

**THE ROLE OF PROJECT PLANNING ON THE PERFORMANCE OF
IRRIGATION PROJECT: A CASE OF TIBILA IRRIGATION PROJECT
IN ARSI ZONE, OROMIA**



A Research Submitted to Harambee University, Faculty of Business and Economics, Department of Project Management in Partial Fulfillment of the Requirements for the Degree of Master of Project Management (MPM)

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ACRONYMS

HYV	High Yielding Varieties
HTP	Harmful Traditional Practices
FAO	Food and Agricultural Organizations
SSI	Small Scale Irrigation
RWH	Hand Dud Well
GoE	Government of Ethiopia
ADLI	Agricultural Development Led Industrialization
GDP	Growth Domestic Product
DAC	Development Association Committee
NGO	Non-Governmental Organizations
SPSS	Statistical Package for Social Science
UNDP	United Nations Development Program
USAID	United States Agency for International Development
PMBOK	Project Management Body of Knowledge

Abstract

A project is a temporary group of activity with a defined beginning and end in time, scope and resources designed to produce a unique product, service or result. The performance of a project towards meeting its intended objectives is dictated by diverse reasons. The study aimed to assess and analyzes the Role of Project Planning on Performance of Tibila Irrigation Project in case of Arsi, Oromia regional state. The study follows quantitative research approach which was based on primary and secondary source of data collection. The communities that are beneficial of the projects from Jeju, Merti and Sire woreda, Arsi zone and staff which do the project was the target population for this study and through Purposive sampling and convenience sampling strategies only 370 people was considered for this study. Primary data used questionnaire and interview methods and personal observation and whereas referring some printed documents were some sources for secondary way of data collection for study. Data analysis done via descriptive analyses methods such as frequencies and percentages used to present the data. The findings of the study indicate that the main planning input factors that affect the performance of planning processes are: - human, management, technical and organizational factors. And also the finding identifies the main problem areas in planning processes as risk, scope, quality human resource, and integration knowledge areas were inadequately/poorly/ performed in the studied project. The result of the finding also identifies the effect project planning on the performance of irrigation project success. This paper recommends for government or organization that conducts project should improve the poor/inadequate planning performance of the identified knowledge areas. It is also important for the government to spend more efforts in the identified planning activities to improve the Performance of Tibila irrigation project.

Keywords: Project, Planning, Irrigation, Tibila, Arsi

CHAPTER ONE: INTRODUCTION

1.1 Back Ground of Study

Agricultural development and food security have drawn much attention from development academicians, practitioners and policy makers and the world communities in general for the last many decades. The concepts of agricultural development, rural development, food security, livelihood security, intensive agriculture, high yielding varieties (HYV), rain-fed agriculture, irrigation-based agriculture, etc., have been circulating much within the local and international development arenas in recent decades. All the concerned bodies have been dealing with these and other similar issues for the purposes of finding ways and means of realizing agriculture led rural development and attaining food-centered household livelihood security for the multitude of the people in rural areas of the third world (K Pawlak, 2020).

In the recent decades, however, in the process of speeding up agricultural development, mitigating the socio-economic problems and bringing about equitable development in rural areas, development strategies have started rendering due attention to situations of the populace in the arid and semi-arid areas. Development planners, policy makers, researchers and rural development practitioners have realized that rural development efforts cannot be effective, impactful and complete without the development of the erstwhile by-passed pastoralist and semi-pastoralist communities of the world. One of the major challenges for the development of these communities is lack of water resources for agricultural development and large livestock population. To overcome this challenge, many developing countries such as India, Ethiopia and some others have been undertaking irrigation-based agricultural development for the communities in these areas (Belay and Degnet, 2004; Spielman et al., 2010).

The importance of irrigation project has been increasingly recognized as one of the strategies to enhance food-self-sufficiency and ensuring livelihood security at the household and community levels. "Irrigation improves agricultural production and productivity by solving the problem of water shortage caused due to the unpredictable rainfall in dry regions. Developing the available water resources for irrigation is necessary to bring large areas under agricultural development to achieve the goal of food security. Irrigation will also a means of increasing income generation, creating job opportunity, ensuring occupational shift for pastoralists and semi-pastoralists to

settled agriculture, guaranteeing livelihood security for many households and generally promoting economic dynamism (Hailu Dega, 2017).

Lowland areas are frequently affected by drought and irregular rainfall. The implementation of irrigation schemes become crucial to maintain agricultural production in these areas in order to ensure increased crop yields and enhanced livestock production.

As part of the development strategies, a number of small, medium and large scale irrigation projects have been launched in different parts of the country. At least, the country has come to realize the importance of decreasing the dependence on rain-fed agriculture and supplementing this with irrigation-based agriculture. To such ends, more and more efforts are underway by the federal and regional governments. The Tibila Irrigation-Based Integrated Development Project is one of such projects implemented in Oromia Regional State, in the districts of Jeju, Merti and Sire to improve the food security situations, household income and the overall livelihood conditions of the target population. This study is termed as, “The Role of Project Planning on Performance of Irrigation Project in Semi-Arid Areas with particular reference to Tibila Irrigation-based Integrated Development Project (Hailu Dega, 2017).

This study is concerned with the role of project planning on project performance with the focus of Tibila Irrigation project. Project planning defines project activities that will be performed; the products that will be produced, and describes how these activities will be accomplished and managed. It defines each major task, estimates the time, resources and cost required, and provides a framework for management review and control. It contains a set of plans which will help through execution and closure phases of the project. The plans, which are done during this phase, will help the organization to manage time, cost, quality, risk and related issues. It will also help to manage project team to deliver project on time. For the effectiveness of project success these processes should be properly planned. The result of the project planning, the project plan, will be an approved, comprehensive document that allows a project team to begin and complete the work necessary to achieve the project goals and objectives. The project plan will address how the project team will manage the project elements. It will provide a high level of confidence in the organization’s ability to meet the scope, timing, cost, and quality requirements by addressing all aspects of the project (Gibson, and Ivancevich, 1998).

This project has been planned and implemented by the regional government of Oromia. The establishment of the project began in 2007 and most of the construction works was completed in 2010. The project was situated at a distance of 150 km from the country's capital Addis Ababa and about 95 km away from the zonal capital called Assela. The project is about 50 KM away from the main asphalt road that traverses between Addis Ababa and Assela Cities. The gross command area of the irrigation project is about 7,000 hectares and the net irrigable area is 6,000 hectares including 10 farm blocks. Currently, about 3700 hectares of land have been irrigated engaging total beneficiaries of over 5,000 household and from the total of 16,000 household members. However, since 0.75 hectare is allotted for household heads and 0.50 hectare for individuals and 0.25 hectare for youths above 18 years, the holding capacity of the irrigation project is more than 8,000households and more than 40,000 household members (Tibila Irrigation Project Office, 2022).

As described by Donnelly, Gibson, and Ivancevich (1998) Planning, organizing, controlling, and directing/leading/ are the four primary management functions. But Planning is often cited as the most critical of the management functions in determining the overall project performance. And it is also considered the most important and critical phase to the success of an organization in meeting its goal and objectives. Project performance is defined as the ability to complete the project according to desired specifications, within the specified budget, the promised time schedule, while keeping the customer and stakeholders happy. Grater (effective) project planning processes improves the performance problem of project outcomes; Griffith, Gibson (1995) and Griffith et al. (1998). And the study by Hamilton and Gibson (1996) have shown the importance of project planning on projects and its influence on project success. Findings of their study have proven that higher levels of project planning effort can result in significant cost and schedule savings. Therefore, planning was identified as extremely important project management function for the successes of project outcome. This study was undertaking to examine the role of project planning on project performance of Tibila irrigation project.

1.2 Statement of the Problem

Ethiopia was one of the countries depending heavily on rain-fed agriculture. The country's agriculture is remotely linked to modern farming system such as improving inputs, irrigation technology and improves farm practices. However, productivity of rain-fed crop farming has been drop, and the agricultural sector was now unable to provide the basic requirement of food to

the citizens. Traditional farming practices, environmental degradation, cost of external agro-inputs, recurrent drought, and high population pressure was aggravating the present food problem in the country. This implies that the need for launching irrigation development projects to achieve the objectives of increasing yield of crops, livestock production, and protecting the environment. Over the past few decades, irrigated agriculture has become more important. Presently, implementation of many irrigation projects was under way, the majority of which being in the Awash Valley where the proposed study area is located (Ministry of water and Energy, 2004).

The study area, the Tibila Irrigation Project was one of the government projects has planned and implemented to alleviate the problem of food insecurity of the community in this semi-arid locality or pastoral area. The area has been drought affected for a long time and the people residing in the area were leading their livelihood under pastoralist and agro-pastoralist conditions. The implementation of this project was crucial to improve and ensure food security at household level.

In our country most of the time Projects were not to gave the expected or planned outcomes and fails to meet its objectives (Hailu Dega, 2017).

The performance problem of this project (cost overrun, time delay, quality deficiency) are based by either in selection, planning, execution or control phase of the project and other factors.

The studies by Wang and Gibson (2008), shows that Time spent on project planning activities will reduce risk and increase project success. Other researchers on the project planning activity such as Morris (1998), Thomas, Jacques, P.H.J.R (2008) shows inadequate analysis and planning will lead to a failed project but the more planning there is in a project, the more successful the project will be. Therefore, according to this evidence even if all the resources are available poor project planning has result to project failure. However, the past reviewed studies have failed to conduct in detail specifically by considering well project planning procedures and its contribution on project performance. Therefore, the researcher believed that Meaningful project success requires careful study of the projects planning before the project is undertaken or implemented. Therefore, this study fill the above research gaps and it identifies and assesses factors that affect project planning, project planning problem areas and its role in project performance of Tibila irrigation project and answers the following research questions.

1.3 Research Questions

Based on the above mentioned research gaps the study answers the following research questions.

1. What are the main planning input factors that affect the Success of project planning performance in Tibila irrigation project?
2. What are the common problem areas of project planning activities in Tibila irrigation project?
3. What is the effect of project planning process on project performance in Tibila irrigation project?

1.4 Objectives of the Study

1.4.1 The General Objective of the Study

The general objective of this study is to assess and analyze the role of project planning on Performance of Tibila irrigation project.

1.4.2. The Specific Objectives of the Study

Based on the general objectives of the study the studies have the following specific objectives;

- ❖ To identify factors that affects project planning performance in Tibila Irrigation project.
- ❖ To identify common problem areas in project planning of Tibila Irrigation project.
- ❖ To examine the effect of project planning process on project performance in Tibila Irrigation project.

1.5 Significance of the Study

In line with objective of the study it was believed that this research would really important because many projects tremendously fail before delivering the expected outcomes and many projects are not meeting their goal in accomplishment as kindly planned in the project document earlier. It was important to know why project are planned by governmental organization participating in any types of project would get important concepts on the role of planning processes on project and transformed the beneficiary of that project particularly. To identify these factors and recommend possible solutions, it was praiseworthy to produce this research. The study would inform that, various stakeholders and communities on how to targeted community in area from pastoralist and agro-pastoralist way of life to irrigated agriculture in a

settled manner leading to the quantitative and qualitative improvement in the income and household food security and the general living standard of the targeted project. In addition, the study shall aware the community members to discover their share in influencing successful project planning. It may help to reduce the dissatisfaction of community with projects result and performance after billions have been poured into them.

Beside clarifying the challenges that affects in the performance of their projects, this study could help the government to develop the policies that project planning on performance for Irrigation project in the country. Findings of the study can serve future researchers and scholars as a cornerstone of information or reference. For the management project planning's, the findings of this study would be important and hence aware them on necessary corrective measures to mitigate on the problems. Finally, the study helps to point out public and governmental organization participating in any types of project will get important concepts on the role of planning processes on project outcome, this will create or develop awareness.

1.6 Scope of the Study

As it is discussed in the problem statement, there are many causes that affect the performance of project performance. This study mainly focuses on the role project planning on the performance of Tibila Irrigation project at the districts of Jeju, Merti and Sire woreda, Arsi zone, Oromia Regional State. Due to time, financial and other limitation. The Tibila Irrigation Project is located at about 150 km away from the country's capital, Addis Ababa to the east direction and 95 km away from Assela Town (Arsi Zone capital). The project area entirely falls in the lowland areas of the three districts. The project area is situated in the upper Valley of the Awash River (Tibila Irrigation Project Office, 2022).

1.7 Limitation of the Study

While conducting this study, the researcher has faced the following problems. It was very difficult to persuade the concerned bodies to obtain data because of the peace issues of our country especially, around the studied project area scenario. And this peace issues made things difficult to collect reliable data on time and direct observation. In addition, to conduct research on the issue under study, the researcher was lack of transportations and some of time constraints. Specifically, to collect the data particularly, in association with the current inflation, limited the study to some extent. Moreover, lacks of enough experience for the researcher for the undertaken

research areas was also another challenging. Finally, due to this peace issues from respondents were observed; as a result some questionnaires have not returned back and this can create some sort of problems on data analysis and discussion part. Furthermore, it leads the researcher to inability to get the desired information or lack of adequate information.

1.8 Organization of the study

This research has organized five chapters. Chapter one covers the introduction of the study. It illustrated the background of the study, the statement of the problem, objectives of the study and research questions, scope of the study. Chapter two contains literature review which has presents definition of project, project planning, irrigation and the role of project planning on the performance of Tibila irrigation project. Chapter three contains the research methodology and the chapter outlines the research design, target population, sampling procedure, and data collection instrument. The chapter also explain how to data analyses. Chapter four contains data presentation, analysis and discussions and the final one chapter five contains conclusions and recommendations of studied research.

CHAPTER TWO: REVIEW OF RELATED LITERATURE

2.1 Theoretical Review of the Literature

2.1.1 Concepts and Definition

- **Project:** - Many authors and references have defined project in different ways emphasizing its different aspects. Summarizing those definitions given, this research defines a project as: A temporary endeavor (that has definite beginning and end time) undertaken following specific cycle of Initiation, Definition, Planning, Execution and Close to create a unique product, service, or result through novel organization and coordination of human, material and financial resources (PMI, 1996).A project has a defined scope, is constrained by limited resource (time, budget), involves many people with different skill and, usually progressively elaborated throughout its life cycle [(Stanleigh, 2007), (Cleland & Ireland, 2002), (Wheatley), (Gray, C.F and Larson, 2008)]. It is a sequence of unique, complex, and connected activities that have one goal or purpose and that must be completed by a specific time, within budget, and according to specification (Robert. K.).In general, a project is a unique, well-defined effort to produce specified results within a set timeframe, at a given cost, in a multifunctional environment and under special management (Berry, A.D and T. Duhig, 1987).
- **Project management:** - Similar to the case for project, many and different definitions were given for project management. Summarizing those definitions this research defines Project management as: The application and integration of modern management and project management knowledge, skills, tools and techniques to the overall planning, directing, coordinating, monitoring and control of all dimensions of a project from its inception to completion, and the motivation of all those involved to produce the product, service or result of the project on time, within authorized cost, and to the required quality and requirement, and to the satisfaction of participants.[(Atkinson R, 1999), (Kerzner, 2003)]

Project management deals are mainly with coordinating resources and managing people and change. Generally “Managing a project includes: Identifying requirement, Establishing clear and achievable objectives, Balancing the competing demands for quality, scope, time and cost;

Adapting specifications, plans, and approach to the different concerns and expectations of the various stakeholders” (Project Management Institute (PMI), 2004).

- **Irrigation:** -To date, three broad components of water resources development can be mentioned. These are water for domestic use (drinking, food preparation, cleaning, etc.), irrigation development and hydropower production. However, the concern of this paper is **on irrigation development** with a special emphasis on irrigation project. **Irrigation** is defined as the artificial application of water to arid land for growing crops. It is a profession as well as a science. A crop requires certain amount of water at certain fixed intervals throughout its period of growth. Irrigation is required at dry and last rainy periods. Because at dry period irrigation give important role in order to produce food crops and cash crops, also at last rainy period as Ethiopian situation especially some parts of Oromia region rainy season as observed rainfall starts late and ends early, so in order to supplement the crop irrigation provides a greatest role in order to produce more yield.

In tropical countries like Ethiopia, the first two of three essential requirements of plant growth, that is, moisture needs to be supplemented frequently by artificial application of water. Thus, irrigation is supplementary to rainfall when it is either deficient or comes irregularly or at unreasonable times. Water is the greatest resource of humanity. It not only helps in survival but also helps in making life comfortable and luxurious. Besides various other uses of water, the largest use of water in the world is made for irrigating lands. Irrigation, in fact, is nothing but “a continuous and reliable water supply to the different crops in accordance with their different needs”. When sufficient and timely water does not become available to the crops, the crops fade away, resulting in lesser crop yield, consequently creating famine and disasters: irrigation can, thus, save us from such disasters.

Irrigation is one means by which agricultural production can be increased to meet the growing demands in Ethiopia (Awulachew et al. 2005). A study also indicated that one of the best alternatives to consider for reliable and sustainable food security development is expanding irrigation development on various scales, through river diversion, constructing micro dams, water harvesting structures, etc (Robel, 2005).

2.1.2 Project Management Process

The functions of project management include defining the requirements, establishing the extent of work, allocating the resources required, planning the execution of the work, monitoring the progress and adjusting deviations from the plan (Munns and Bjeimi, 1996). As described in Project Management Body of Knowledge Guide there are five types of management processes: initiating, planning, executing, controlling and closing (PMI, 2017). These processes are described below.

A. Initiating processes include defining and authorizing a project or project phase. To initiate a project or just the concept phase of a project, someone must define the business need for the project, must sponsor the project and take on the role of project manager. Initiating processes take place during each phase of a project. Therefore, you cannot equate process groups with project phases. Recall that there can be different project phases, but all projects will include all five process groups.

B. Planning process includes devising and maintaining a workable scheme to ensure that the project addresses the organization's needs. There normally is no Single "project plan." There are several plans, such as the scope management plan, schedule management plan, cost management plan, procurement management plan, and so on, defining each knowledge area as it relates to the project at that point.

C. Executing processes include coordinating people and other resources to carry out the various plans and produce the products, services, or results of the project or phase.

D. Monitoring and controlling processes include regularly measuring and monitoring progress to ensure that the project team meets the project objectives. The project manager and staff monitor and measure progress against the plans and take corrective action when necessary. A common monitoring and controlling process is performance reporting, where project stakeholders can identify any necessary changes that may be required to keep the project on track.

E. Closing processes include formalizing acceptance of the project or project phase and ending it efficiently. Administrative activities are often involved in this process group, such as archiving project files, closing out contracts (PMI, 2017).

2.1.3 Project Planning

Many authors and references have defined project planning in different ways emphasizing its different aspects. Summarizing those definitions given, this research defines project planning as: The extent to which timetables, milestones, workforce, equipment, and budget are specified or estimating the effort, time, cost and staff resources needed to execute the project (Slevin and Pinto, 1986, Chatzoglou and Macaulay 1996). It is the systematic arrangement of project resources in the best way to achieve project objective (Hore et al. 1977 and Faniran et al. 2000). It is described by Naoum et al. (2004) “as one of the key tools that stakeholders use to ensure that projects are successful”.

Faniran, Oluwoye and Lenard (1998) describe it as the process of determining the appropriate strategies for the achievement of predefined project objectives. It can also be described as the process of defining project objectives, determining the framework, methods, strategies, tactics, targets and deadlines to achieve the objectives and communicating them to project stakeholders. PMI (2008) has a similar definition for the planning. “The Planning Process consists of those processes performed to establish the total scope of the effort, define and refine the objectives, and develop the course of action required to attain those objectives.”

Therefore, in this study project planning is defined as the systematic arrangement of resources and processes of defining project objective and determining the framework to achieve project objective.

2.1.4 History of Irrigation Development

Irrigation was a very old practice in the world. It was an old human activity and been practiced in some parts of the world for several thousand years. Rice has been grown under irrigation in India and Far East for nearly 5000 years. The Nile valley in Egypt and the plain of Tigris and Euphrates in Iraq were under irrigation for 4000 years (Peter, 1997). Irrigation has formed the foundation of civilization in numerous regions for millennia. Egyptians have depended on the Nile's flooding of the delta for years; this may well be the longest period of continuous irrigation on a large scale. Mesopotamia, the land between the Tigris and Euphrates, was the bread basket for the Sumerian Empire. This civilization managed a highly developed, centrally controlled irrigation system. In that same time frame, irrigation apparently developed in present day China and in Indus basin (Schilfgaard, 1994).

Irrigation is a key role in feeding expanding populations and is undoubtedly destined to play a still greater role in the future. It not only raises the yields of specific crops, but also prolongs the effective crop growing period in area with dry seasons, thus permitting multiple cropping (two or three and sometimes four crops per year) where only a single crop could be grown. Moreover, with the security provided by irrigation, additional inputs needed to intensify production such as pest control, fertilizer; improved varieties and better tillage become economically feasible (Awulachew et al. 2005).

Irrigation reduces the risk of these expensive inputs being wasted by crop failure resulting from lack of water (FAO, 1997). According to FAO (1997) 30-40 percent of world food production comes from an estimated 260 million ha of irrigated land or one-sixth of the world's farmlands. Irrigated farms produce higher yield for most crops. FAO (2001) also reports that the role of irrigation in addressing food insecurity problem and in achieving agricultural growth at global level is well established. Clearly irrigation can and should play an important role in raising and stabilizing food production especially in the less developed parts of Africa of the Sahara.

2.1.5 Status of Irrigation Development in Africa

There is growing concern about food security in Africa and especially in Sub-Saharan Africa. While the aggregate global food supply/demand picture is relatively good, there will be a worsening in food security in Sub-Saharan Africa and cereal imports are projected to triple between 1990 and 2020; imports for which the region will not be able to pay. Africa is the driest continent (apart from Australia) and suffers the most unstable rainfall regime (FAO, 1997). Droughts are frequent in most African countries and each year more people are at risk from the effects of inevitable droughts of greater or lesser severity. Furthermore, Africa's water resources are relatively less developed than those in other regions.

Agricultural productivity per capita in Sub-Saharan Africa has not kept pace with population growth, and the region is now in a worse position nutritionally than it was 30 years ago. Food production has achieved a growth of about 2.5 percent per year, while population has risen at a rate of an average 2.6 percent per year. In the past, additional food in Africa came from increase in the area cultivated, but as a good land becomes less available, the region will be forced to increase yields through the use of irrigation and other modern technologies. Both rain-fed and irrigated agriculture will need to be intensified, but irrigated agriculture has a higher potential for

intensification (FAO, 1997). In Sub-Saharan Africa, only about 10 percent of the agricultural productions come from irrigated land. Trends in irrigated land expansion over the last 30 years show that, on the average, irrigation in Africa increased at a rate of 1.2 percent per year; this rate began to fall in the mid1980s and is now below 1 percent per year, but varies widely from country to country. The total irrigated land of Africa is estimated to be 124 million ha. This figure includes all the land where water is supplied for the purpose of crop production. It represents an average of 7.5 percent of arable land (FAO, 1995).

2.1.6 Brief History of irrigation development in Ethiopia

Traditional irrigation is very old in Ethiopia. The traditional small-scale schemes are, in general, simple river diversions it is practiced in Ethiopia since ancient times producing subsistence food 15 crops. However, modern irrigation systems were started in the 1960s with the objective of producing industrial crops in Awash Valley. Private concessionaires who operated farms for growing commercial crops such as cotton, sugarcane and horticultural crops started the first formal irrigation schemes in the late 1950s in the upper and lower Awash Valley. In the 1960s, irrigated agriculture was expanded in all parts of the Awash Valley and in the Lower Rift Valley. The Awash Valley saw the biggest expansion in view of the water regulation afforded by the construction of the Koka dam and reservoir that regulated flows with benefits of flood control, hydropower and assured irrigation water supply (Ministry of Water Resource, 2002).

The potential of irrigation water in Ethiopia is quite high and its drainage pattern is of great importance to its neighboring countries. From the total run off 110 billion m³ about 90% flows down to neighbors through eleven major rivers. Traditional irrigation is very old in Ethiopia. These traditional small scale irrigation schemes are in general simple river diversions which are subject to frequent damage by flood. From the total potential area, the area irrigated is low and the reasons on the past regime is due to lack of fund, data on different factors of natural resources, infrastructure, skill, research and suitable policy and hydro-politics of the region(Ministry of water and energy,2005).

2.1.7 Necessity and access of irrigation water in Ethiopia

Ethiopia is a tropical country with a vast diversity of climate, topography and vegetation. Rainfall varies considerably in its place of occurrence, as well as in its amount. Crops cannot, therefore, be raised successfully throughout the nation due to recurrent drought, over the entire

land, without ensuring artificial irrigation of fields. Though, Ethiopia's agriculture is dependent on climatic factors. Mainly conditioned by the availability of rainfall, there exist abundant water resources, which have a tremendous irrigation potential. Water is essential for human consumption, sanitation, production of food, and for the production of many industrial goods and raw materials (MoWE, 2009).

The need to develop water resources on a suitable basis emanated from a number of reasons in Ethiopia including rapid population growth, to increase food supply, expansion of industrial and other sectors, which demand more and reliable water. Especially in the agricultural sector in Ethiopia, water is the most limiting factor for the agricultural production even if there are twelve major surface drainage basins. Considering the erratic nature of rainfall, it is important to harvest or divert the rain or water from rivers to improve food production. As cited MoWE (2011), the land potential for irrigated agriculture is currently estimated at 4.5 million hectares, of which only 0.16 million ha or about 5% of the total irrigable land is under irrigation. Ethiopia is described as the water tower of the region and it is the main source of the Nile waters and more than 86% of the water of Nile 17 originates from Ethiopia (FAO, 1976). Now a day Ethiopian government starts to utilize the potential water resource of the country for irrigation and hydro-power purpose. For example, on the current takes as big issues are construction of the Nile river for hydro-power to create around 6000MW (the name called renaissance dam) and this resource after finalize the project starts to satisfy the need of power of Ethiopian people and by selling the power to neighboring regions, then the country earns foreign currency, this currency (income) also uses for poverty reduction purpose, strengthen the economic power and gone the country for development.

2.1.8 Ethiopian water potential for Irrigation Development project

In Ethiopia, In addition to surface water there is a further estimated 2.6 billion meter cube of usable ground water potential. Estimates showed that there is sufficient water in the country to develop about 4.5 million hectares of which only about 0.16 million ha (5% of the potential) is actually irrigated land under full irrigation in Ethiopia (MoWE, 2011). However, irrigated agriculture has realized only 5% of its estimated potential and in terms of output it accounts for approximately 3% of the total food crop production (Mo FED, 2007). There is little information on the extent to which the so far developed irrigation schemes have been effective in meeting

their stated objectives by improving their household's income attaining food self-sufficiency and eradicating poverty (Abonesh et al., 2006). Therefore, currently, the government is giving more emphasis to the sub-sector by way of enhancing the food security situation in the country. Efforts are being made to involve farmers progressively in various aspects of management of small-scale irrigation systems, starting from planning, implementation and management aspects, particularly, in water distribution and operation and maintenance to improve the performance of irrigated agriculture.

Ethiopia cannot meet its large food deficits through rain-fed agricultural production alone. Cognizant to this fact, the government has taken initiatives towards developing irrigation schemes of various scales. This will continue and be further strengthened during the coming years. Now on the EPRDF regime starts to focus expansion of irrigated land and uses the potential of irrigation water sources. Therefore, careful planning and management of this precious resource is inevitable for the overall development of Ethiopia economy (Robe, 2008).

2.1.9 Classification of Irrigation Developments in Ethiopia

Irrigation is categorized as small, medium or large-scale depending on the area irrigated, scale of operation and type of control or management. But the criteria for this category may vary from country to country. For example, in India the irrigation scheme of 10000 ha was classified as small while in Ghana the largest irrigation is 300 ha. (Smith, 1998).

According to the Ministry of Water Resource (2002), irrigation development project in Ethiopia is classified using two systems. The first classification system uses the size of command area irrigated as follows:

□ **Small -Scale** systems are those covering an irrigated area of less than 200 hectare, growing primarily subsistence crops. Small-scale irrigation schemes serve mainly to supplement rainfall and provide a greater degree of security to peasant farmers (McCornick et al, 2003). Examples of SSIs include household-based RWH, hand-dug wells, shallow wells, flooding (spate), individual household-based river diversions, pumping and other traditional methods;

□ **Medium scale** irrigations are those extending between 200 hectares and 3000 hectares and produce a mix of subsistence cash crops.

□ **Large-scale** schemes are those extending from 3000 hectares and above which are growing primarily commercial crops such as cotton and sugar cane and mainly managed by the state corporations.

2.1.10 Ethiopian Irrigation Strategy

Ethiopia has a huge water resource potential to be utilized for irrigated agriculture and hydroelectric power generation. Since the 1950s large-scale irrigation scheme with mechanization of agricultural activities especially in awash valley were under taken for the production of industrial crops (cotton, tobacco). But, from 1980s the significance of small-scale system was identified as a response to tackle the recurrent drought.

According to Haile (2008) Irrigation development is taken as one of the pillars of the plan for the modernization of the agriculture sector, which was conceptualized by the government of Ethiopia as the main instrument for operating the Agricultural Development Led Industrialization (ADLI). This strategy gives a strong focus on increasing the agricultural productivity by addressing the problem of shortage of water through the introduction of irrigation development goals. In line with this objective, the Government of Ethiopia's (GoE) policy towards irrigation management and development has been outlined in the Water 22 Resources Management Policy. This policy document issued in 1999, elaborates blueprint on the management of water supply, sanitation, irrigation and hydropower sectors. The overall goal of the Ethiopia Water Resource Management Policy is to enhance and promote all national efforts towards the efficient, equitable and optimum utilization of the available water resources of the country, to ensure significant socioeconomic development on a sustainable basis (EWRM, 1999).

The specific objectives of the policy are to:

- (i) Promote the development of the water resources of the country for economic and social benefits of the people, on an equitable and sustainable basis
- (ii) Allocate and appropriately apportion the water, based on comprehensive and integrated plans, and optimize the allocation principles that incorporate efficiency of use, equity of access, and sustainability of resources;
- (iii) Manage and combat drought as well as other drought associated impacts, and disasters through efficient allocation, redistribution, transfer, storage and efficient use of water resources;

(iv) Conserve, protect and enhance water resources and the overall aquatic environment on a sustainable basis.

2.1.11 Project Planning Assumptions and Constraints

The constraints and assumptions section of the project plan provides the opportunity to identify limiting or restricting factors that may affect a project (Tryon, 1998). It is the items that limit a project team's options (PMI, 1996). Constraints typically relate to schedule, resources, budget, technology, or contractual provisions (Ashley, 1996, Dinsmore, 1993). Constraints should be documented and communicated to the level required for decision-making (Martin & Miller, 1982), so inclusion in the project charter is valid. Assumptions are those conditions that are considered true, certain, or real for planning purposes (PMI, 1996). Assumptions are necessary because some degree of uncertainty is present in the planning stages of every project (Dinsmore, 1993). This uncertainty can be due to several factors: **insufficient planning, knowledge deficiency, or information that is incomplete, unclear, or unstable (Laufer, 1991).**

Major assumptions are documented because they can have a significant impact on estimating and planning. The inclusion of assumptions in the project charter serves multiple purposes. First, agreement on the assumptions can be validated before a project plan is created (Lewis, 1995). Additionally, the creation of the list of assumptions facilitates further consideration of issues associated with project execution by the project team and provides evidence of the understanding of the assumptions involved in project planning to the project owner (Weiss & Wysocki, 1992). This documentation also becomes an important reference for the project manager to use as a basis for plan revision when assumptions change (Dinsmore, 1993).

Assumptions imply a degree of risk (PMI, 1996) and planning for risk is a fundamental part of project and task management. The exclusion of a section restricted to the exploration of project risk in the project charter template is remarkable. The constraints and assumptions section of planning processes provides the most closely related opportunity to document such information. Assumptions are circumstances and events that need to occur for the project to be successful, but are outside the total control of the project team. Assumptions are accepted as true, often without proof or demonstration. Assumptions are external factors that have the potential to influence (or even determine) the success of a project, but lie outside the direct control of project managers.

The proper name for such a guess is an “assumption”, and these are an important source of risk for projects. An assumption is a way of dealing with an uncertain future when there are a number of possible options. In its simplest form assumption is a decision to proceed on the basis that one option will turn out to be correct and the others will not happen. An assumption is anything taken for granted; it is a supposition or a presumption. It is important to document assumptions because a wrong assumption could very quickly turn into a risk Constraints are things that might restrict, limit, or regulate the project. Generally constraints are outside the total control of the project team.

2.1.12 Project Planning Knowledge Areas

In Project Management body of Knowledge nine knowledge areas of project management are identified namely: - scope, time, cost, risk, quality, human resources, communications, procurement and integration knowledge areas (PMI, 2008). Each knowledge area in PMBOK is composed of processes that are expected to be addressed to attain the objective of the knowledge areas. The project manager and the project teams need to decide which processes to employ, and the degree of rigor that will be applied to the execution of those processes (PMI, 2004). Since the focus of this study is on the planning phase of the nine knowledge areas and this will be described in detailed in this section of the paper. On the table below Project planning knowledge areas and their processes are listed.

No	Knowledge Area	Planning Processes
1	Integration	Project Plan Development
2	Scope	scope planning, scope definition
3	Time	Activity definition, Activity sequencing ,Activity duration
4	Quality	Quality planning
5	Cost	Resource planning, Cost estimating, Cost budgeting
6	Human resource	Organizational planning, Staff Acquisition
7	Communication	Communication planning
8	Risk	Risk management planning, Risk identification ,Qualitative
9	Procurement	Procurement Planning ,Solicitation Planning

A. Project Integration planning knowledge areas

Project integration planning knowledge areas coordinates the various elements of the project and it is an important part in planning processes. Prioritizing between competing objectives and alternatives are an important task in the integration management. The objective of the development of the project plan is used to create a consistent, coherent document that can be used to guide project execution and control (Gupta, Aha, Nau, & Munoz-Avila, 2008). The plan should include general plans regarding all areas of the project such as; project objectives, time schedule, budget, etc (PMBOK, 2004). Since project plan is the main document developed in the planning process and it is very important to allocate sufficient amount of time and resources for this process. A project with a poor developed project plan is most likely to be poorly executed with high costs and delays as a result (Antvik & Sjöholm, 2007). The integration between the different elements of the plan is a complex process and is therefore often required to be iterated several times in order to reach a complete and integrated project plan (Antvik & Sjöholm, 2007).

B. Project Scope planning knowledge areas

Project scope management planning is a process to ensure that the project includes all the work required, and excludes the work that is not required, to complete the project successfully. This planning knowledge area consists of scope planning, scope definition, and creates WBS (PMBOK, 2004). The importance of a well formulated scope of work has been shown several times in different projects. It is not unusual that a project is rushed into start without the proper planning and preparation. This often leads to problems as extra costs and delays are likely to occur (Antvik & Sjöholm, 2007). A clear project scope facilitates for the project organization to realize the actual magnitude of the work and creates an understanding for the achievements that are required in the project (Briner, Hastings, & Geddes, 1996).

Scope planning is the process of elaborating the work that is needed to deliver the product of the project. It should be based on the product/output/ description and requirements from the customer (PMBOK, 2004). The outcome from the scope planning is the scope management plan that mainly describes how the project scope will be managed and how scope changes will be integrated into the project (Gupta, Aha, Nau, & Munoz-Avila, 2008). Defining the project scope significantly influences the project's overall success. The development of the project scope management plan and the detailing of the project scope begin with analysis of information contained in the project charter, the preliminary project scope statement, the latest approved

version of the project management plan, historical information contained in organizational process assets, and any relevant enterprise environmental factor.

C. Project Time planning knowledge areas

Project time planning knowledge area includes all planning processes that are required to ensure a timely completion of the project. The planning processes in time knowledge area are activity definition, activity sequencing, activity resource estimating, activity duration estimating and schedule development (PMBOK, 2004). The time schedule is one of the most important plans in a project. The development of time schedules should be based on the previously developed WBS. According to (Antvik & Sjöholm, 2007) in order to develop realistic and achievable schedules, it is important that activities are sequenced accurately. The activity sequencing involves identifying logical relationships and dependencies between the project activities (Guoli, 2010).

The process of activity resource estimation involves determining what resources and what quantity of each resource that will be used in the project. Required resources can be personnel, equipment and material. This process also includes determining when each resource will be available to the project (PMBOK, 2004). There are in general two methods of resource estimation; top-down and bottom-up. If the project has limited detailed information, the top-down method is often used. It is carried out by the higher management of the project and is based on experience from similar projects. The bottom-up method is also called qualitative based estimations and involves each specific work category in the process. The bottom-up method is more time consuming to perform, but often generates a more accurate result (Guoli, 2010). The activity duration estimation should be based on the project scope, required types of resources, estimated resource quantities and the availability of resources. The result of the process is later used to develop schedules. To get an accurate estimation of duration it should be carried out by a person or group who is familiar with the specific activity (Antvik & Sjöholm, 2007).

A time schedule without control is fairly useless to the project organization. The control must be carried out regularly and relatively often in order to detect deviations early. This makes it possible for the project team to take necessary actions to avoid longer delays (Antvik & Sjöholm, 2007). The schedule control and development must be an iterative process in order for the project team to have updated schedules throughout the project (Guo-li, 2010). Estimating schedule activity durations uses information on scope of work, required resource types, estimated resource

quantities, and resource calendars with resource availabilities. Inputs originate from the person or group on the project team who is most familiar with the nature of the work content in the specific schedule activity. Duration estimates are progressively elaborated, and the process considers the quality and availability of input data.

D. Project Cost planning knowledge areas

Project cost planning knowledge area includes the processes of cost estimating and cost budgeting. The main objective of cost planning knowledge area is to complete the project within the approved budget (PMBOK, 2004). The project budget is very important and influences all areas in both planning and execution of a project. It is important to keep track of total costs as well as costs for different work packages in a project (Guoli, 2010). A professional developed budget does not only control the project costs, but also creates good conditions for development of a well-functioning cash flow in the project. The consequence of insufficient cash flow in a project is often connected to large extra costs and delays, as there is a high risk for a temporary stop of the whole project (Antvik & Sjöholm, 2007). The cost estimation should be based on the project scope, the WBS and be connected to the project plan. To reach a correct estimation it is important that each activity is estimated based on the conditions of the execution of the specific activity. Since there often are several factors that are uncertain in a project, a reserve cost can be assigned to activities with a low level of detailed information or work packages with potential high financial risks (Adisa Olawale & Sun, 2010).

E. Project Quality planning knowledge areas

Project quality planning knowledge area involves all processes and activities in the project organization to determine quality policies and control that the performed work is of a satisfying quality. The major processes in quality management are quality planning, quality assurance and quality control (PMBOK, 2004). The project team must identify which quality standards those are relevant in the project in order to perform quality control. The identified standards should be considered the baseline in the development of a quality plan. It is important that the quality plan not only consist of required levels of quality in different activities, but also methods to achieve the requested quality (Wei & Yang, 2010).

F. Project Human Resources planning knowledge areas

Human resource planning knowledge areas is the processes used to ensure that the project organization is established in a way that provides the project with good conditions to succeed.

Major processes in human resource management are human resource planning, acquire project team, develop and manage project team (PMBOK, 2004). In the early phases of a project it is necessary for the project management to plan how the project team should be organized and determine what roles that is required (Al-Maghraby, 2008). Each role in the project team should be assigned with areas of responsibility, authority and required competence (Antvik & Sjöholm, 2007). It is important that a role with a defined area of responsibility also has the authority to make decisions within that area. Responsibility without authority makes it very hard for middle management to influence the work, which most likely will affect the project negatively (Walker, 2007). Human resource planning Determining project roles, responsibilities, and reporting relationships culminating in the staffing management plan Acquire project team Process of obtaining the human resources needed for completing the project.

G. Project Communication planning knowledge areas

Project communications management planning is the processes used to ensure that required information is distributed to the right person at the right time. The major planning processes in communications management are communications planning (PMBOK, 2004). How communication in a project is handled must be planned in order to perform effective work and minimize the risks. A communication plan is necessary to ensure that both internal and external project communication is carried out effectively. The plan should contain details regarding what type of information that need to be distributed, who needs to receive the information, the purpose of the information, the frequency of the distribution and the responsible person to issue the information (Ramsing, 2009). The communication plan should also include what meetings are required within the project and a specification of participants, purpose and frequency for each type of meeting (PMBOK, 2004).

It is important that the project management performs frequently progress reports, mainly to inform clients and other stakeholders of the status of the project but also for the management team to keep control of all areas of the project. A progress report should focus on deviations from the project plan and contain current status of the project, executed and planned actions, uncertainties and forecasts regarding cost and time (Antvik & Sjöholm, 2007). When deviations from the baseline are identified in the progress report, the management team should include recommended corrective actions in order to bring the project in line with the project plan (Ramsing, 2009) As stated in the Project Management Book of Knowledge (PMBOK) from the

Project Management Institute, communication planning involves “Determining the information and communications needs of the stakeholders: who needs what information, when will they need it, and how will it be given to them.

H. Project Risk planning knowledge areas

The main objectives of project risk management is to increase the probability and impact of events that are positive to the project and decrease the probability and impact of events that are negative to the project. Risk planning includes risk identification, qualitative and quantitative risk analysis, and risk response planning, (PMBOK, 2004).

All projects have uncertainties that can either turn out to be an opportunity or a risk. Uncertainties often occur in areas where the management has little information of the current conditions. By effective management many uncertainties can be evolved into an opportunity rather than a risk (Antvik & Sjöholm, 2007). Risk analysis is often carried out early in a project when the information is highly limited within several areas. To manage risks and opportunities effectively, the analysis must be iterated throughout the project as more and more information becomes clear to the management team (Kululanga & Kuotcha, 2010).

The purpose of a risk analysis is to gain control of the uncertainties in the project. When risks are identified it is therefore important that a strategy is developed in order to response to the risk (PMBOK, 2004). A common and effective approach to analyze risks is to estimate the probability and impact of a risk. The risk response is then based on the combined value of each risk, which leads to a risk management where the response is in relation to the magnitude of the risk (Briner, Hastings, & Geddes, 1996). Risk identification determines which risks might affect the project and documents their characteristics. All persons associated with a project should be encouraged to identify risks. It is important to have the project team involved in the identification process so that they can develop and maintain a sense of ownership and responsibility for the project risks and associated risk response actions. Quantitative risk analysis is performed on risks that have been prioritized by the qualitative risk analysis process as potentially and substantially impacting the project’s competing demands. Quantitative risk analysis assigns a numerical rating to risks and applies quantitative approaches to making decisions in the presence of uncertainty using such techniques as Monte Carlo simulation and decision tree analysis.

I. Project Procurement planning knowledge areas

Procurement management planning is the processes to control and administrate contracts and purchase orders from sources external to the project organization. The major processes in procurement management planning are developing procurement (identifying which project needs can be best met by procuring products or services outside the project organization) and solicitation planning (preparing the documents needed to support solicitation/request) (PMBOK, 2004).

The planning of procurement management should be carried out early in the project and focus on analysis of which products or services that need to be purchased. After the initial planning a procurement plan should be developed that includes all major procurements that are needed in the project (PMBOK, 2004). The procurement plan is an important tool for efficient procurements throughout the project. It should be developed based on the project's WBS and time schedule in order to include all procurements and to be timely integrated in the project. The procurement plan includes budgeted cost and required finish date for each procurement (Eriksson & Westerberg, 2011). A poorly developed procurement plan is likely to cause high procurement costs and in worst case even force the production to be stopped (Antvik & Sjöholm, 2007).

In larger projects there are often a procurement manager assigned to control and handle procurement activities. The procurement manager is responsible to plan and execute purchases. An important part of the procurement manager's work is to evaluate quotes in order to achieve cost effective contractors (Eriksson & Westerberg, 2011). To keep control of the cost forecasts in the project the procurement manager must follow-up the actual cost in relation to budgeted cost for each purchase (Antvik & Sjöholm, 2007).

2.1.13 Critical Planning Input Factors for Project Success or Failure

Reviewing previous studies on critical planning input factors for effective planning performance provides the theoretical foundation for this research. The summary of related studies is presented in this part. The critical planning input factors have been categorized as human factor, management factor, technical factors, and organizational structure. Human factors include the characteristics of individuals and groups that affect the performance of planning processes (including project managers, project team members, customers, related personnel in the parent company). Although there are many stakeholders related to a project, the analysis of different studies indicated that typically only the project team and customers influence the success or

failure of a project. Regarding the project team, the role of the project manager and the knowledge and experience of the project team are critical. Customers are evaluated based on their knowledge, experience and involvement in the project. Management factors include management support, planning and the definition of project goals. The influences of these factors on project results are presented in the next sections (Dvir *et al.* (2010).

A. The role of personnel/human factors on planning processes

The personnel factor includes team members and users (Chatzoglou, 1998). From the management viewpoint, the project manager will control team members and satisfy the client. In this model personnel/ human/ factors will be classified as external and internal stakeholders. The important role of project manager has been confirmed in different researches. According to the finding of Verner *et al.* (1999) Over half of the unsuccessful projects encounter problems with the project manager, such as no experience, insufficient time spent on project planning and the lack of an integrated project plan. But in successful projects, the respondents did not often comment on the project manager. Callahan and Moretton (2001) have identified the relationship between the project leader's power and project planning time. The greater power has the shorter time. Nguyen M. (2003) also found the relationship between a capable project manager and potential project success.

In brief, previous studies have confirmed the influence of the project manager's effort and experience on project outcomes. Chatzoglou *et al.* (1997) considered the role of experience and knowledge of team members in the allocation of resources in planning.

This study focuses on planning, so the influence of project manager in terms of their effort and experience on planning performance is investigated. There are two variables to be examined the first is the effort that project managers spend for planning. In this study, it is expected that if project managers spend more effort in the planning stage, they will achieve the better planning performance. The second variable is the project manager's experience. As mentioned by Verner *et al.* (1999) and Nguyen M. (2003), the project manager with more experience will reduce the possibility of the failure of the project.

Concerning the role of team members, Krishnan (1998) found that a project team with more capable staff exhibits a significantly lower number of errors in the planning processes. According to Chatzoglou and Macaulay (1996 – 1998), the project team members can affect the resource allocation for project. The project team members are assessed by their experience in planning

processes. Barry et al. (2002) also considered project team skills as a variable that can influence the project planning effort measured by time units to complete the project requirements.

B. The role of technical factors on planning performance

Technical factors refer to the quality of techniques and tools employed/used/ and their efficient use in the planning stage Verner, Overmyer and McCain (1999) concluded that applying appropriate and efficient techniques and tools in the planning process will increase the chance for project success This study assumes that applying project management tool and techniques in project planning will improve planning performance.

C. The effects of management factors on planning performance

This study will examine the effects of management support, objective setting, the availability of resources and management style on planning performance.

➤ Management support in planning stage

According to Whittaker (1999) the lack of management involvement and support was a cause for project failures. Verner, Overmyer and McCain (1999) also indicated that almost all of the failed projects were affected by the lack of higher level of management support. A positive correlation between management supports, committed sponsor/support/ and project success was identified and confirmed by Belout and Gauvreau (2003), Procaccino et al. (2002). Additionally, project planning effort needs the top management support which is critical for project success (Cooper and Kleinschmidt, 1987, Zwikael and Globerson, 2004, 2006, 2007, Johns, 1999, Gupta and Wilemon, 1990, Katzenback and Smith, 1993). Without the support from the organization, projects are bound to fail. In this study, management support in the planning stage will be considered as: top management support, committed sponsorship/support/ and early involvement of different departments.

➤ Objectives setting

Clearly defining the project mission, goal and scope are very important to project success. This action should be undertaken at the very start of the planning process. Abdel-Hamid et al. (1999) found that different in project goals affects planning and resource allocation. This significantly influences project performance. The results of Yeo (2002) also indicated that a weak definition of requirements and project scope is one of the biggest failure factors in a project. Belout and Gauvreau (2003) found the link between the project mission defined in the planning stage and

project success. In the structure of this study, the definition of project goals influences planning performance.

➤ **Availability of resources**

The availability of resources related to allocation in the project planning influences project results. Resources usually mean people, time and money. Chatzoglou & Macaulay (1997) found that spending less than 15% of the total time and 15% of total cost in the planning process was insufficient for the successful completion of the process.

2.2 Empirical Literature Review

In this section some studies that deal with irrigation participation decision and its effect on income are reviewed. Literature that examines the effect of irrigation projects on agricultural practice.

Uni dimensional poverty and household income is mixed. Rosegrant and Everson (1992) found that they were unable to establish a positive link between irrigation investment and productivity in India. Similarly, study done by Jin et al. (2002) also did not find a link between irrigation and the total factor productivity growth of any major grain crop in China between 1981 and 1995.

Empirical study conducted by Berhanu and Pender (2002) in Tigray Regional state, Ethiopia, showed that the impacts of irrigation development on input use and the productivity of farming practices controlling all other factors were insignificant. They indicated that irrigation has limited impact on the use of fertilizer and improved seed leading to less gain productivity from irrigation. However, they suggested the reason why irrigation failed to improve productivity of farming practices, deserved further and careful study on the technical, institutional, governance and managerial aspects. A study undertaken by Narayanamoorthy (2001) in India using state wide cross section data covering the period 1970 to 1994 for fourteen major states of India, showed that besides increasing the cropping intensity and productivity of crops, the intensive cultivation of crops due to timely access to irrigation increased the demand for agricultural laborer's and hence wage rates for those who lived below the poverty line. Empirical evidence from Australia showed that a dollar worth of output generated in irrigated agriculture generates more than five dollars' worth of value to the regional economy, which suggested irrigation development has a strong multiplier effect on other sectors of the economy (Ali and Pernia 2003).

FAO (1996) suggests that in developing countries irrigation can increase yields for most crops by 100 to 400%, while also allowing farmers to reap the economic benefits of growing higher value cash crops. Less risky, more continuous and higher, levels of rural employment and income (for both farm families and landless laborer's) can result from irrigated as compared to rain fed agriculture. Increased productivity is also noted to have an effect in reducing overall food prices. Irrigation also increased cropping intensity, farm income, and job opportunities for those that are landless rural poor.

Hussain and Hanjra (2003) and (2004) also found that the productivity of irrigated lands were twice that of non-irrigated reference areas, the net productivity benefits; defined as the difference in net output values between irrigated and non-irrigated lands varied widely across settings from US\$23 to US\$600 per hectare. They argued that a range of factors influence the net productivity benefits of irrigation, and categorized these factors as:

(a) Farm level factors (i.e. crop yield differences, differences in production methods and technologies; land quality, types of cropping patterns, the degree of diversification towards high value crops and other farm enterprises; and farmers' access to support measures such as information, input and output marketing);

(b) System level factors (i.e. condition of irrigation infrastructure and its management/maintenance, irrigation water allocation and distribution procedures and practices and related institutions); and

(c) Related policies (i.e. policies that influence land distribution patterns).

A study conducted by Francois et al. (2003), indicated that 4 micro dams and 2 river diversions irrigation projects in Tigray have been successful in enabling farmers to obtain a certain amount of wealth suggesting that farmers involved in irrigation schemes have shown significant improvement in their livelihoods, and earn higher incomes than non-irrigation users. The assessment further illustrates these beneficiary households to be able to produce enough for the year round household consumption, build household assets such as different livestock, and build better improved houses which directly mitigate vulnerability to shocks. They also stated that irrigation offers the rural population an alternative source of employment and income. The assessment concluded that the use of the irrigation schemes improved the livelihood of the

beneficiaries and recommended the expansion of similar projects to the other regions. Similarly, a study made by Lire (2005) in eight public managed micro dams and 29 surrounding villages in Tigray, Ethiopia showed that agricultural yield and farm profit have significantly increased in villages with closer proximity to the dams than in those further away from the dam 26 water resources.

According to the study the overall evidence suggests that carefully designed irrigation dams could significantly improve agricultural production and overall food security. Irrigation not only contributes to increased crop production but may also reduce variability in production through improved control of the crop environment. In this respect an empirical study done in Nigeria showed that the proportions of population of irrigation beneficiaries that experienced crop failure and poor harvest dramatically declined in comparison to the pre -irrigation status (Babatunde, 2006) Ray et al (1988, cited in Lipton et al., 2003) indicted that, in comparison to non-irrigated conditions, the expansion of irrigation has contributed to a substantial improvement in reducing instability in the output of food grains as well as of other crops.

Because of this, the poor are less likely to need to borrow to increase consumption levels and so avoid the high capital market access costs that they usually face when borrowing. In addition, less risky production of staples or other crops allows them to take more risks with other activities, encouraging diversification into higher risk but potentially higher income activities, such as cash crops for export or new nonfarm activities. Yield enhancing inputs such as fertilizers are highly complementary with water and hence the demand for these inputs is influenced by availability of water. A study made by Madhusuda et al. (2002) in India indicated that availability and access to irrigation infrastructure coupled with the availability and access to new technologies high yielding varieties and fertilizers were major underlying factors for the success of the green revolution in India. They noted that better access to irrigation has facilitated intensification of cropping practices and inputs used, and contributed to the “modernization” of the agricultural sector. The other commonly cited area that related with irrigation is the creation of additional rural labor employment. Since irrigation requires labor, labor employment and real wages rise with the introduction of irrigation. Chambers (1988) showed that irrigation raises employment by increasing the number of days of work per hectare, per crop season and per crop year.

He further noted that irrigation induced employment increases help to smooth seasonal troughs in 27 agricultural employments and improve and stabilize wage rates for agricultural laborers'. Lipton et al. (2003) argued that there are three sources of additional demand for labor created by irrigation. The first is irrigation facilities require labor for their construction and maintenance of irrigation infrastructure. Secondly, increases in multiple cropping (both dry and wet season cultivation), cropping intensity, and crop diversification as a result of access to irrigation also motivate higher farm labor employment, in migration and higher wage rates. They also stated that access to irrigation created additional labor by promoting nonfarm rural output and employment.

Chambers (1988) also cited several empirical studies across countries that show irrigation directly raises employment for landless laborer's via increase in days worked per hectare, day worked per a cropping season, and additional employment in a second or third irrigation season. This increase in demand for labor has a direct effect on increasing wage rates. By creating more secure and stable rural communities, access to irrigation water can also help stop the tide of migration to already overcrowded cities and slums (van Hofwegen and Svendsen, 2000, Chambers, 1988). This evidence was also supported by a study conducted by Hussein et al. (2002) in Sri Lanka and Pakistan. They found that labor employment per hectare and wage rate were found to be significantly higher in irrigated settings than in non-irrigated settings. Furthermore, a study conducted by Hussein and Hanjra (2003) in south and south east Asia found that higher labor employment and wage rates were reported in irrigated than rain fed areas, and they concluded that this change in wage was a direct result of irrigation development. Furthermore, they provide evidence on the significant contribution of irrigation to employment generation in agriculture. They noted that the annual labor work per hectare in the Ganges-Kobadak irrigation system of Bangladesh was around 100 days more than that in nearby non-irrigated areas. This additional labor demand has creates better full time employment opportunities for farm family members and also create employment opportunity for hired labor. Moreover, they indicted that hired labor used in irrigated settings was double compared to that of nearby non-irrigated areas and the wage rate was 15% higher in the former than in the latter areas. Qiuqiong et al. (2005) argued that the green revolution in Asia would not have happened without massive irrigation development.

Without more irrigation many countries would have been unable to achieve the agricultural and economic growth rates required to achieve food security and reduce poverty. They stated that irrigation has been tremendously effective in generating a variety of benefits such as improvements in productivity, employment, wages, incomes and consumption expenditures. Another important issue in the income irrigation causal relationship is the issue of choice between small-scale versus large-scale irrigation systems.

According to FAO (1986 as cited in Rahmato, 1999) small and indigenous irrigation schemes are the dominant form of irrigation in much of Sub-Saharan Africa that could play important role addressing drought and food insecurity. FAO (1999) pointed out that many Sub-Saharan countries have realized the critical role of irrigation in food production. However, the relatively high cost of irrigation development combined with the inadequate physical infrastructure and markets access, poor investments in irrigation, lack of access to improved irrigation technologies, and lack of affordable and readily available water supplies, have been responsible constraints for a relatively slow rate of irrigation development in this region. FAO further identified fragmented and small land holding, unsecured or lack of land titles, high interest rates, and poor transportation and marketing facilities as further constraints affecting the capacity of farmers to invest and manage irrigation projects. Kumar (2003) also stated that irrigation has contributed significantly in boosting India's food production and creating grain surpluses used as drought buffer.

A study by Hussain et al. (2004) confirms that, access to reliable irrigation water can enable farmers to adopt new technologies and intensify cultivation, leading to increased productivity, overall higher production, and greater returns from farming. This in turn opens up new employment opportunities; both on farm and off farm and can improve incomes, livelihood, and the quality of life in rural areas.

Hussain et al. (2004) identified five key dimensions of how access to good irrigation water contributes to socioeconomic uplift of rural communities. These are production, income and consumption, employment, food security, and other social impacts contributing to overall improved welfare. The same study in Sri Lanka reported that irrigation development has been a major instrument used by the government in its attempt to enhance food security and eradicate poverty for over 5 decades. Ngigi (2002) disclosed that for the two decades in Kenya agricultural

production has not been able to keep pace with the increasing population. To address this challenge the biggest potential for increasing agricultural production lies in the development of irrigation. According to the same study, irrigation can assist in agricultural diversification, enhance food self-sufficiency, increase rural incomes, generate foreign exchange and provide employment opportunity when and where water is a constraint.

The major contributions of irrigation to the National economy are food security, employment creation, and foreign exchange. In Ethiopia a study conducted by Woldeab (2003) identified that in Tigray irrigated agriculture has benefited some households by providing an opportunity to increase agricultural production through double cropping and by taking advantage of modern technologies and high yielding crops that called for intensive farming.

2.2.1 Criteria for Evaluating Successes or Failure of Irrigation Project

There are different criteria for evaluating project performance. This topic will summarize the results of different studies on the criteria's for project evaluation. Project success was measured on the bases of time, cost and quality (Navarre and Schaan, 1990). (Atkinson, 1997) identified these three criteria as the „Iron Triangle“. He further suggests that while some different definitions about project management have been made, the criteria for success, namely cost, time and quality remain and are included in the actual description. Apart from these three basic criteria (Pinto and Pinto, 1991) supported that measures for project success should also include project psychosocial outcomes, the satisfaction of interpersonal relations with project team members. The inclusion of satisfaction as a success measure can also be found earlier in the work of Wuellner (1990), Kumaraswamy and Thorpe, (1996) included a variety of criteria in their study. These include meeting budget, schedule, and quality of workmanship, client and project manager's satisfaction, transfer of technology, friendliness of environment, health and safety. Different literature suggests that different criteria were hypothesized (offered) by different researchers.

2.2.2 Role of Planning Processes on Project Successes

Whittaker (1999) indicated that poor project planning, specifically, inadequate risk management and a weak project plan are the common reasons for project failure. Project planning has a facilitating effect on the link between project uncertainty and project success (Aladwani 2002). Poor planning in projects was the most important cause of project failure (Nguyen M., 2003). In

this study, the relationship between project planning processes and different project successes factors are examined. In this study planning processes is measured through the implementation of all the planning activities identified in project management body of knowledge (time, cost, quality, scope, risk, integration, communication, procurement, human resource).

The common criteria used for measuring project successes factors or the most frequent used evaluation criteria used are: Project results in terms of time, cost and quality (Wateridge, 1998; Abdel- Hamid et al., 1999; Dvir et al., 2003) Customer satisfaction (Wateridge, 1998; Seen et al., 2001; Dvir et al., 2003) A good project plan with accurate estimation, good scheduling and appropriate risk analysis could help the project to be completed on time and within budget.

Macaulay et al, 1998: Planning performance (processes) influences project outcome/successes/ in terms of time, cost, Quality and customer satisfaction are the most important criteria for the evaluation project results. In planning, the customer requirements are defined as product specifications. Besides the criteria of product quality, the satisfaction of customers depends on how much the requirements are met. For that reason, the definition of product requirements and specifications in the planning will affect product quality and customer satisfaction.

This study expects that planning processes is related to the accomplishment of project outcomes and the possibility of project success. It is proposed that the better the planning processes the better project successes (the lower the project completion time and cost).

2.3The Conceptual Framework

It gives a depiction on how the variables are related to one another. The variables defined here are the independent and the dependent variable. An independent variable influences and determines the effect of another variable.

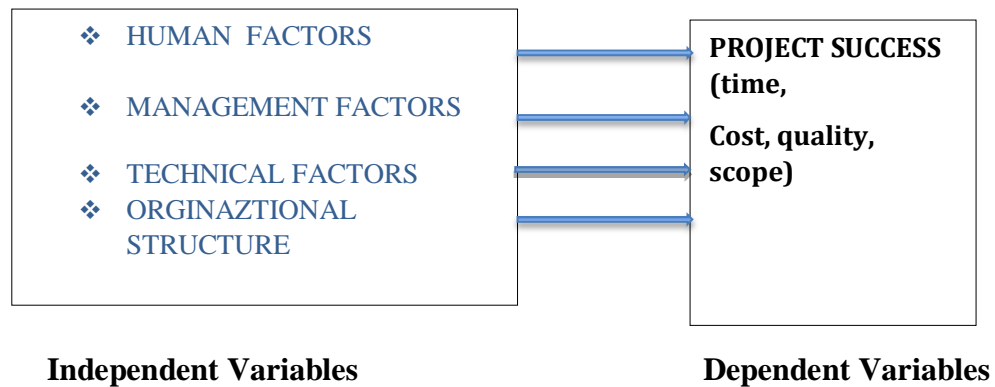


Figure 2. 1 The conceptual framework depicts the relationships of the variables.

Source: Developed by researcher based on literature review

Definition

The Human factor includes team members and users (Chatzoglo, 1998). From the management viewpoint, the project manager will control team members and satisfy the client.

Technical factors refer to the quality of techniques and tools employed/used/ and their efficient use in the planning stage. Verner, Overmyer and McCain (1999) concluded that applying appropriate and efficient techniques and tools in the planning process will increase the chance for project success.

Management Factors: it is the major influencing factors for good project results include management support, the role of top management and involvement of different department. The availability or allocation of resources for the project is the second factor influencing project outcomes.

Organizational factors: - are contribute to the success of the information system according to the users. It is mainly these factors are structure and philosophy, team resources and administrative support and communication and coordination mechanisms.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter sets out various stages and phases that would follow in completing the study. Research methodology is an approach and a set of supporting methods and guidelines to be used as a framework for doing design research (Rusell, 2000). According to Mugenda and Mugenda (2003), research methodology includes research design, target population and sample, data collection procedures, data analysis procedures and expected output.

3.2 Description of the Study Area

The Tibila Irrigation Project is located at east from the country's capital city, Addis Ababa at 8089293'N, 0390 03129'E at an altitude of 1303m above sea level (Ibid, 2009), at the elevation around 1220 to 1250 meters above sea level (OWWDSE, 2007).with a total population of 16000 people incorporated into 3,258 households 53% males and 47% females(CSA, 2007).

The ethnic composition of the population is predominantly occupied by the Oromo ethnic group which is indigenous to the area 93.5% and others which is migrated Amhara to the area 6.5% of the total population The predominant religion is **Muslim** with majority 72%, **Orthodox** 23%, **Protestant** 4% and 1% *Waqefata*, the major economic activities are focused on both crop and livestock production with significant proportion of the population focusing on crop production. (District Agriculture and Rural Development Offices, 2013 E.C)

3.2 Research Design

Research design is the arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure (Kothari, 2004). The study would adopt a descriptive research design. According to Cooper and Schindler (2003), a descriptive study is concerned with finding out the what, where and how of a phenomenon. Descriptive method is a method that describes the study systematically, factually and accurately utilizing facts, behaviors and relationship between the occurrences being studied as they are (Santos, 2007).

Since, the researcher used both qualitative and quantitative data for the study purpose, descriptive research design was chosen, because it enables us to present the data in a more meaningful way and allows simpler interpretation of the data. Therefore, this study is rely on

descriptive survey design to ascertain and make assertions on what factors affect the role project planning performance on irrigation project.

3.3 Target Population

The communities that are beneficial from the projects from Jeju and Sire woreda, Arsi zone and staff which do the project was the target population for this study. Purposive and convenience sampling strategies used to select from total population of 5000 peoples for the study. Therefore, the researcher considered for the study a total sample of 370 people which is 349 people from the communities and 21 people from staff member of the project.

3.4 Sample Size Determination

There are several ways of determining the sample size. From those ways, this study uses a simplified formula of Yamane (1967:886) to calculate sample sizes. This formula was used to calculate the sample sizes with A 95% confidence level and $P = .5$ is

$$n = \frac{N}{1 + N(e)^2}$$

Where n is the sample size, N is the population size, and e is the level of precision. So, total population size is 5000.

$$n = \frac{5000}{1 + 5000(0.05)^2} = 370$$

Therefore, the study will be considering **370** people.

3.5 Sampling techniques

Purposive sampling and convenience sampling strategies has used to select subjects for the study. Purposive sampling strategies is a non-probability sampling allows the researchers to collect qualitative response, which leads to better insight and more precise to research results. Because, the researchers gather information from the best fit of participants and the study also has used this strategies for the purpose of getting core information such as: total planned cost, time, scope and qualities of the project which support researcher. Whereas, Convenience sampling strategies is also a non-probability sampling allows the researchers when sample taken

from a group of people easy to contact or reach. This study has used convenience sampling method. Because respondents has not leave on the same kebele or which are leave far apart to each other's. In order to this the researcher's wants to saves time, transportation cost and collect data quickly.

3.6 Data Sources and Method of Data Collection

The research approach used in this research has both qualitative and quantitative. The reason for choosing quantitative research approach is to meet the purpose of examining how an independent variable affects a dependent variable while, qualitative research approach used for researcher to capture expressive information not conveyed in quantitative data about beliefs, values, feelings and motivations that underlie behaviors. Under this study the major source of data are respondents that randomly selected from communities or farmers, project staff members and others are included.

To collect data for this study were both primary and secondary data gathering methods has employed. The primary data source was obtained via survey questionnaire and interview as a tool for data collection. The survey questionnaire was preferred due to its less expensive in administering written questions, permit anonymity and relatively responses are thought to be honest.

3.7 Data Analysis

The collected data has to be organized, summarized and interpreted into meaningful information, figure and statement. Thus, the data need to be analyzed, processed and interpreted according to the nature of data. Descriptive statistical data analysis has used for the better presentation and understanding of the study results. Moreover, for this study purpose, Statistical Package for Social Science (SPSS) software version IBM 20 has employed to generate the results.

3.8 Quality Assurance

3.8.1 Validity

Validity concerns the extent to which a measurement actually measures those feature the investigator wishes to measure and provided information that is relevant to the question being asked. Validity was insured by making sure the sampling techniques were free from bias by giving each subject an equal opportunity to score. The questionnaires and interviews were

comprehensive to cover all the variables being measured. Comparison was done between the conceptual framework (own variables) and theoretical framework (what has been said by others) for validation.

3.8.2 Reliability

Reliability concerns the extent to which measurement is repeatable and consistent. This means that the same data was collected each time in repeated observation of the same phenomena. The reliability of the questionnaire was determined using a pilot study. Therefore, 370 people were used to test or answer the questionnaire and interview. First, the researcher gave the respondents the query as it was and then changed the position of each question to check whether their response is consistent or not and this is the way the reliability of the study could be ensured.

3.9 Ethical Considerations

To undertake the study, permission has obtained from Harambee University and then official letter of University was provided to the Tibila Irrigation development project office. After approval from all concerning bodies, data collection for the study executed based on cautions about purposes, procedures, potential risks and benefits of the undertaken study so that an accurate available information was obtained. The respondents had been approached after the purpose of the study explained in detail so that they are comfortable to give their response on time. Reviewing of information for the study was carried out after the assurance of the privacy of the informants (organizations). The study also attempted to take into accounts custom, norm, culture and religion of the community around the study area (participants in the study).

CHAPTER FOUR: DATA PRESENTATION, ANALYSIS AND DISCUSSIONS

4.1 Introduction

This chapter presents response rate, demographic data, analysis of the data and findings or results of the research on Role of project planning on Irrigation Project Performance in case of Tibila Irrigation Project in Arsi Zone, Oromia Regional State. Presentation, analysis and interpretation of data obtained through questionnaires are discussed. The attribute and variable data are organized and presented using different data presentation tools including tables, bar graphs and pie charts, and narrated systematically depending on respondents' response. Therefore, the analysis of the collected data are presented and interpreted under this chapter.

4.2 Response of Respondents

The study targeted a sample of 370 respondents from a total number of 5000 beneficial communities. Accordingly, 300 respondents from beneficial communities and staff were responded from Jeju and Sire woreda. As a result, the research hits 81.08% response rate. This response rate is good enough and representative of the population as exceeded Mugenda's (1999) requirement that a response rate of 50% is adequate for analysis and reporting; a response rate of 60% is good and a response rate of 70% and above is excellent.

4.3 Demographic Statistics

4.3.1 Gender Distribution of the Respondents

The study sought to establish the gender distribution of the respondents. From the findings below, the males made the majority of the respondents with 83% and the females made the minority with 17% as shown on Table 4.1 below, which implied that the participation of women in pastoralist area was much lower.

Table: 4. 1 Gender Distribution of the Respondents

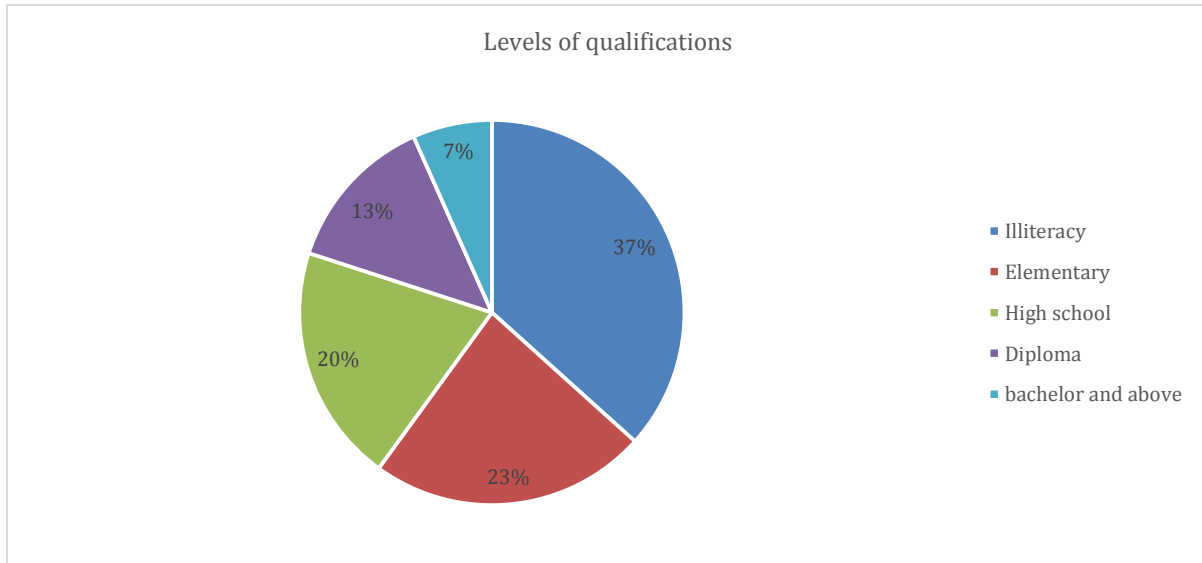
Sex	Frequency	Percentage
Female	50	17%
Male	250	83%
Total	300	100%

Source: (Field Survey,2022)

4.3.2 Level of Education of Respondents

The study wanted to establish the lowest levels of education attained by the respondents. From the findings shown in the Figure 4.1 below, majority of the respondents (37%) was Illiteracy, (23%) have Elementary level,(20%) has high school level, and (13%) has Diploma level, (7%) has first degree and above level of education respectively. This finding showed as the majority of the communities that used from the project there were not educated and they are pastoralist area.

Figure: 4. 1 Level of Qualifications of Respondents



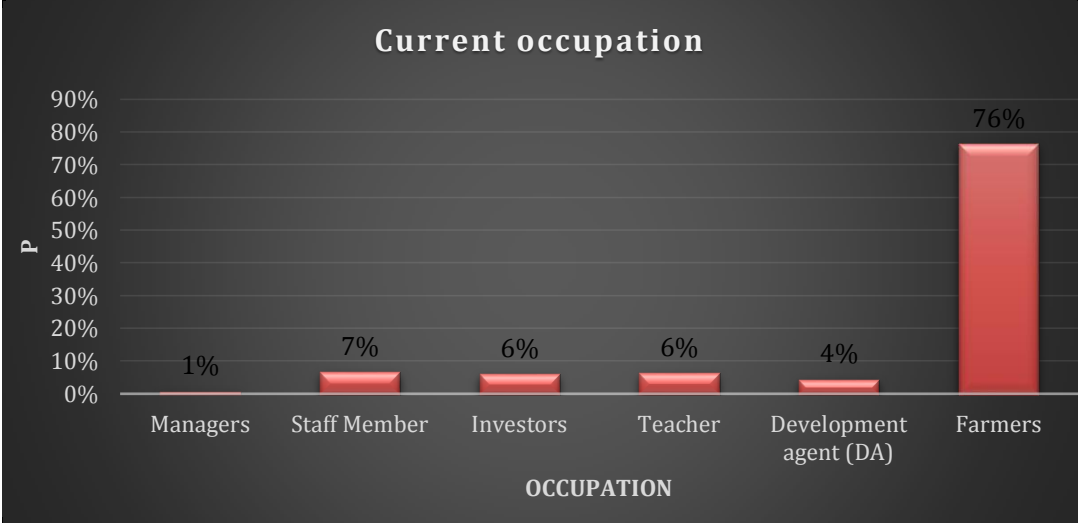
Source: (Field Survey, 2022)

4.3.3 Current Occupation of Respondents

The study required to establish the current designation of the employees in the governmental or non-governmental organization. As the study result showed in the Figure 4.2 below, majority of

the respondents were farmers (76%).project staff members (7%), teachers (6%), investors (6%), DA (4%) and managers (1%) respectively. This informed as the majority of the respondents which are users of the projects, knew about the background of the projects in detail and the researcher helped to get real information.

Figure: 4. 2 Current Designations in their Organization and Others

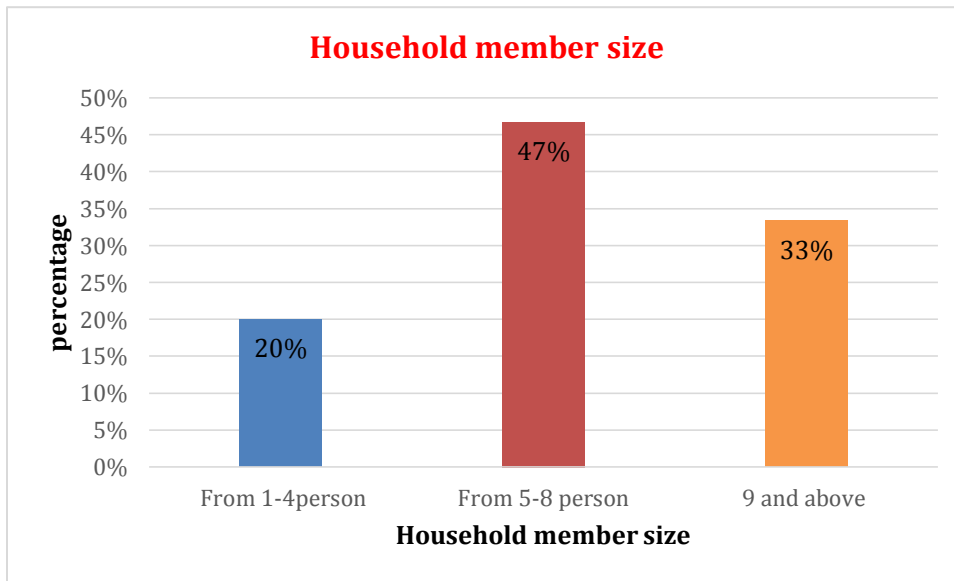


Source: (Field Survey, 2022)

4.3.4 Household family member size of Respondents

The study wanted to establish the highest levels of household family sample size attained by the respondents. From the findings shown in the Figure 4.3 below, majority of the respondents (47%) have a family member of (5-8) person, (20%) have a family member of (1-4) person and (33%) have a family member of 9 and above

Figure: 4.3 Household member sizes of Respondents



Source: (Field Survey, 2022)

4.4 Factors that affects project planning performance

Different studies have identified many of the critical factors which affects project results. Various significant factors such as; personnel or human, technical and management factors and project success or failure were considered. The role of these factors should be recognized in planning projects. The reason for this emphasis is that bad decisions or poor performance in planning will considerably influence the project results. In this planning performance is evaluated based on the nine project management body of knowledge (PMBOK). The role of planning in a project was studied in more detail in the research of Chatzoglou *et al.* (1997 – 1999) and Dvir *et al.* (2003). Chatzoglou provides a broader view of the input factors in planning such as human, management and technical factors.

This study also focused on the following input factors in project planning.

4.4.1 Human or Personal Factors

Most studies have considered personnel the most vital factor for project success during project life cycle. The personnel factor includes team members and users (Chatzoglou, 1998). From the management viewpoint, the project manager will control team members and satisfy the client. The important role of project manager has been confirmed in different researches. According to the finding of Verner *et al.* (1999) Over half of the unsuccessful projects encounter problems

with the project manager, such as no experience, insufficient time spent on project planning and the lack of an integrated project plan. But in successful projects, the respondents did not often comment on the project manager. Callahan and Moretton (2001) have identified the relationship between the project leader's power and project planning time. The greater power has the shorter time. Nguyen M. (2003) also found the relationship between a capable project manager and potential project success. Under this study also human or personal factor has affect project planning of Tibila Irrigation project performance. As finding depicted in table 4.2 the majority of the respondents indicated the following results:

Firstly, the majority respondents 63%, 66% ,70% there were answered “strongly disagree and disagree” for managers and team members was well experienced on project planning processes and the effort was spent in planning stage as compared to other stages respectively on the project planning processes of Tibila Irrigation project. This resulted indicated as, project managers and team members has poor or lack of potential and capability to succeed project planning processes and it has negative effects on the futurity of projects. And also this study showed as, more effort was not spent on planning stage due to this the project planning not dealing more and the futurity of the project goes to fail or risk.

Secondly, the majority of respondents indicated that (69%), (90%) were answered “strongly disagree and disagree” on team members was well committed in project planning processes and farmers or communities was not involved in project planning processes respectively. This study indicated as, team members has poor commitment in planning processes and on the planning stage the way how to they handle and treatment of employee has not considered more. The other result was the participations of communities in planning processes were poor and this consequently project managers and team members have not got encouragement from communities. And also, as some literature had written that communities must have participated on project planning because they share risk, they assume that the project is my project and etc. However, as key informants indicated on interview (project manager), communities that has found around the projects, they had no back ground or irrigation practice, there were illiterate and pastoralist. Because of such reason they didn't have opportunity to participate in planning processes. But after project planning processes has finished, the main Objective of the project

has introduced and communities did not ask compensation for their lands those whose water canal passed through.

In addition to this, as key informants mentioned on interview due to lack of commitment of team members on project planning process the employees has spent their time in the work place during implementation of the project by sleeping and joking on work time and this also has negative effects to the project not finished on its scheduled time.

Table: 4.2 Human or personal factors affecting project planning performance

Description	Percentage				
	strongly disagree= 1	disagree= 2	neutral= 3	agree= 4	strongly agree= 5
project manager was well experienced in planning processes	30%	33%	7%	17%	13%
Team members were well experienced in planning process?	28%	38%	3%	20%	10%
More effort was spent in project planning processes	23%	47%	5%	10%	12%
Team members was well committed in planning stages	40%	29%	4%	17%	10%
Farmer's or communities was involved in planning stages	67%	23%	0%	5%	5%

Source: (field survey, 2022)

4.4.2 Management Factors

The research wanted to identify critical factors affected projects planning performance of Tibila irrigation project in Arsi Zone, Oromia Regional State. As the findings indicated in Table 4.3 below, majority of the respondents 67%, 63% and 50% there were responded that “agree” for the questions does no conflict between project team and communities on objectives, project scope was defined and project manager has given full authority to top management in the project planning processes respectively in the Tibila irrigation project. This result showed as project managers has took full authority to accomplish the project planning processes and it showed as the communities loss trust or respects for project managers. Because the communities or farmers knew the scope of the project was defined on the project planning processes and the general objectives of the projects.

The findings also depicted in Table 4.3 below, Majority of respondents 73%, 57% there were responded “disagree and strongly disagreed” on involvement of functional department from parent organizations in planning processes and on the human resource (qualified people) and budget could affect the performance of project planning processes respectively. This result indicated as there were poor involvement of functional department from parent organizations and qualified people in planning processes. The involvement of parent organizations has important in project planning processes. Because if those parent organization got a chance to participate on planning processes they share their experience and knowledge of project planning. Project managers also learn from their experience, weakness, strength etc. and solve the current problems of project related with poor quality, take longer time, lower scope and high cost of Tibila irrigation project.

This study also showed that, there were poor or lack of human resources (qualified people) in the project planning processes and this result which affects the budget was poorly estimated and also government has faced to extra budget for to finish project or met its objective.

Finally, as key informants mentioned on interview, in addition to those factors there were big corruption between project managers and government bodies in planning processes. Due to this Tibila irrigation project are affected the performance of planning processes.

Table: 4.3 Management factors that affect project planning performance

description	Percentage				
	strongly disagree =1	disagree =2	neutral =3	agree= 4	strongly agree=5
In the planning stage there were no conflicting objectives between the project team and the communities to describe the process of goal definition	7%	10%	5%	67%	12%
Functional departments of the parent organization was involved in planning stage	40%	33%	7%	8%	12%
The project scope was well defined in the planning stage	4.8%	5.2%	3%	63%	23%
The project manager was given full authority from top management	15%	18%	3%	50%	13%
All resources were allocated (qualified personnel and infrastructure) and budget	24%	33%	7%	19%	17%

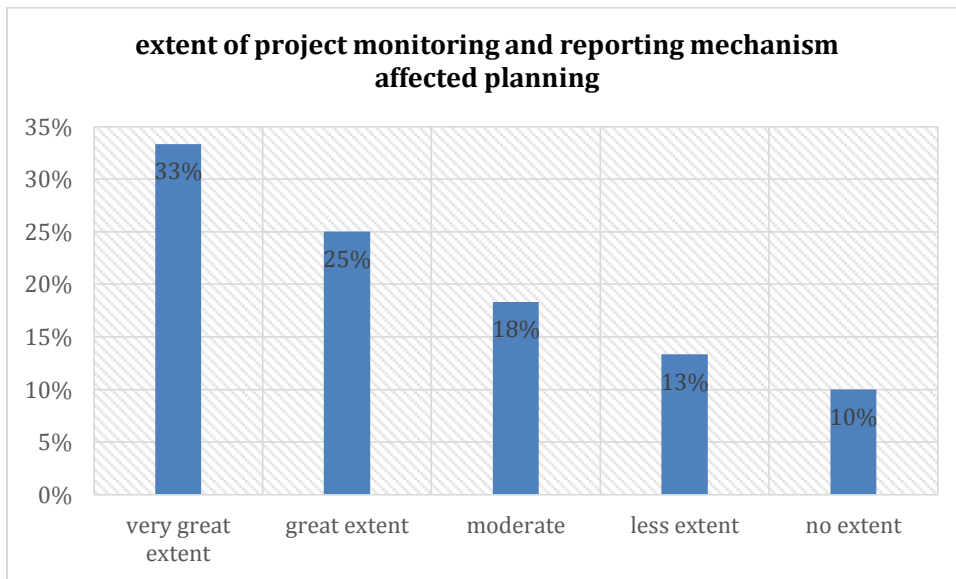
Source: (Field survey, 2022)

4.4.3 Technical factors that affect project planning processes

Technical factors refer to the quality of techniques and tools employed/used/ and their efficient use in the planning stage. Verner, Overmyer and McCain (1999) concluded that applying appropriate and efficient techniques and tools in the planning process will increase the chance for project success. In this study, applying the tools and techniques in the planning stage would be considered. The application of project management techniques were surveyed in the study of White and Fortune (2002). As a result of these study respondents has indicated that technical factors are affect project planning of Tibila irrigation project performance.

The research required to underscore to what extent project monitoring and reporting mechanisms was included in planning stage that affect project planning performance of Tibila irrigation project. From the study findings in Figure 4.4 below, majority of the respondents 33%, 25%, 18%, 13% and 10% indicated that project monitoring and reporting mechanisms affected project planning performance to very great extent, great extent, moderate extent, less extent and no extent respectively. This showed that project planning performance there was affected by the project monitoring and reporting mechanisms. Which means 33% respondents indicated that there was highly extent gap of monitoring and reporting mechanisms technically on planning processes.

Figure: 4:4 the effect project monitoring and reporting mechanisms on project planning performance



Source: (Field survey, 2022)

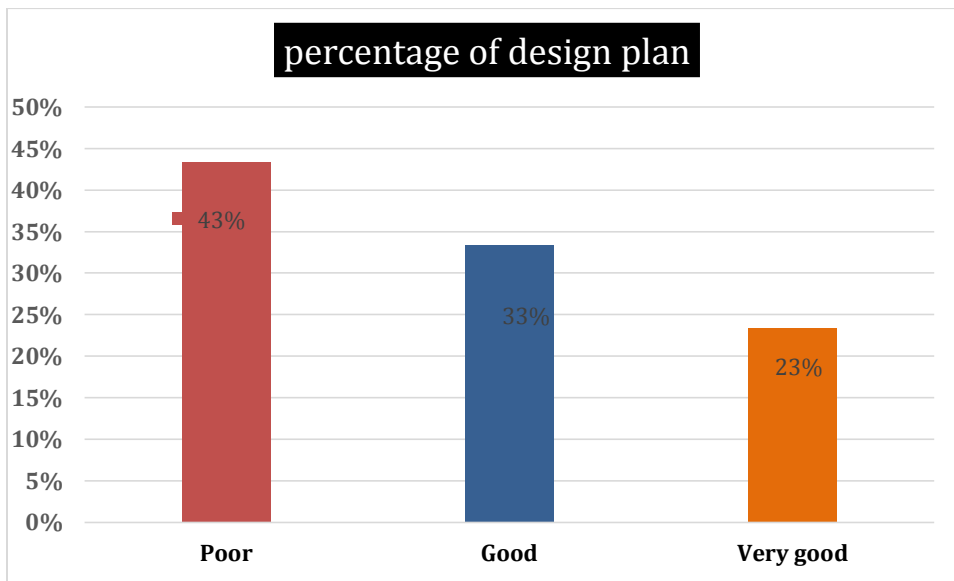
Project Evaluation and Review technique (PERT) was used. PERT is a procedures through which activities of project are represents on its appropriate sequence and timing. It is schedule technique used to schedule, organize and integrate tasks within a project.

4.4.3.1 Design plan factors

Under technical factors design plan is the most critical factors for project planning performance of any project. From the study finding on the table 4.5 below, the majority of respondents 43%, 33% and 23% showed that design of the project was done on poor, good and very good

respectively during the project planning of Tibila irrigation project. Which means that, majority of participants indicated there were poor design plan and the consequence of poor design has negative effects on project quality, cost, time and scope of projects and the project planning not achieve its objectives.

Figure 4.5 Design plan problem factors on project planning performance



Source: (Field survey, 2022)

As key informants indicated that on interview, on planning the design of project whole farm block was not done. Only farm block one and two has done on planning stage the other were did during the implementation of projects. And also design has changed during implementation of projects time to time because of this government has spent a lot of money. Project delay was also occurred. Respondents also showed that on the planning processes materials that are used for construction of water canals, bridge and on manual lines not specified on their quality. In case of this risk is not calculated or managed. Currently the areas that the project gave service for communities or farmers because of poor quality water canals and manual lines construction, many people has died in the water during the opening lines and passing through it.

4.4.4 Organizational or Governmental factors

The research wanted to identify critical factors affected projects planning on the performance Tibila irrigation project in Arsi zone, Oromia regional state. From the findings, majority of the respondents on the below table 4.4 has showed that 75% there was lack of appropriate project managers in project planning processes, both in terms of experience and knowledge. The consequence of poor project managers on planning has negative effects on the project cost, time; quality and scope of projects and the project not achieve its objectives. The majority of respondents 67% showed that, Government and project managers have poor communication and poor organization structure. As some participants indicated that, there was a big corruption between government bodies and project managers. The majority 67% of respondents also showed Project managers has involved in project planning processes. But, as key informants mentioned on interview the involvement of managers had no value, because project managers has no more experience and knowledge of project planning of Tibila Irrigation Project.

Table 4. 4 Governmental or Organizational factors

Description	Percentage	
	Yes	No
the government was assigned appropriate project managers in project planning	25%	75%
the assigned project managers was involved in planning stage	67%	33%
Project managers and government was well communicated during planning phase	33%	67%

Source: (Field survey, 2022)

4.5 Common problem areas in project planning of Tibila Irrigation project

In Project Management body of Knowledge nine knowledge areas of project management are identified namely: - scope, time, cost, risk, quality, human resources, communications, procurement and integration knowledge areas (PMI, 2008). Each knowledge area in PMBOK is

composed of processes that are expected to be addressed to attain the objective of the knowledge areas.

As the finding result indicated in table 4.5 below majority of the respondents 57%, 83%, 68%, 70%, 60%, and 77% were answered “No” on the project activities was well defined and sequenced, schedules and activity duration was well developed and estimated, budget and resource for the project was well determined planning processes, Project cost was well estimated, Project Risk identified and Procurement of the project was prepared in planning stage respectively on the project planning processes Tibila irrigation project.

Table: 4.5 project planning knowledge areas in project planning processes

Description	percentage	
	Yes	NO
Does project activities was well defined and sequenced	43%	57%
Does schedules and activity duration was well developed (prepared) and estimated	17%	83%
Does the budget and resource for the project was well determined planning processes	32%	68%
Project cost was well estimated	30%	70%
Project Risk identified	40%	60%
Does Procurement of the project was prepared in planning stage	23%	77%

Source: (Field survey, 2022)

4.5.1 Scope of project planning of Tibila Irrigation project

Project scope management planning is a process to ensure that the project includes all the work required, and excludes the work that is not required, to complete the project successfully.

On this study as majority 86% of respondents on the above table 4.3 have mentioned under management factors were answered “agree” the project scope well defined on the project planning processes of Tibila irrigation project. But as key informants indicated that there was problem on project scope during planning process and government has planned the irrigation areas of the projects are around 16000 hectors and have a length of 32Km. However, currently the irrigated area was 3700hector and with a length of 20km has finished. This showed that the planned scope didn’t match with planned time (Tibila Irrigation Project office, 2022).

4.5.2 Cost of project planning of Tibila Irrigation project

Project cost planning includes the processes of cost estimating and cost budgeting. The main objective of cost planning knowledge area is to complete the project within the approved budget. Majority of respondents on the above table 4.5; (70%) were responded that “No” on the project cost was well estimated on the project planning processes of Tibila irrigation project. As key informants on interview showed that, at the project planning stage, the estimated and approved budget is 167million birr. But currently government has spent 1.3 billion birr and also it needs another extra budget to finish this project (Tibila Irrigation Project office, 2022).

4.5.3 Time of project planning of Tibila Irrigation project

Project time planning knowledge area includes all planning processes that are required to ensure a timely completion of the project The planning processes in time knowledge area are activity definition, activity sequencing, activity resource estimating, activity duration estimating and schedule development (PMBOK, 2004). The time schedule is one of the most important plans in a project.

On the above table 4.5 majority of respondents (83%) were answered “No” for schedules and activity duration was well developed (prepared) and estimated on the project planning processes which affects the performance of Tibila irrigation project. As participants indicated that on interview project planning process has big problem on time estimation. Project managers and team member did not have an experience of time estimation. In case of time estimation problem,

gov't had faced to spent extra money to finish the project. Because as the time goes, cost of construction materials such as; cement, steal metals, water pipe, stones and etc. has increasing in our country.

Generally as respondents showed the estimation of the project starting and ending time was affect project planning of Tibila irrigation project. Because the project has planned to finished within three up to five years from 1999 up to 2004 A.E.C. but the project still not finished and already it counts 15 years (Tibila Irrigation Project office, 2022).

4.5.4 Integration of project planning

Project integration planning knowledge areas coordinates the various elements of the project and it is an important part in planning processes. Prioritizing between competing objectives and alternatives are an important task in the integration management. The findings on the table 4.5 above, the majority (57%) of the respondents were answered “NO” for project activities were well defined and sequenced in the planning processes. This showed that the integration of project planning which affects the role of project planning performance of Tibila irrigation project.

4.5.5 Procurement of project planning

Procurement management planning is the processes to control and administrate contracts and purchase orders from sources external to the project organization. The major processes in procurement management planning are developing procurement (identifying which project needs can be best met by procuring products or services outside the project organization) and solicitation planning (preparing the documents needed to support solicitation/request) (PMBOK, 2004).

As the finding on the table 4.5 above, majority of the respondents (77%) were responded “NO” for the procurement of the project was prepared in planning stage which affects project planning performance of Tibila irrigation project. As key informants showed on interview, at the project planning processes the project has no procurement or bidding on both design and construction. The project design has gave to Oromia Design Construction Engineering office (ODCEO) and construction has gave to Oromia Construction Corporation (OCC), now a days the name changed to Oromia Corporation Engineering (OCE) without any competition. Majority of the respondents showed that due to the absence competitors of bidding design problem and quality of the project

are not good, the project has delayed and the project planning performance Tibila irrigation project was affected.

4.5.6 Quality of project planning

Project quality planning are all processes and activities in the project organization to determine quality policies and control that the performed work is of a satisfying quality. The major processes in quality management are quality planning, quality assurance and quality control.

As key informants showed that, because of lack of time, cost, scope, human resource and procurement planning processes the quality of project planning which affects the project planning of Tibila irrigation project performance.

4.5.7 Human resource of project planning

The finding on the table 4.2 above on the human factors only 19% and 17% of participants were answered “agree and strongly agree “on the All resources were allocated (qualified personnel and infrastructure) and budget on the project planning Tibila irrigation project respectively. Under this study key informants showed that on the project planning process the way how to hire the project team or employee and how to succeed or met project objective not planned more. Because most of the project team has no commitment for their work, they kill their work time and manager doesn’t follow them and they had no good attitude towards their works during implementations of the project.

4.5.8 Risk of project planning

The main objectives of project risk management is to increase the probability and impact of events that are positive to the project and decrease the probability and impact of events that are negative to the project. The majority of the respondents 60% on the table 4.5 above were answered “NO” for the risk were identified at the planning processes which affect the project planning performance of Tibila irrigation project. And also key respondents pointed that project planning process had positive and negative impacts. Its positive impacts are it serves communities from food aid, increase their income and change their life from pastoralist to irrigated agriculture. Its negative impacts this project planning processes indicated that on the planning processes materials that are used for construction of water canals, bridge and on manual lines not specified on their quality. In case of this risk was not calculated or managed. Currently the areas that the project gave service for communities or farmers because of poor quality water canals and manual lines construction many peoples and cattle’s were also died in the water

during the opening lines and passing through it Sometimes full utilization of the water creates water shortage to downstream affecting ecosystem negatively.

4.6 Effects of project planning processes on project performance in Tibila Irrigation project.

According some literatures wrote that, project performance and outcomes of a project are measured by the effects of project planning, implementation, monitoring and evaluation processes. Project planning processes is the most essential stages for project success.

As a results of this study, the table 4.6 below the majority of respondents (52%) were answered “strongly disagree and disagree” for the project success and quality standard was well identified, 86% of respondents were responded “strongly disagree and disagree” for the project completed on the original planned schedule and budget, only 37% of respondents were answered “agree and strongly agree” for the delivered irrigation project met all specification in the planning stage of the project and only 28% of respondents were “strongly agree and agreed” for the project result satisfies the communities or farmers needs from Tibila irrigation project.

Table: 4.6 Effects of planning on the project performance

Description	percentage				
	strongly disagree=1	disagree=2	neutral=3	agree=4	strongly agree=5
Project success and quality standard was well identified?	20%	32%	15%	20%	13%
project completed on the original (planned) schedule and budget	53%	33%	13%	0%	0%
The delivered Irrigation project met all specification in the planning stage	19%	21%	23%	23%	14%
The project result satisfies the communities' needs	19%	30%	23%	20%	8%

Source: (Field survey, 2022)

As majority of respondents showed on the above tables: **First**, there were poor of experienced managers and team members; low of commitment of team members; poor of communities 'or farmers participation in the project planning processes of Tibila irrigation project. Due to this factors the project does not met its specific objectives, does not finished on planned time, does not cover the scope of project, the project completion cost increase and the quality of the project also poor.

Second, there were lack of monitoring and reporting mechanisms on the project planning processes; project design plan problem and quality of construction materials did not specified on project planning process the project doesn't meet or succeed the planned quality, time and cost of the project (source, field survey,2022).

Third, there were poor of involvement of functional department from parent organizations; poor of human resource (qualified people) and budget could affect performance; and the problem with lack of experience and corruption of manager's authority in the project planning processes the project doesn't met the general objective of the project(Source: field survey, key informants, 2022).

Fourth, there were lack of appropriate project managers in project planning processes, poor ways project managers' involvement in project planning processes; poor communication between government and project managers; corruption between government bodies and project managers; and Poor organizational structures the project not finished on its scheduled time, budget ,quality and scopes(Source: field survey, key informants, 2022).

Generally, due to the above indicated factors or reasons, as key informants had mentioned that communities or farmers had a big compliant to the governments; they had no good attitude towards the projects, project managers and team members; sometimes communities made conflict with employees of the projects on site during the implementations of projects.

On the other hand, as key participants indicated on interview due to the above reasons or factors government had faced to spent extra budget to accomplish or finish project, some employees has demotivated for their work (as they said on interview there was hidden corruption between

management teams and government bodies) and the plan of project had cover around 16000 hector.

But, currently the irrigated area was 3700 hectares which means 62% of project scope gave function to the communities and 38% of the project scope or area doesn't finished or not functioned to the communities and also the amount of water distributions for the irrigated area was not uniform. Farm block nine and ten (Merti woreda) there was not functioned for the communities still. So the role project planning affects the performance Tibila irrigation project (Tibila Irrigation Office, 2022).

CHAPTER FIVE: CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter provides from chapter four gives the conclusions and recommendations of the study based on the objectives of the study and research questions. The objective of this study was to investigate the role of project planning on Performance of Tibila irrigation project. This study was guided by the specific research objectives: to identify factors that affects project planning performance; to identify common problem areas in project planning; and to analyze the effect of project planning process on project performance in Tibila Irrigation project.

Therefore, to obtain the required data this research used survey questionnaire as a research instrument for data collection. Questionnaire is series of questions designed to elicit information, which is filled in by 81.08% % of the participants in the sample. Questionnaire for this research purpose included both structured and close-ended form and unstructured and open-ended form. The research was concerned with survey questionnaire due to less expensive in administering written questions, permit anonymity and result in honest responses. The data obtained from questionnaires were handled and managed with careful presentation and narration.

5.2 Conclusion

This study has been conducted in the assessment of the role of project planning on the irrigation project performance; A case of Tibila Irrigation Project in Arsi Zone, Oromia Regional State. In addition to the main planning input factors that affect the quality or performance of planning processes were identified. And also the existing project planning problem areas and the most influential planning processes or activities were identified. The results obtained provide a good understanding of an important planning input factor that affects the quality or performance of planning processes. And also it provides to identify the effects of planning knowledge areas on project performance.

The result obtained from the analysis of gathered data identifies the main planning input factors for effective planning quality or performance as: - human, management, technical and organizational or governmental structure factors. If the organization or government implemented this factor they significantly or effectively improve the quality or performance of planning processes. But according to the finding of the study most of the input factors is not experienced effectively. Only 30% respondents were agreed that project manager was well

experienced and 27% team members was well committed in planning processes, 22% respondents were agreed that more effort was spent in planning processes, 10% of respondents were agreed the communities or farmers was participated on project planning processes, 79% there were no conflicting objectives between the project team and communities, 86% of the project scope was identified on project planning processes, 63% of the project managers has full authority from top management, 20% of the functional departments of the parent organization was involved in planning stage, 33% of project monitoring and reporting mechanisms was affects with very great extent project planning processes, there were also 75% respondents poor project managers in project planning processes, both in terms of experience and knowledge .poor communication between government and project managers, corruption between government bodies and project managers that affect project planning performance of Tibila irrigation project (Source, key informants, 2022).

Therefore, improving these poorly experienced factors reveal effective performance of planning processes. The other work done in this study is assessing the role of planning knowledge areas on project performance. These results provide supports for the important role of planning on project successes. Moreover, the influence of those planning knowledge areas are also affects project planning of Tibila irrigation project performance. The finding indicate that poor estimation of cost, poor identified risk and quality planning during planning processes results to complete the project delayed time and over budgeted cost. Tibila irrigation project its estimation time is 3 up to 5 years (1999-2004 E.C) with 167 million birr budget cost, 16000 hector area with a length of 32KM was planned to finish the project. However, due to poor planning time, cost, scope, quality and others currently the project counts 15 years, 1.3 billion birr, the irrigated area was 3700 hectores with a length of 20 KM had finished with poor quality construction.

The finding also identifies planning knowledge areas that were performed poorly in the project planning of Tibila irrigation project performance defined as: - there were 33% of poor integration of monitoring and reporting problem, 43% of respondents were responded poor of design plan problem, material usage, the project has no procurement or bidding on both design and construction, most of the project team has no commitment for their work, lack communication between government and project managers and corruption. Due to the above

factor and project knowledge areas the project planning processes performance was lower and the project not achieve its objectives (Source, Key participants, 2022).

Generally we conclude from key informants of interview: project planning affects the communities or farmers had a big compliant to the governments; they had no good attitude towards the projects, project managers and team members. And also government had faced to spent extra budget and some employees has demotivated for their work.

Therefore, improving the poorly performed planning processes, expending more effort or time on the identified planning activities improves or met the objective of Tibila irrigation project at the district of Sire, Jeju and Merti woreda, Arsi zone, Oromia regional state.

5.3 Recommendation

This research paper had been made great effort to discover the role of project planning on the performance of Tibila Irrigation Project which found in Arsi zone, Oromia Regional State. Based on study findings the following major basic recommendations could help to improve the success or performance of project planning processes.

- The study recommend that; Oromia Irrigation Authority have to assign project managers and team members that have a potential and capable of project planning processes to solve the planning problems of project and to meet the objective of project.
- Arsi zone Irrigation Authority branch must has to play its roles and pass to Jeju, Sire and Merti woreda and each woreda follow the status of project planning processes, project managers, team members and help project managers what he or she need from them.
- In order to achieve the objective of the projects, Project managers should spend more effort at planning stage and improve monitoring and reporting mechanisms on planning processes.
- In planning the team members should have good knowledge and experiences about the planning processes and increase the commitment towards the projects.
- The project managers should increase communities or farmers involvement in planning stages and should increase their knowledge by providing different training.

- The functional department of parent organization should be involved in planning stage.
- The required resources should be provided to team members during planning processes.
- The communities or farmers also encourage the project managers and team members of the projects.
- There should be well communication between project managers and top management of Oromia Irrigation Authority and avoid corruption between them.

To improve the project planning performance of Tibila irrigation project and to meet the specific objectives the projects, the finding focus on four project successes factors (time, cost, quality, and communities or farmers satisfaction) have a relationships with planning activities and during planning phase the project team members should spends more time on; Schedule development, Risk response planning Procurement planning, Scope definition, Quality planning, Risk identification, Quality standard identification, Communication planning, Human resource planning, Resource planning, Cost estimation, Activity duration estimating.

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APPENDICES

Appendix: Questionnaire

Dear respondent:-

First of all I would like to appreciate your willingness to support my effort by responding to this questionnaire. This questionnaire is designed to get genuine information **on The Role of Project Planning on the Performance Irrigation Project; A Case of Tibila Irrigation Project in Arsi zone, Oromia regional state**. Your genuine response to the questions will be pretty important to assure the quality and reliability of the research.

The main aim of this questionnaire is to collect data as input for the study titled as “**The Role of Project Planning on the Performance Irrigation Project; A Case of Tibila Irrigation Project in Arsi zone, Oromia regional state**”, whose sole purpose is to qualify the requirement for obtaining from Faculty of Business and Economics, the Master’s Degree of Project Management from Harambee University. Therefore, thanking in advance for your co-operation, I assure you that all information obtained from you will be used only for the research purpose and remain confidential except for the purpose pointed out here above. You need not to write your name. Thank you very much.

Section A: Personal Information

Sex: male () Female ()

Household member size:

1-4 person () , 5- 8 person () , 9 and above ()

Educational background:

Illiteracy () , elementary () , High school () , Diploma () ,

Bachelor degree () , Masters ()

Occupation: Farmer () , Teacher () , DA () , Staff () , Site manager ()

Section B: Human factors

description	Scale				
	strongly disagree=1	disagree =2	neutral=3	agree= 4	strongly agree=5
project manager was well experienced in planning processes					
A team member was well experienced in planning process?					
More effort was spent in planning stage as compared to other stages					
Team members was well committed in planning stages					
. Farmer's or communities was involved in planning stages					

Does communities or farmers were involved in planning stage?

Yes ()

No ()

If not involved why?

C. Management factors

description	Scale				
	strongly disagree=1	disagree=2	neutral=3	agree=4	strongly agree=5
In the planning stage there were no conflicting objectives between the project team and the communities to describe the process of goal definition					
Functional departments of the parent organization was involved in planning stage					
The project scope was well defined in the planning stage					
The project manager was given full authority from top management					
. All resources were allocated (qualified personnel and infrastructure)					

D. Technical factors

1. To what extent project monitoring and reporting mechanisms was included in planning stage?

Very great extent () Great extent () Moderate extent () Less extent () No extent ()

What type of mechanisms are used

2. Does the project design plan have done on project planning processes?

Yes ()

No ()

How it was done, specify

D. Organizational structure factors

Description	Scale	
	Yes	No
the government was assigned appropriate project managers in project planning		
the assigned project managers was involved in planning stage		
Project managers and government was well communicated during planning phase		

1 .And the assigned project manager was involved in planning stage?

Yes ()

No ()

How it played his or her role in project planning processes?

2. Project managers and government was well communicated during planning phase?

Yes ()

No ()

How they are communicated?

F. Project planning knowledge area

Description	scale	
	Yes	NO
Does project activities was well defined and sequenced		
Does schedules and activity duration was well developed (prepared) and estimated		
Does the budget and resource for the project was well determined planning processes		
Project cost was well estimated		
Project Risk identified		
Does Procurement of the project was prepared in planning stage		

1. Does schedules and activity duration was well developed (prepared) and estimated?

Yes ()

No ()

. How it was developed (prepared) and estimated on planning processes.

2. Project cost was well estimated?

Yes ()

No ()

How it was estimated?

3. Procurement of the project was prepared in planning stage?

Yes ()

No ()

.What type of procurement or bidding was follow?

G: Effects of project planning process on project Tibila irrigation project performance

Description	scale				
	strongly disagree=1	disagree=2	neutral=3	agree=4	strongly agree=5
Project success and quality standard was well identified?					
project completed on the original (planned) schedule and budget					
The delivered Irrigation project met all specification in the planning stage					
The project result satisfies the communities' needs					

Estimated/planned project cost -----birr

Current cost of the project -----birr

Completion cost of the project -----birr.