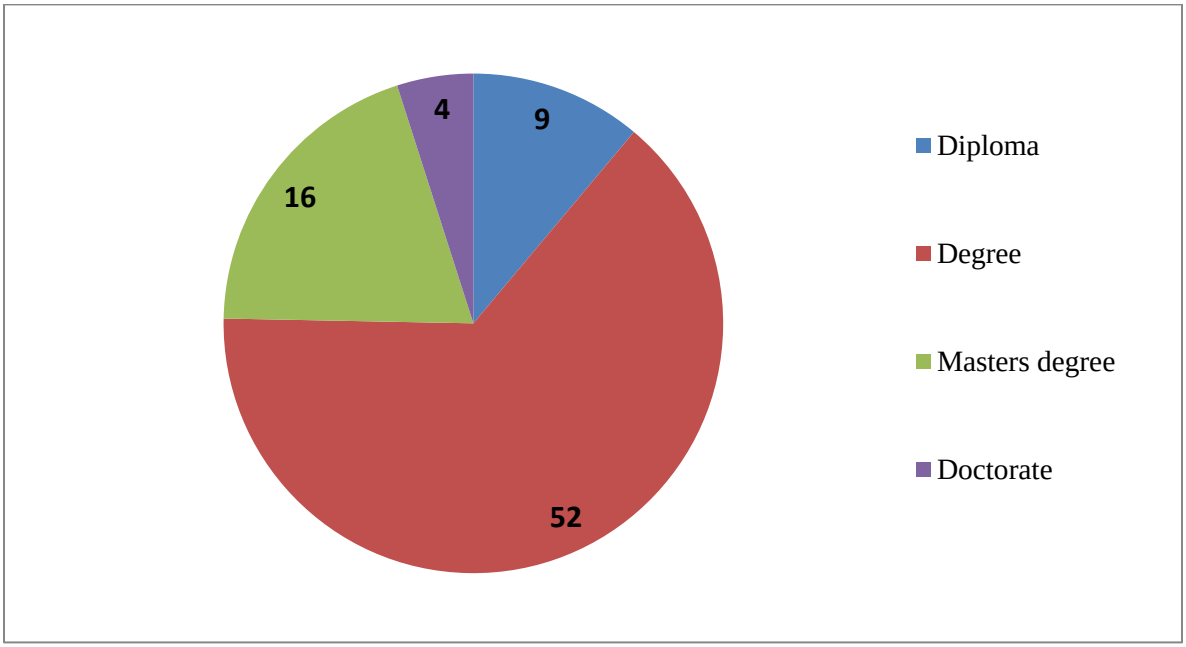


Figure 3: Education level of the respondent

Source**; survey **2020

As can be seen in the Figure 4, the qualification of respondents was found to be 9 (11.1%) diplomas, 52(64.1%) first degree and 16(19.7%) second degree and 4 (4.9%) doctorates. This result ascertains that respondents have enough knowledge with the factors affecting quality of URRAP project being undertaken in their respective organization and this would allow each to share their experiences, understandings and knowledge of the practices via the questionnaire.

Experience of Respondents

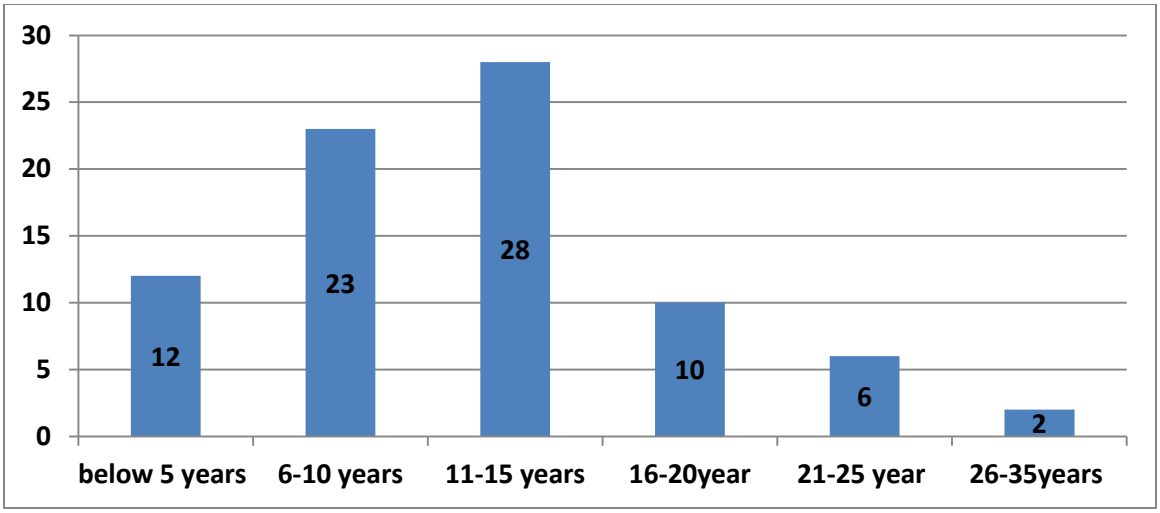


Figure 4: Experience of the Respondent

Source; survey 2020

Pertaining to the experience of respondents 12 (14.8%) respondents were with year experience below 5 years 23(28.4%), 28(34.5%) of the respondents were with experience of 6-10, 11-15 years, 10(8.1%) between the year of 16-20, 6(7.4%) of them have 21-25 year of experience and the lasting 2(2.44%) have more than 26-35years service. This indicates that there are employees who have worked with the institution for quite a long time and with their experience and knowledge about the work, the institution can get better output and maximize yield. This reflects the view of Messer and Mires (1999) who stated that the greatest employee's development occurs when managers continuously coach and mentor their employees' based on on-the-job training.

4.2 Factors Influencing Quality of URRAP Projects

The analysis is based on the assumption Zaidatol (2009) comparison bases of mean score for five point Likert scale instruments is used to compare the mean value.

Table 3: Gender of Respondents

No	**Mean Score**	**Description**

1	< 3.39	Low
2	3.40 - 3.79	Moderate
3	> 3.80	High

Source: Zaidation (2009)

According to Zaidation (2009), the mean score below 3.39 is considered as low; the mean score from 3.40 up to 3.79 is considered as moderate and mean score above 3.8 is considered as high.

4.3.1 Factors Influencing Quality related on Client of URRAP Projects

In the first study question, the study sought to investigate the client influence quality of URRAP projects. Based on the responses of respondents the descriptive analysis was performed to compare using mean and standard deviation.

Table 4: Summary of Respondents' Opinion on Influence of Clients related

No	Influence of client on quality of URRAP projects	No	Mean	Std. Deviation
1.	Lack of adequate and experienced human resources	81	4.00	1.127
2.	Adequate training and skills in project	81	4.01	1.158
3.	poor communication and slow decision-making in project	81	3.98	1.255
4.	Adequate funding allocation	81	4.02	1.151
5.	Project committee influence on the award of Tenders	81	3.93	1.036
	Average mean	**81**	**3.98**	**1.13**

Source; survey, 2020

In relation to Item 1, on Table 4 and respondents request to rate Lack of adequate and experienced human resources influence quality of URRAP construction projects at grand mean of 4.00. Majority of the respondent confirmed that of Lack of adequate and experienced human resources influence quality of URRAP construction projects. These findings are similar to observation made by Demeke F. & Gebissa A. (2016) who also found that a lack of adequate and experienced human resources.

For these reasons, attention of adequate and experienced human resources is an important aspect of client is also a concern to the success quality of a project. In concerning to Item 2, on Table 4 and respondents request to charge adequate training and skills in project for URRAP

construction project elements affects quality of construction project at mean of 4.01. The lion share of the respondent established that adequate training and skills in project for URRAP construction project elements affects quality of construction project. Its save to conclude found that adequate training and skills in project for construction project elements would affects quality of URRAP construction project. Finding is similarly, P. S. B. A. Bezelga, (2002) the quality problems are due to management, improper planning, and carelessness, lack of training and improper use of materials. In their study found that proper planning, adequate training and proper use of materials lead to success of quality of URRAP projects. Pertaining to item 3, on table 4.2 and respondents submit an application for to charge poor communication and slow decision-making in project influence quality of URRAP construction projects at mean of 3.98. Majority of respondent agreed that poor communication and slow decision-making in project influence quality of URRAP projects. This finding is supported with the finding Gunaydin, (1997) Lack of trust with supplier, poor training system and communication gap among project participants are factor contributing to poor quality performance. Regarding to item 4, on table 4.2and respondents is appropriate for to charge adequate funding allocation enhances quality of URRAP construction projects at grand mean of 4.02.Larger part of the respondent agreed that adequate funding allocation enhances URRAP construction projects. From the finding the researcher concluded that delayed procurement process affects quality of URRAP construction projects given that complex bureaucracy and shortage of finance encourage delayed procurement, which negatively affect the quality rate of the URRAP construction projects. Chan et al, (2008) similarly found that the most important cause of delays in the construction sector is financing by the contractor during the project, changes in designs by the owner or his agent during the construction, delays in contractor's payment and non-utilization of professional construction management.

4.3.2 Factors Influencing Quality related on Consultant of URRAP Projects

The study required to determine whether factors related consultant support influences quality of URRAP projects in the study area. To achieve this, major respondents were asked to indicate how consultant related factor related influenced URRAP projects. In line with this the finding of the interview result shows that consultants lack of effective project supervision for project result poor quality of materials and very harmful for successful quality of projects. This essentially implies that supervision is critical to ensure quality products and timely delivery of project.

Table 5: Summary of Respondents' Opinion on factors related Consultants

No	Influence of consultant on quality of URRAP projects	No	Mean	Std. Deviation
1.	Data collection and survey before design	81	3.61	1.035
2.	lack of effective project supervision	81	4.02	.933
3.	Changes in specification during construction by consultant	81	3.93	.990
4.	Financial difficulties of consultant influence quality of URRAP projects.	81	3.40	1.005
5.	less authority given to consultant to take decision	81	3.81	1.035
	Average mean	***81***	3.75	1.01

Source; survey, 2020

Concerning Item 1, on Table 5, respondents were request to rate is data collection and surveys before design improve proper URRAP project quality at mean score of 3.61. Lion share of the respondent agreed that good data collection and survey before design influence proper project quality. From the finding the researcher concluded that according to the study findings, consultant could influence the quality rate of URRAP projects through various fronts meaning Changes in specification during construction among consultant could influence the URRAP project quality.

In relation to Item 2, on Table 5, respondents were invited to charge lack of effective project supervision affect project quality at mean score of 4.02. This was also confirmed by majority of the respondents at agreed that lack of effective project supervision could cripple project quality. Sometimes consultants directly induce or the shortcomings are expected because the consultant fails to fulfill certain requirements for carrying on the project related to the defect in design or to supervision by the consultant (Babatunde, S.O.1.,et al.,2012). . Majority of the respondent confirmed that Supervision during construction is critical to ensure quality products and timely delivery of project. Therefore, any fall in supervision could cause delay and unsuccessful completion of construction projects. Kaming , (2007) also found that quality of management during construction concerns the steps taken to ensure that products are in accordance with the quality standards and measure the effectiveness / competency of consultants and contractors. In relation to Item 3, on Table 5, respondents were invited to charge Changes in specification during construction may lead to significant problems in URRAP project at mean score of 3.93 The

study also found that Changes in specification during construction as a result of the limited knowledge, experience and expertise among the consultants may lead to significant problems in successive quality of the project.

Concerning Item 4, on Table 5, respondents were asked to rate financial difficulties of consultant is critical factors to influence quality products of project at mean score of 3.40. Majority of the respondent confirmed that financial difficulties of consultant are critical factors to influence quality products of project.

In relation to Item 5, on Table 5, respondents were invited to less authority given to consultant to take decision will affect quality of URRAP construction at mean score of 3.81. Majority of responded agreed that less authority given to consultant to take decision will affect the quality of URRAP projects.

4.3.3 Factors Influencing Quality Related on Contractor of URRAP projects

The study wanted to investigate the influence of contractor on the quality of URRAP projects in the study area. To attain this, respondents were requested to indicate the amount to which they agreed or disagreed with the following statement relating to influence of contractor on the quality of URRAP projects.

Table 6: Summary of respondents' opinion on Contractor related factor influence

No	**Contractor related factor influence**	No	Mean	Std. Deviation
1.	contactor adequate handling of project progress and site management	81	3.73	1.007
2.	plan faults of the contractor that lead to defects are contractor financial difficulties	81	3.87	1.039
3.	use of defective workmanship and the contractor's lack of experience	81	3.59	1.112
4.	lack of experienced labor and necessary equipment	81	3.75	.998
	Average mean	***81***	3.738	1.035

Source; survey, 2020

Concerning Item 1, on table 6, respondents were asked to rate contactor adequate handling of project progress and site management influence quality of the URRAP projects at mean score of 3.73. Greater part of the respondent confirmed that contactor adequate handling of project

progress and site management influence quality of the URRAP projects. The result of the interview confirmed that a great extent, contactor adequate handling of project progress and site management may be a factor that is influencing quality of the URRAP of these project managers and especially principals should therefore; undertake professional courses that are tailored to enable them acquire relevant skills for project management

Pertaining to Item 2, on Table 6, respondents were asked to rate plan faults of the contractor that lead to defects are contractor financial difficulties influence quality of the URRAP projects at mean of 3.87. Majority of the respondents also agreed that there was a influence quality of the plan faults of the contractor that lead to defects are contractor financial difficulties influence URRAP projects. In relation to Item 3, on Table 6, respondents were invited to charge use of defective workmanship and the contractor's lack of experience affect project quality at grand mean of 3.59. Majority of the respondent agreed that some use of defective workmanship and the contractor's lack of experience project due to vested interest affect project quality. Concerning Item 4, on Table 6, respondents were asked to rate lack of experienced labor and necessary equipment URRAP project quality at mean score of 3,75. Large part of responded confirmed use of defective workmanship and the contractor's lack of experience affect project quality.

4.3.4 Factors Influencing Quality related on project stage of URRAP Projects

The revise required to investigate the influence of project stage on the quality of projects in the study area. To attain this, respondents were requested to indicate the amount to which they agreed or disagreed with the following statement relating to influence of project stage on the quality of URRAP projects.

Table 7: Summary of Respondents' Opinion on Project stage

No	**Project stage**	No	Mean	Std. Deviation
1.	Project stage affect project quality	81	3.75	1.160
2.	Poor contract management, changes in site condition, shortage of material and improper planning affect project quality	81	3.56	1.272
3.	The problems of contractors shortage in infrastructure, main supply of resources and clients and consultants affect project quality	81	3.98	.959

4.	The problem of vague work schedule influence project quality	81	3.33	1.026
	Average mean	81	3.67	1.103

Source; survey, 2020

Pertaining to Item 1, on Table 7, respondents are asked to price Project stage affect project quality affect project quality at mean score of 3.75. Lion share of the responded agreed that Project stage affect project quality.

Concerning Item 2, on Table 7, respondents were asked to rate Poor contract management, changes in site condition, shortage of material and improper planning affect project quality at mean score of 3.56. Large part of the respondent confirmed that Poor contract management, changes in site condition, shortage of material and improper planning affect project quality.

Concerning Item 3, on table 7, respondents were asked the problems of contractor's shortage in infrastructure, main supply of resources and clients and consultants affect project quality at grand mean of 3.98. The lion share of the respondent agreed that the problems of contractor's shortage in infrastructure, main supply of resources and clients and consultants affect project quality. Concerning Item 4, on Table 7, respondents are asked the problem of vague work schedule influence project quality at grand mean score of 3.39. Majority of the respondent agreed that the problem of vague work schedule influence project quality.

4.3.5. Summary of Descriptive Statistics

Table 8: Summary of Results of Explanatory Variables

Variables	**Mean**	**Standard deviation**
Clients	3.98	1.07
Consultant	3.75	1.14
Contractor	3.73	1.134
Project stage	3.67	1.243

From the above finding the highest influence on the quality of URRAP project in the study area is client at mean score of 3.98, next consultant ability at 3.75 mean score, and contractor at mean score of 3.738 and project stage at 3.67.

4.4. Association between Dependent and Independent Variables

In this part of the analysis bivariate Pearson correlation coefficient has been used to examine the relationship between the dependent and independent variable. According to (Robert, 2008), Pearson correlation coefficients ranges between -1 and +.1, when 0 indicates no relationship between, -1.00 indicates a perfect negative relationship and +1.00 indicates a perfect positive relationship. For intermediary values the study uses Pallant (2010) guideline to determine the strength of the correlation, less than 0.1 indicate weak correlation, small correlation for value 0.1 to 0.29; medium/moderate for 0.3 to 0.49; and large for 0.50 to 1.00).

Table 9: Shows Association between Dependent and Independent Variables

Correlations						
		Project quality	Client	Consultant	Contractor	Project stage
Project quality	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	81				
Client	Pearson Correlation	.451**	1			
	Sig. (2-tailed)	.000				
	N	81	81			
Consultant	Pearson Correlation	.395**	.456**	1		
	Sig. (2-tailed)	.007	.000			
	N	81	81	81		
Contractor	Pearson Correlation	.316**	.644**	.496**	1	
	Sig. (2-tailed)	.004	.000	.000		
	N	81	81	81	81	
Project stage	Pearson Correlation	.298	.698	.501	.469	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000
	N	81	81	81	81	81
**. Correlation is significant at the 0.01 level (2-tailed).						

Source; survey 2020

From this analysis it can be noted that Client**,** Consultant, Contractor has significant and positive relationship with quality of URRAP project. Therefore, they have positively correlated and strong association among each other.

4.5. Multiple Linear Regression Assumptions

Testing assumption of multiple linear regression analysis models is very important before running regression analysis. Some tests were conducted in order to ensure the appropriateness of data to assumptions regression analysis results were discussed in the following subtopics.

4.5.1 Multi-Co Linearity Test

According to Gujarati (2003) Multicollinearity tests helps to identify the high correlation between explanatory variables and to avoid double effect of independent variable from the model. Predictor variable should be strongly related to dependent variable but not strongly related to each other. For this purpose variance inflation factor (VIF) and tolerance test were used to check Multicollinearity for variables if the value of VIF is less than 10 there is no Multicollinearity and on the other hand if VIF greater than or equal to 10 there is a serious Multicollinearity problem. In addition tolerance is an indicator how much of the variability of independent variable is not explained by the other independent variable in the model and is calculated using the formula 1- R^2 for each variable.

Table 10: Shows Multi-Co Linearity

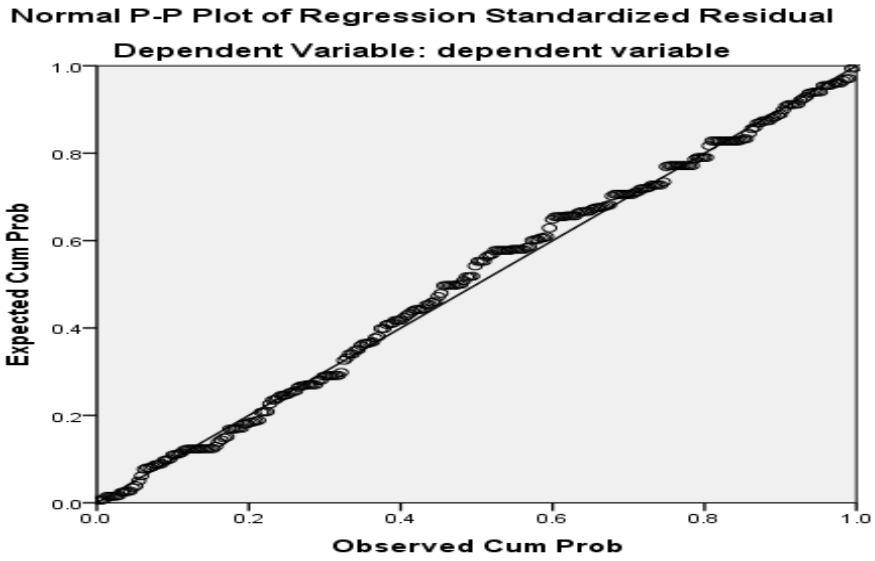
No	Variables	Tolerance	VIF(variance inflation factors)
1.	Client	0.313	3.19
2.	Consultant	0.253	3.95
3.	Contractor	0.242	4.1
4.	Project stage	0.243	3.89

Source; survey, 2020

Table 10 shows the computation result that the value of VIF all variables were by far less than 10 and the value of tolerance statistics being above 0.1 they were accepted entered in to regression model for the estimation of variables.

4.5.2 Linearity Test

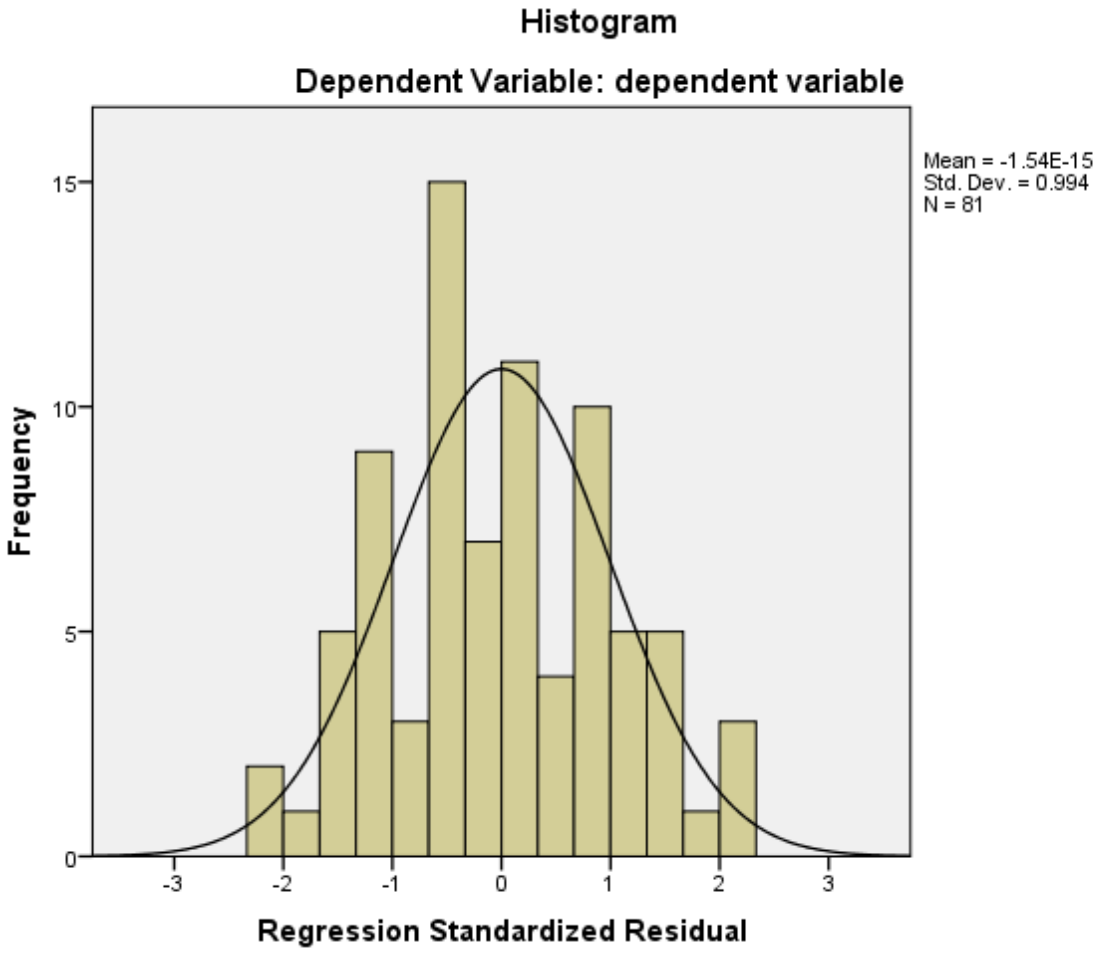
Linearity is used check whether all the estimates of regression including regression coefficients, standard errors and tests of statistical significance are biased or not (Keith, 2006). There is no linearity problem on the data for this study residual follow at straight line.



Source: Survey, 2020

4.5.3. Normality Test

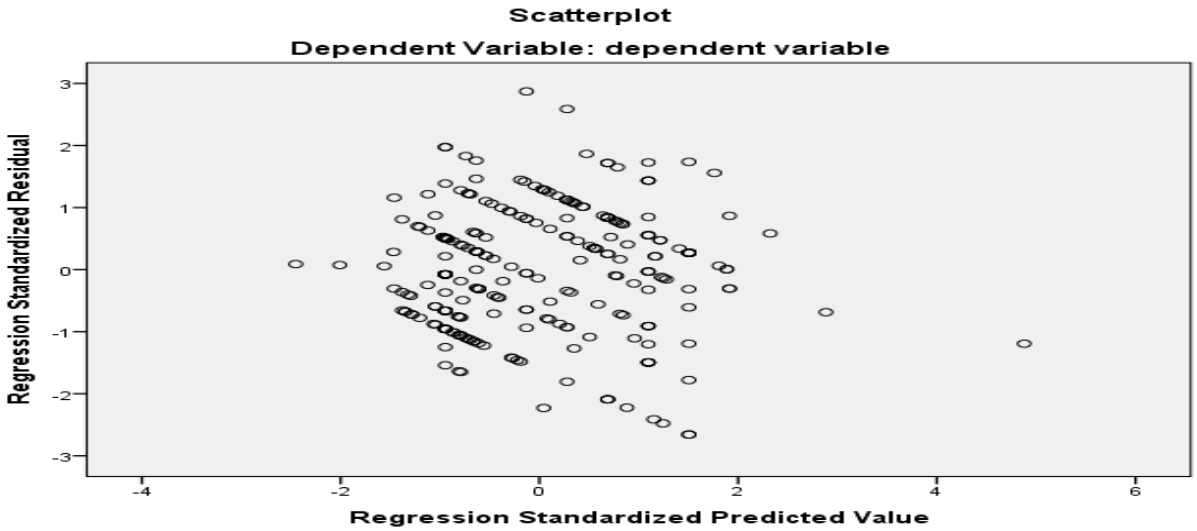
Normality assumption is around the mean of the residuals is zero and used to determine whether a data set is well modeled by a normal distribution or not and also to indicate un underlying random variable is to be normally distributed (Gujarati,2009). Researcher was used histogram methods of testing the normality of the data. If the residuals are normally distributed about its mean of zero, the shape of histogram should be a bell-shaped and regression standardized residual plotted between -3.3 and 3.3. From the figure below data normality can be indicated.



Source; survey 2020

4.5.4. Heteroscedasticity Test

Heteroscedasticity is the equality or violation of the residuals for every set of values for independent variable. So the researchers assume that errors are spread out constantly between the variables. Heteroscedasticity problem exist when scatter plot is greater than 3.3 and less than -3.3. Therefore as it was indicated in figure below the data did not violate Heteroscedasticity assumption and instead it was homoscedastic.



Source; survey, 2020

Therefore as it was indicated in figure below the data did not violate Heteroscedasticity assumption and instead it was homoscedastic

The Effect of Independent on URRAP Project Quality

After the model assumption was checked presentation and interpretation of the analysis output is mandatory. The prediction or estimation of the value one variable (the dependent or the predicted variable; called as Y from one or more independent or predictor variables (Keith, 2006).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.858[a]	.736	.733	.08389

a. Predictors: (Constant), independent

b. Dependent Variable: dependent variable

Model		**Unstandardized Coefficients**		**Standardized Coefficients**	**T**	**Sig.**
		B	**Std. Error**	**Beta**		
1	(Constant)	.734	.285		2.581	.011
	Client	.402	.056	.330	4.663	.000
	Consultant	.389	.086	.312	3.855	.000
	Contractor	.331	.059	.284	2.782	.006
	Project stage	.309	.074	.209	1.206	.000
	Dependent Variable: Project quality					

The beyond Table show that R value is 0.858 which indicates there is a positive relationship between project quality and independent variables that is to say; client, consultant, contractor and project stage. In the model summary adjusted R square tells us the righteousness in shape of the model and its value which is 0.736 means all independent variables are able to measure/predict project quality at 73.3 (0.733 x100) percent. The marginal value provides the impact that unit changes in the individual independent variable have on different levels of URRAP project quality when all other variables are held constant. Therefore confirmed and accepted hypothesis and concluded there is statistically significant influence of combined project quality influencing on URRAP project in some selected Jimma zone.

The consequences in chart demonstrate that the main pressure on URRAP project quality the client at beta value .402. This implies that client at beta value of .402, which implies that a 1 unit increase in client unit will cause a 40.2 unit increase in URRAP project quality. Consultant at beta value of .389 which implies that 1 unit increase in consultant unit will cause a 38.9 unit increase in URRAP project quality; contractor at beta value of .331, which implies that a 1% increase in contractor unit will cause a 33.1% increase in URRAP project quality. This means that contractor had an immense influence on increasing the project quality in the study Area. Project stage at beta value of .309which implies that a 1% increase in project stage unit will cause a 30.9% increase in URRAP project quality; the statically significance level of this variable is 0.000; this is at 95 percent confidence interval. So that in order to develop regression equation which fits with that are statistically significant, multiple correlation coefficient (R) and Beta coefficient value was tested. In general the regression equation model of this study summarized as; Formula the dependent (Y) and independent (X) variables relationship can be explained as;

$$\mathbf{Y=\beta0+\beta1X1+\beta2X2+\beta3X3+\beta4X4+\beta5X5+\beta6X6+\beta7X7+e,}$$

Where β0 is constant,

βn is the coefficient of independent variables (Satendra et, 2011). The researcher was used unstandardized beta coefficients to compare or prioritize the effect of independent variables on dependent variable and to construct regression equation. If we substitute the coefficient from the above table the equation becomes;

Project Quality = 0 .734+ (0.402) client + (0.389) consultant + (0.331) contractor+ (.309) project stage.

CHAPTER FIVE

5. SUMMARY, CONCLUSION AND RECOMMENDATIONS

Introduction

This chapter was given a summary of the findings as analyzed in chapter four. The discussions will be guided by the research objectives and whether the data confirms the research questions. Based on the findings, conclusions will be made and recommendations for further research suggested.

5.1 Summary of Major Findings

Attempt to assemble the higher than stated purpose of the research, basic questions were affirmed and come back with. The investigator consequently, recognized the subsequent most important summary:

- The result of background of respondents indicated that majority of the respondents are male with total of 79.0% while the remaining 21.0% were female. With regarding to marital status of the respondent majority of respondent 65.4 % were married, with reference to age of the respondents most of them are in the age range of 18-30at 37% and education back ground majority of the employee sample group were first degree holders which represents 64.1% from the total employee participant of this study, in addition greater part of respondents have a working experience from 6-10 years which represent 34.5% from employee contributor of research.
- The findings of descriptive statistical analysis indicated that among the variables used to analyze the factors affecting Quality of URRAP projects is client those are clients influence quality of URRAP projects, Lack of adequate and experienced human resources, Adequate training and skills in project**,** poor communication and slow decision-making in project and Project committee influence on the award of Tenders influence for quality of URRAP project score of 3.98.
- The other factor affecting project quality of project is consultant related factor of the project data collection and survey before design improve proper project quality, lack of effective project supervision, Changes in specification during construction by consultant, Supervision

during construction is critical to ensure quality products and timely delivery of project, Financial difficulties of consultant influence quality of URRAP projects evaluated average mean score of 3.75.

- Surrounded by factors Contractor related factor those are Involvement of the major contractor improves quality of the URRAP projects, There is a contactor adequate handling of project progress and site management, plan faults of the contractor that lead to defects are contractor financial difficulties and use of defective workmanship and the contractor's lack of experience can influence quality of URRAP projects at average mean of 3.738.
- The last factor are project stage influence on quality of URRAP project are Project stage affect project quality, Poor contract management, changes in site condition, shortage of material and improper planning affect project quality, The problems of contractors shortage in infrastructure, main supply of resources and clients and consultants affect project quality**,** and The problem of vague work schedule influence project quality at average mean of 3.67.
- The correlation analysis result is used to understand the degree of relationship between the client, consultant, contractor and project stage has significant and positive relationship with project quality. The variables in this study correlation coefficient among them are 0.734 that falls within the range of strong relationship. The direction of their relationship is positive sign that dictates a positive change in client, consultant, contractor and project stage result in a positive change in the project quality. Commencing this study a strong correlation is observed among each other.
- Regression analysis results indicate client with the r value of .402; it was followed by consultant at r value .389, contractor with the r value of .331 and project stage with the r value of .309. From this investigation it can be noted that, client, consultant, contractor and project stage has significant and positive relationship with quality of URRAP projects. The result is the similar to findings of Demeke F., and Gebissa A. they said that," major causes of defects were shared40 % by the consultant and 60% by the client".

5.2 Conclusion

Throughout the examination the investigator used both descriptive, inferential statistics and based on the findings made the research end by outlining the following classic conclusion. From the results of the study, the conclusion is that client related factor project quality however in the

study area, Lack of adequate and experienced human resources, Adequate training and skills in project**,** poor communication and slow decision-making in project and Project committee is critical influence project quality of URRAP. The results of the study show that clients an essential Adequate funding allocation and Adequate training and skills in project influence quality of URRAP projects that some selected districts of Jimma zone URRAP construction projects. From the finding of the study the researcher conclude among factors affecting construction project quality is client in the study area most important affect URRAP projects.

In addition to this project consultant are the other factors affecting quality of URRAP project, from finding of the study conclusion is that identified consultant related factors to cause quality of URRAP project, Changes in specification during construction and inadequate supervision critically impacted on quality in URRAP construction projects. The researchers found that the critical role of the consultant had a direct correlation to project quality. Supervision during construction is critical to ensure quality products URRAP project.

The supplementary factor is consultant in URRAP construction projects quality be supposed to be sensitized on the reality that projects will most likely suffer poor quality in project stage and definitely increase in project costs. Consultants in URRAP projects have an influence on its quality. There is a relationship between consultant related factor and quality of the URRAP projects.

Based on the correlation analysis the relationship between client, consultant, contractor and project stage and quality of URRAP projects were strong and positive relationship and the results of regression analysis observed that, consultant, contractor and project stage and quality of URRAP projects has a significant positive effect on the quality of URRAP projects.

5.3 Recommendations

Based on the major findings of the study, the followings recommendations are put forward. Accomplishment of all recommendation is essential to reduce the existing difficulty. However, some of the recommendation requires severe promise to implement in the borough. This section stipulates the recommendations to be implemented for practice and policy so as to ensure smooth, timely and successful quality of URRAP projects.

- Government policy and strategy be supposed to be provided with a platform that ensures that they provide adequate, truthful and useful information that could inform policy formulation to ensure smooth implementation of URRAP projects.

- Contractors should also be give something the once-over before contract award to ensure that they have a history of paying their staff and industry good standing to deliver well on their contract agreements. If they show a sign of cash flow problems they are not to be picked to implement a project. They are supposed to also moderate the client from some risks through insurance and performance security deposits.
- All the project players should be trained on all factors that influence successful quality of URRAP construction projects. They should especially be educated on the key metrics of a successful project. Budget, scope and timelines should be deliberately managed so that a quality project can be realized.

5.5. Suggestions for Further Research

Further research should be carried to determine the effects of Late of road maintenance on the quality of URRAP projects.

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APPENDIX

No	INFLUENCE OF CLIENT ON QUALITY OF URRAP	1	2	3	4	5
1.	Lack of adequate and experienced human resources					
2.	Adequate training and skills in project					
3.	poor communication and slow decision-making in project					
4.	Adequate funding allocation					
5.	Project committee influence on the award of Tenders					
6.	Clients influence the quality of URRAP projects					

No	INFLUENCE OF CONSULTANTS ON QUALITY OF URRAP	1	2	3	4	5
1.	Data collection and survey before design					
2.	lack of effective project supervision					
3.	Changes in specification during construction by consultant					
4.	Financial difficulties of consultant influence quality of URRAP projects.					
5.	less authority given to consultant to take decision					
6.	Delay in producing design documents					

No	INFLUENCE OF CONTRACTORS ON QUALITY OF URRAP	1	2	3	4	5
1.	contactor adequate handling of project progress and site management					
2.	plan faults of the contractor that lead to defects are contractor financial difficulties					
3.	use of defective workmanship and the contractor's lack of experience					
4.	contactor adequate handling of project progress and site management					
5.	material quality problems during construction					

No	INFLUENCE OF PROJECT STAGE ON QUALITY OF URRAP	1	2	3	4	5
1.	Project stage affect project quality					
2.	Poor contract management, changes in site condition, shortage of material and improper planning affect project quality					
3.	The problems of contractors shortage in infrastructure, main supply of resources and clients and consultants affect project quality					
4.	The problem of vague work schedule influence project quality					
5.	Clearer detailing of design and organizations and approvals of design works during design stage					

Dependent variable

I) Questionnaire Quality of URRAP projects in terms of Schedule

No	Schedule of the project	1	2	3	4	5
1.	Contract schedule (duration) affect project quality					
2.	Stakeholders involvement influence the quality of construction projects					
3.	Poor contract management, changes in site condition, shortage of material and improper planning affect project completion					
4.	The problems of contractors shortage in infrastructure, main supply of resources and clients and consultants affect project quality of URRAP					
5.	The problem of vague work schedule influence project quality					
6.	Poor coordination of the stakeholders can cause delay in project					

II) Quality of URRAP projects in terms of Budget

No	**INFLUENCE OF FUNDING**	1	2	3	4	5
1.	Sourcing of project funds affect quality of URRAP projects					
2.	Budgeting for construction project elements affects quality of URRAP project.					
3.	Funding schedule affects quality of URRAP projects					
4.	Adequate funding allocation enhances quality of URRAP projects					
5.	Sponsors play a key role on funding for quality of URRAP					

6.	funding influence quality rate of URRAP projects					
7.	Misappropriations of project funds lead to incompletion of projects.					

III) Quality of URRAP projects in terms of scope

No	**PROJECT SCOPE**	1	2	3	4	5
1.	Is good leadership of the project team improve proper completion.					
2.	Poor knowledge of project management affect project scope.					
3.	Failure at the intangible planning and design stages may lead to significant problems in succeeding stages of the project.					
4.	Supervision during construction is critical to ensure quality products and timely delivery of project.					
5.	Effectiveness of construction management will affect the speed of construction.					

APPENDIX II

Interview Guide for manager

This interview is designed to gather information on the ongoing research to seek your opinion on the Factors Influencing Quality of URRAP Projects in the Case of Some Selected Districts of

Jimma Zone. Your opinion will be treated with a lot of confidentiality. This information is purely for academic purposes.

1. How long have you been involved in the URRAP projects?
2. What is the highest level of education you have attained?
3. Do you have adequate training and skills in URRAP project?
4. In your opinion, how does a consultant's skill influence the quality of URRAP projects in Jimma Zone?
5. How helpful are the plans to the project(s) that is/are to be undertaken in Jimma Zone?
6. . How are the contractors performing quality on the rural road construction projects in Jimma zone?
7. Does client influence quality rate of URRAP projects in some selected of Jimma Zone?
8. What advice could you offer on client to enhance successful quality of URRAP projects in some selected districts of Jimma Zone?
9. How the risks are managed by the contractors in rural road construction projects?
10. . Do the contract managers of road construction projects have risk management plans in place? If yes, are they executed?
11. Is project evaluation understood by the stakeholders in rural road construction in Jimma zone? How often is project evaluation undertaken in rural road construction projects?
12. What obstacles do you encounter when constructing rural roads when the contractor is inadequate planning?

……
……
…….