

DEBRE MARKOS UNIVERSITY



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RESEARCH REPORT ON

**Determinants of Small Scale Irrigation Project Implementation Performance:
The Case of Hocheche and Legemara Small Scale Irrigation Project in Borena
District, Ethiopia**

By

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DECLARATIONS

I, Temechew Wassie, do hereby declare that this thesis is my original work and that it has not been submitted partially; or in full, by any other person for an award of degree in any other university/institution.

Submitted by:

Full Name Signature..... Date.....

Approved by:

This Thesis has been submitted for examination with my approval as University supervisor.

Name of Advisor.....Signature..... Date.....

DEDICATION

I dedicate this work to my inspiring parents: My father Ato Wassie Tessema and all my family. It is also dedicated to my dearest Daughter Tseganesh Temechew, who inspires and encourages me all the time.

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ABBREVIATIONS AND ACRONYMS

AD	Anno Domini
ANRS	Amhara National Regional State
BC	Before Christ
BOAD	Bureau of Agriculture and Development
BOARD	Bureau of Agriculture and Rural Development
BOA	Borena Office of Agriculture
FAO	Food and Agricultural Organization
FGD	Focus Group Discussion
ETB	Ethiopian Birr
Ha	Hectare
MOA	Ministry of Agriculture
MoWR	Ministry of Water Resource
NGO	Non-Governmental Organization
SPSS	Statistical Package for Social Sciences
PIP	Project Implementation Profile
PSNP	Productive Safety Net Program
SSI	Small Scale Irrigation
WUAs	Water User Associations

ABSTRACT

Water irrigation has become one of the vital income generating activities on land, in that it enhances food security, creates employment opportunities, improves nutritional status of a nation and brings about good health in a particular society. The purpose of this study was to identify and analyze the determinants of small-scale irrigation project implementation in case of Hocheche and Legemara SSI project of Borena District, Amhara National Regional State, Ethiopia. The study sought what were the determinant factors that affect the implementation of SSI projects in the study area. The target population for this study comprised the selected small-scale irrigation projects and its implementation stakeholders composed of 99 and 519 beneficiary registered members in Hocheche and Legemara small scale irrigation projects respectively. Additionally, 21 key informants comprising 8 executive management committee members from the District Agricultural Office, 12 Agricultural Office Officials and technical officers and 1 project consultant were source of data for this study. The study used stratified sampling method to select respondents. So for this study, the sample size were 114 respondents. On the management committee members, experts, and officials, the research did not sample since the target population was small. The primary data was collected using self-administered questionnaires made up of both open- and closed-ended questions. From the results, there were observed that management of the project, consultation with stakeholders, community participation, comprehensive control and supervision of project activity, user acceptability, institutional capacity and leadership greatly affects the implementation of public SSI projects in district. Similarly, the study showed that adequacy of project implementation material, accuracy of design and specifications, accuracy of cost estimates for project implementation moderately affect the implementation of public SSI projects in the study area. It is thus recommended that full and committed participation of stakeholders in public SSI project development should been encouraged to enhance the effectiveness of their own needs.

Keywords: *Project, implementation, Small Scale Irrigation projects, Small Scale Irrigation project implementation, Borena District*

1. INTRODUCTION

1.1 Background of the Study

Ensuring adequate and access to nutritious food for the growing population has a major concern globally. Global efforts aimed at ensuring food sufficiency by increasing staple food production have adopted irrigated farming as one of the main strategies. Irrigation has a role to reduce poverty in the world through improvement of production, enhancement of employment opportunities and stabilization of income and consumption using access to reliable water, and finally by its role in nutritional status, health, societal equity and environment. The emerging and developing countries were faced with the challenge in meeting the Sustainable Development Goal of food security (Miruri, 2017).

Ethiopia is the "water tower" of North Eastern Africa. Many rivers arising in Ethiopia are also the sources of the major water resources in neighboring countries. The country is endowed with water resources that could easily tapped and used for irrigation. Ironically this country is already suffering from food shortage because of the increasing population and chronic drought occurrence in most part of the eastern and northern part of the country. There is an annual food deficit to the extent of 0.5 to 1.0 million tones in the country Ethiopia. During the period from 1984 to 1992 the food aid annually received was around 0.9 to 1.0 tones (World Bank Report, 2004), to meet the demand of the over growing Population.

Irrigation has historically a large positive impact on poverty reduction and livelihoods, in both urban and rural areas, producing relatively cheap food for everyone and providing employment opportunities for the landless poor. The need for utilizing these resources is most urgent, in particular, in areas of the country where the length of the growing period is short and precipitation is erratic. In Ethiopia rainfed agriculture contributes the largest share of the total production. However, over the past few decades, irrigated agriculture has become more important (Hussain, 2005, Miruri, 2017).

Prior to the mid-1980s, irrigation in Ethiopia was concentrated on the production of commercial crops, principally cotton and sugarcane on large state farms. By 1980 it was estimated that 85,000 ha. Mainly in the awash valley, had been developed under this form of production. In addition, some 65,000 ha of traditional irrigation was estimated to exist. Predominantly in the highlands and

developed on the farmer's own initiative. These schemes were typically small runoff river diversion, with low production levels. During this period government involvement in irrigation concentrated on the state farms and was channeled through various agencies. The 1984 drought had a considerable impact on Ethiopia's development policy and the 1984 ten-year perspective plan allocated top priority to agricultural development with objective of achieving self-sufficiency in food production, establishing a strategic reserve meeting the raw material requirement of industries and expanding output of exportable agricultural products to increase foreign exchange earnings. The Water Sector Development Program of MoWR (2002) organizes irrigation schemes in different parts of Ethiopia. Although the performance and efficiency of irrigation projects are still in challenging context.

Yami *et al.* (2015) described that Investments in SSI projects are important to reduce rural poverty and improve income and livelihoods. Yet, past SSI projects in Africa reveal mixed results of success and failure pertaining to governance, land tenure, and ownership issues among others. Other factors include the efficiency, productivity, and biophysical elements of SSI management, access to input and output markets, the legal and socio-cultural aspects of SSI projects, and the capacity of farmers in managing SSI schemes indicate that in Southern Ethiopia irrigation. Evidence reveals that the challenges in SSI projects are multiple, complex, and embedded in the socio-cultural and political context. Climate change poses challenges for the sustainability of irrigation projects in Indonesia.

The lack of attention to ambiguous and context-specific problems by the development partners has compromised the achievement of positive outcomes. Poor understanding of the local contexts coupled by the mere focus on technical aspects of SSI schemes limits the success of past interventions in Ethiopia and elsewhere in Africa. For instance, a study in the Sahel underlines that customary land rights are suppressed by governments and development partners in the efforts to expand SSI schemes due to ambiguities in the land tenure system. Yet the presence of effective operation and maintenance systems and enabling land tenure policies positively influence the sustainability of SSI projects in Benin. (Yami *et al.*, 2015).

In Ethiopia, Gebremedhin and Peden (2002) indicate that lack of a pluralistic approach that encourages an active involvement of beneficiaries in the design, implementation, and management

of schemes limits the effectiveness of SSI projects (Gebremedhin and Peden, 2002). Most importantly, lack of integration of local knowledge in project design and implementation results in poor ownership among users (Habtu and Yoshinobu, 2006). Similarly, Yami (2015) demonstrates that interventions of external bodies such as government and donors in setting up the bylaws and in defining the responsibilities of users constrain farmers' engagement and result in poor performance of Water User Associations (WUAs) in Ethiopia.

The cases illustrate that effectiveness of SSI projects is largely influenced by the governance and socio-cultural contexts at the national and local levels, and a prior knowledge of the contexts is important to achieve better outcomes. Thus, understanding the existing contexts enables one to identify strengths to build on and weaknesses to put into consideration when planning and designing SSI projects. Such measures are relevant in countries that passed through weak decentralization processes such as Ethiopia because the follow-up changes in institutions could influence the decision-making processes of the SSI projects (Hussain, 2005).

1.2 Statement of the Problem

Recently, emphasis has been on the importance of sustaining and improving the performance of existing irrigation schemes in parallel with area expansion and development of new irrigation. According to the current government agriculture sector development strategy and water development policy of Ethiopia irrigation is the promise for Ethiopian future. So, investment in small scale irrigation (SSI) is necessary to sustain food security and livelihoods of smallholders. To sustain food production, the government has invested on rehabilitation and expansion of irrigation, with the aim of fulfilling the gap of food shortage. There are many unexploited irrigation potential lands in different parts of Ethiopia. Thus, the government and development partners show a growing interest in developing irrigation projects.

In Ethiopia, like in many other African countries, irrigation expansion has been hindered by poor performance of the existing public irrigation schemes. Government and donors' policies in ensuring sustainable projects seem inadequate due to lack of community and beneficiary participation at various stages of project identification, feasibility studies, design and indeed implementation such as formation of Water Users Associations.

In Borena District many small scale irrigation schemes built by governmental and non-governmental organization on different streams and rivers since 1989. The projects such as river diversion, reservoirs, small dams, and spring development were constructed in different sites. From these projects Hocheche river diversion and Legemara earthen dam project were found. Hocheche river diversion which was constructed by Borena Agriculture Office with Productive Safety Net Program started since 2016 and completed after delay of 2 years in 2019. Legemara earthen dam was constructed by Amhara Water, Irrigation and Electric Bureau started since 2015 and completed after a delay of one year in 2018. Those small-scale irrigation projects were not built by the realistic time-scale to be planned. This problem results the inefficiency of small-scale irrigation projects. Several studies have been conducted on irrigation projects in Ethiopia. However, most of these studies did not focus on determinants of performance of Small Scale irrigation projects in Amhara Region South Wollo Administrative Zone Borena District. Further, it is not clear what factors have decisive impact on the implementation or performance of public Small Scale irrigation schemes in Ethiopia.

Thus, the study identifies the determinants of implementation of small scale irrigation projects, examines how the challenging contexts that influence the effectiveness of small scale irrigation projects and indicates ways of improving effectiveness of irrigation projects under the existing challenging contexts.

1.3 Objectives of the Study

The general objective of the study was to identify and analyze the factors that affect the implementation of small-scale irrigation projects at Borena District in central part of Ethiopia.

The specific objective of the study was:

- To assess the determinants of the implementation performance of small scale irrigation projects in Borena district.

1.4 Research Questions

The study sought to answer the following question:

- What were the factors that affect the implementation of small scale irrigation projects in the study area?

1.5 Significance of the Study

The study was mainly focusing on the determinants of the implementation of small scale irrigation projects and the opportunities and constraints of SSI projects in the study area. Research on issues concerning determinants of the implementation of small scale irrigation projects in rural area is crucial for formulating programs for alleviation of poverty. So, the study was significant for it increases stakeholders understanding regarding the factors that influence the implementation of small scale irrigation projects. The study gives a clue for policy makers and planners towards major bottlenecks of the implementation of small scale irrigation projects. The findings of the study can be used by local administrators and NGOs in order to devise interventions that can help to improve the effectiveness of small scale irrigation projects and it also serve as a source of reliable information for stakeholders and policy makers regarding the actions that should be undertaken. In general, the potential users of this research would be farmers, contractors, managers, and governmental and non-governmental organizations.

1.6 Scope and Limitation of the Study

Research is a resource intensive pursuit of wisdom. So, the scope of this research was very much limited in terms of coverage and depth due to time and most importantly financial constraint. The study was limited geographically in to two kebeles of Borena District of South Wollo Zone, Amhara National Regional State.

1.7 Organization of the Study

The thesis organized in to five chapters. The first chapter introduced background of the study, problem statement, objectives of the study, research questions, significance of the study and scope and limitation of the study. The second chapter revealed the review of related literature. Chapter three described methodology which includes description of the study area, research design, research approach, target population, sample size, sampling procedure and methods of data

collection and. The next chapter focused on result and discussion of research analysis and finally chapter five present conclusions and recommendations.

2. REVIEW OF RELATED LITERATURE

2.1 Theoretical Review

2.1.1 Concept and Definition of Irrigation and Small Scale Irrigation Project

Irrigation Development

Irrigation is generally defined as the application of water to the land for the purpose of supplying moisture essential to plant growth. It is an age-old art. Irrigation was practiced for thousands of years in the Nile Valley. Egypt claims to have the world's oldest dam built about 5000 years ago to supply drinking water and for irrigation. At that time basin irrigation was introduced and still plays a significant role in Egyptian agriculture. According to (Zewdie *et al.* 2007) irrigation has been practiced in Egypt, China, India and other parts of Asia for a long period of time. India and Far East have grown rice using irrigation nearly for 5000 years. The Nile valley in Egypt, the plain of Euphrates and Tigris in Iraq were under irrigation for 4000 years. Irrigation is the foundation of civilization in numerous regions. Egyptians have depended on Nile's flooding for irrigation continuously for a long period of time on a large scale. The land between Euphrates and Tigris, Mesopotamia, was the breadbasket for the Sumerian Empire. The civilization developed from centrally controlled irrigation system (Schilfgaard, 1994).

Evidence also shows that irrigation in China was begun about 4000 years ago. There were reservoirs in Sri Lanka more than 2000 years old. As far back as 2300 BC, the Babylonian Code of Khammurabi provided that 'If anyone opens his irrigation canals to let in water, but is careless and the water floods the fields of his neighbor, he shall measure out grain to the latter in proportion to the yield of the neighboring field.' Other indicator for irrigation development is found in the stony-gravel limestone desert of the Negev area in Israel. Remnants of these ancient irrigation systems date back from the Israelite period (about 1000 BC) and from the Nabatean- Roman Byzantine era (300 BC to 600 AD). In the absence of permanent water sources, the ancient farmers developed 'runoff' farm systems that used sporadic flash floods for irrigating (Shanan, 1987).

Ethiopia has a long history of traditional irrigation systems. Simple river diversion still is the dominant irrigation system in Ethiopia. According to Gebremedhin and Peden (2002), the country's irrigation potential ranges from 1.0 to 3.5 million hectares but the recent studies indicate

that the irrigation potential of the country is higher. According to Tilahun and Paulos (2004), estimates of the irrigation potential of Ethiopia may be as large as 4.3 million hectares. Traditional irrigation schemes cover more than 138,000 hectares whereas modern small-scale irrigation covers about 48,000 hectares. The total current irrigation covers only about 6% of the estimated potential land area. According to the MOA (2005) and Awulachew et al. (2007), Amhara region has 770,000 hectares of irrigation potential. Different development activities have been underway to utilize these resources. Currently, there are 310 irrigation schemes operating in the Amhara region. The irrigation schemes developed cover an irrigated area of 8,469 hectares with 17,443 beneficiaries. Of these total irrigated areas, 5,719 hectares are from small-scale and 2,751 are from medium-scale irrigation schemes.

Overview of Small Scale Irrigation Schemes

Defining small scale irrigation is highly variable from place to place as the definition differs. Smout and Shaw (1999) define small scale irrigation as irrigation usually on small plots in which farmers have the controlling influence and use the level of technology they can operate and maintain. The schemes are farmer managed and usually the farmers are involved in the establishment of the schemes. These schemes can be owned by individuals or they are community owned. There is no concurrence between authors on how big the plot or how many people should be involved in a small scale irrigation scheme. Smout and Shaw (1994) in their studies in India observed that most small scale irrigation schemes serve a group of farmers, typically comprising between 5 and 50 households (Smout and Shaw, 1994). Van't Hof (2001) in his irrigation research studies in West Africa proposes a multi- criteria definition of small scale irrigation with three dimensions: (1) the command area must be less than 40 ha; (2) the average area per irrigator is less than 10 ha; and (3) management is by the entire group of irrigators. However, Seleshi in India argues that the hectareage can go to 200ha, but the catch phrase is that, the irrigation is community owned and benefits a sizeable number of community members. In Zimbabwe, FAO, (1997) discovered that the small scale irrigation schemes range from 2ha to 228 hectares of land but individual plots are usually less than 10 ha as suggested by Van't Hof (2001).

2.1.2 Concept of Project Management

Akpan and Chizea (2002) defined “Project Management as the effective utilization of available human and material resources under time and cost constraints for the satisfactory realization of the pre-determined project objectives”. Ntamere (1995) defined project management as managing and directing time, materials and costs to complete a particular project in an orderly and economical manner, so as to meet established objectives in time, budgeted amount and to achieve technical results. A project has a defined starting point and a technical point. Project management hence, is perceived as having developed out of the growing necessity to deal with the growing complexity of inter-disciplinary transaction in organization.

According to Butler (2003), 'modern executives must be cognizant of the myriad of non-structured undertakings required to complete a project within time, cost and performance parameters'. The status of these projects may vary from conception to completion. As the executive learns that he cannot keep track on all work efforts for which he is responsible.

Ndiomu (1994) opined that 'whatever the size of a project and how properly the project is planned, proper management guarantees the success of the project while Nwankwo (2006) argued that 'a good manager can take a deficient organizational structure work. In reality then, a project is one of several subsystems in an organization.

Samaras and Yensuang (1989) further outlined the responsibilities of the project manager within the project management process to include; establish project objectives, defines tasks, identify interdependencies, set milestones, allocate resources, assign responsibility and accountability and monitor performance

Project management does not operate in a vacuum but in an organizational arrangement. And the task of the project manager is to implement the project objectives within the framework of the organization structure provided for the project. The project organization is seen here as focal, since it provides total project visibility, it is integrative in nature and becomes the hub of all activities, both internal and external which affects the project. It is a management mechanism and does not replace the functional activities of the various departments; it supplements them (Samaras and Yensuang, 1989)

2.1.3 Theory of Project Implementation

Implementation as Johannes Lenher (2004) puts it is a series of steps taken by responsible organizational agents to plan change process to elicit compliance needed to install changes'. Managers use implementation to make planned changes in organizations by creating environments in which changes can survive and be rooted. Implementation is a procedure directed by a manager to install planned changes in an organization. There is widespread agreement that managers are the key process actors and that the intent of implementation is to install planned changes, whether they be novel or routine. However, procedural steps in implementation have been difficult to specify because implementation is ubiquitous.

Amachree (1988) made several important distinctions pertinent to these processes of planned change, identifying four procedures called the entrepreneurial, exploration, control and implementation sub processes. From this perspective, implementation can be viewed as a procedure used in planning change process that lays out steps taken by the entire stakeholders to support change.

2.1.4 Benefits from Project Implementation

The application of project management is rapidly expanding for a number of positive reasons for organizations. Kerzner (2004) summarized as follows:

- Identification of function/responsibilities to ensure that all activities are accounted for, regardless of personnel turnover.
- Minimizing the need for continuous reporting
- Identification of time limits for scheduling.
- Identification of a methodology for trade-off analysis.
- Measurement of accomplishment against plans.
- Early identification of problems so that corrective action may follow.
- Improved estimating capability for planning.
- Knowing when objectives cannot be met or will be exceeded.

Therefore, the project manager has the duty to control the company's resources within time, cost and performance. For some companies, it means manpower, money, equipment (i.e.) machine, materials, information and technology, and all these are to be managed by the project manager.

2.1.5 Factors Affecting Project Implementation

According to Slevin and Pinto (1987), to successfully implement a project is usually difficult and complex. The project manager has to devote more time on human, financial, and technical variables as the key to the realization of project implementation. From available literature, it is apparent that the following determinants are capable of affecting project implementation in the states in review if not handled with care. This in-exhaustive list includes.

- Escalation of project cost due to inflation
- Difficulty in payment to contractors due to bureaucracy in government parastatals.
- Contractors performing below standard and expectation.
- Frequent changes in government.
- Increase in the scope of the project.
- Change in pre-contract consultants such as architects.
- Ineffective project finance arrangement
- Reorganization of the parastatals.
- Change in the original design
- Indiscriminate award of contracts without reference to funds available, location etc.
- Projects and contracts determined on political considerations.
- Poor planning or shoddy work by architects.
- Specification of costly and imported materials
- Insufficient working capital

These factors could be due to; Inefficient management, inadequate planning and project complexity, change in technological know-how, business environment/geography or project risk, structure, finance/pricing, empowerment in organizations and restructuring, skilled and competent manpower and customers' specification. (Slevin and Pinto, 1987).

2.1.5.1 Critical Success Factors in Successful Project Implementation

A ten-factor model to successful project implementation has been developed by Slevin and Pinto (1987). These 10 factors form the basis for the diagnostic instrument for measuring relative strength of each factor of the project implementation profile (PIP) (Slevin and Pinto 1987).

i) Project Mission

This factor was related to the underlying purpose for the implementation - its importance is clearly defined goals at the initial stages of a project. Are the goals clear, and can they succeed? Project mission has been found to refer to the condition where the goals of the project mission has been found and understood (Slevin and Pinto, 1987).

ii) Top Management Support

Schultz and Slevin (1975) noted that management support for a project or any form of implementation has long been considered of great importance in distinguishing between their ultimate success and failure (Schultz and Slevin, 1975). Beck (1993) considers project management as not only dependent on top management for authority, direction and support, but ultimately the conduit for implementing top management plans, or goals for the organization.

iii) Project Schedule Plan

It refers to the developing of a detailed plan of the required stages of the implementation process. Pinto and Slevin (2001), has drawn parallels between the stages of the implementation process. The first step in the moving stage. In the PIP model, project schedule/plan refers to the degree to which time, schedule, milestones, manpower and equipment requirement are specified.

iv) Client Consultant

The need for client consultant has been found to be increasingly important in attempting to successfully implement a project. For instance, Anyanwu (2003) found that the degree, to which clients are personally involved in the implementation process, will cause a great variation in their support for that project. Anyanwu (2003) viewed client consultant as the first stage of a programme to implement change. It is often required throughout the life cycle of the project and Slevin and Pinto (1987) warns that: it would be dangerous for the project manager to assume that since client consultant was satisfactory at an early stage, this activity could be ignored for the remainder of the project.

v) Personnel

The view is that the most important assets in the building up and efficiency of any organization, be it private or public, depends to a large extent upon how effectively human resources (personnel) are utilized (Nwachukwu, 1988). However, an unfortunate situation could develop, as Slevin and

Pinto (1987) observed: in many situations, personnel for the project team are chosen with less-than-full regard for the skills necessary to actively contribute to the success of implementation.

vi) Technical Tasks

In the words of Prescott (1989), "Technical task refers to the necessity of not only having the necessary personnel for the implementation team, but ensuring that they possess the necessary technical skills and have adequate technology to perform their tasks.

vii) Client Acceptance

Acceptance is a stage in project implementation that must be managed like any other factor. Locus and Andrew (2009) as an implementation strategist, discusses the importance of user participation in the early stages of a system development as a way of improving the likelihood of later acceptance. Wilson (2009) opposed the use of intermediaries to act as liaison between the design, or implementation team and the projects potential user as a method to aid in client acceptance.

viii) Monitoring and Feedback

This refers to the project control process by which at each stage of the project implementation, key personnel receive feedback on how the project is comparing to initial projection. Making allowances for adequate monitoring and feedback channels between the model builder and user. (Nutt, 1996).

ix) Communication

The need for adequate communication channels is extremely important in creating an atmosphere conducive enough for successful project implementation. Communication Slevin and Pinto (1987) opined is not only essential within the project team itself, but between the team and the rest of the organization as well as with the client. Communication to provide feedback and technical evaluation to areas outside the project within the host organization tends to be highly specialized for more effectively managed research projects.

x) Troubleshooting

Regardless of how carefully the project was planned initially, it is impossible to foresee every problem arising from the organizational environment. Slevin and Pinto (1987), it was cautioned that each team should obtain technically competent people with the specific assignment to deal

with problems when and wherever they arise, and to foresee, and possibly forestall potential trouble areas in the implementation process.

2.1.5.2 Five Factors That Lead to Successful Projects

According to Erin Palmer (2018), having a talented project manager is the first step to actual project success, but there are other important factors that contribute largely to a project's outcome. It takes careful planning, attention to detail and effective communication to make a project succeed. With vigilant management and a strong project closing, a company can consistently reach project success.

i) Smart People

Without the right team in place, any strategy and plan has the potential of completely falling apart. Because of this, the core project staff, expert resources, suppliers and all stakeholders should be part of the team dynamic. All of those involved must have commitment to the group, share similar visions for the projects and strive for overall success. Project managers can face serious trouble if inadequacy is present within the team. Inept leadership or an out-of-sync team can send a project towards failure. It is important to assign the right people to each aspect of the project and make sure that they are working well together. Additionally, the entire team should be completely informed and involved in order to have the most successful outcome, which means that communication has to be on par. Use a software tool to get everyone online and using a central repository of information. Tools like Copper Project not only allow you to manage the To-Dos and Project plans, but will also allow you to set the availability of your resources, and then book their time on specific tasks/projects. Once they've logged their time, you have a powerful system that not only automates time-sheets/invoicing, but stops your project processes falling apart when your staff move on (Kerzner, 1998).

ii) Smart Planning

Comprehensive planning sets up a project for success from the start. All stakeholders should be on board during the planning process and always know in which direction the project is going to go. Planning can help the team to meet deadlines and stay organized. Good planning not only keeps the project team focused and on track, but also keeps stakeholders aware of project progress. There are many benefits to smart planning. This first step in the project process allows for a reliable and realistic time-scale to be created. Assuring accurate time for cost estimates to be produced and for

clear documentation of milestones and deliverables will make things much easier as the project progresses. A proficient plan details all resource requirements and doubles as a warning system. If task slippage is at risk, then a warning system will provide clear visibility of what to expect (Vanthof 2000; Erin Palmer, 2018).

Use a tool that offers a full drag and drop timeline so that you can quickly and effectively build a project plan and establish an accurate end date. Use previously completed projects as templates for your future projects. In this way not only can you avoid redundancies associated with creating a new project from scratch each time, but the more often you reuse a template project the closer you will be to accurate time lines and budget estimates (Locus and Andrew, 2009).

iii) Open Communication

Looking closely at details and listening to outside sources of information is vital to the success of a project. Keeping open communication within the team is absolutely essential. When working under a specific timetable, it is important that the team remains well-informed. If a problem arises on one part of a project, it can negatively impact other parts as well. Communication is the best way to prevent problems from occurring. Communication should also be focused internally within the organization. Keeping an organizational history of major projects will give convenient access to improved policies and business processes. If this isn't done, then a team may repeat mistakes that have already occurred. Listening to stakeholders and paying attention is a very important ingredient for success (Beck, 1993).

Good communication also includes knowing when to say no. A project team should never promise anything they know they can't deliver. Saying no in the beginning could save an overabundance of unnecessary problems later. Always be honest about what your team can do and when it can be done by. Aside from using a tool that allows drag gable timelines, also find one that allows you to use previous projects as templates for establishing your new time line. Not only will you improve your processes over time (becoming more accurate with your estimates and setting client expectations accordingly), but you also improve communications between all your project participants (Amachree, 1988).

iV) Careful Risk Management

Project managers know that things rarely go off exactly as planned. During the planning process, it is vital to produce a risk log with an action plan for the risks that the project could face. Make sure all key stakeholders are aware of your risk log and know where they can find it. If something happens, then the team can quickly resolve the issue with the management plan that has already been set in place. This will give the team confidence when facing project risks and help the clients feel comfortable with the project's progression (Van't Hof, 2001).

V) Strong Project Closure

If a project does not have strong closure, then it has the potential to continue to consume resources. The project team must be firm and agree with the customer that all critical success factors have been met. Confirmation of the project delivery, testing, and release must be agreed upon and signed off. Satisfaction surveys are good forms of documentation to log and file for future reference and valuable information for use in the future. It is the project manager's job to ensure that everything runs smoothly on a project, but having a great project manager doesn't guarantee a successful project outcome. The entire team paying attention to key factors is what will help lead the project to true success. This success will then lead to proactive, organized project plans and an increase in quality of all future projects (Butler, 2003).

2.1.6 Community Participation

Oakley and Marseden (1989), defined community participation as the process by which individuals, families, or communities assume responsibility for their own welfare and develop a capacity to contribute to their own and the community's development. In the context of development, community participation refers to an active process whereby beneficiaries influence the direction and execution of development. The cornerstone of community –based development initiatives is the active involvement of members of a defined community in at least some aspects of project design and implementation (Mansuri and Rao, 2004).

2.1.7 Community Participation and Development

The community development approach highlights self-help, the democratic process, and local leadership in community revitalization. Most community development work involves the participation of the communities or beneficiaries involved (Smith, 1998). Thus, community

participation is an important component of community development and reflects a grass root or bottom-up approach to problem solving. In social work, community participation refers to the active voluntary engagement of individuals and groups to change difficult conditions and to influence policies and programs that affect the quality of their lives or the lives of others (Gamble, 1995). One of the major aims of community development is to encourage participation of the community as a whole in fact; community development has been defined as a social process resulting from citizen participation. Through citizen participation, a broad cross-section of the community is encouraged to identify and articulate their own goals, design their own method of change, and pool their resources in the problem solving process (Harrison, 1998).

2.1.8 Factors Influencing Community Participation

The following are the factors and their influence in community participation

i) Centralization of decision-making

Cole (2004) asserts that decisions can range from those of a vital, once for all nature to those of a routine and relatively trivial in nature. Management has three principal decision areas which are strategic, operating and administrative. Strategic decisions are the basic long-term decisions which settle issues such as output level, pricing and inventory levels. These are programmed decisions which managers make in response to repetitive and routine problems. Administrative decisions arise from and are subject to the conflicting demands of strategic and operational problems. They are essentially concerned with settling the organizations' structure. For example, by establishing lines of authority and communication.

Centralization of decision-making is the concentration of authority and decision-making at the top of an organization. It is a structural policy in which decision-making authority is concentrated at the top on the organizational hierarchy (Koontz, 2004). Decision-making is considered to be of the key importance when talking about different levels of participation. Therefore, decision-making powers need to be transferred to communities, if community members have little authority over the decision made about the allocation of resources, they may lose interest and decline or not effectively participate in the activities planned (Paul, 1984).

ii) Transparency

Making processes of projects selection, implementation and evaluation transparent is an effective way to encourage community participation as it can potentially change power relations between communities and development organizations and between interests within communities (Shashi and Kerry, 2002). Merely transferring funds to committees is not adequate to introduce community control, as communities need to be protected from the abuses of committees hastily assembled to present them. This means when the processes regarding participation are conducted with transparency it brings about trust and increases the level of communities' participation in development projects.

iii) Resources

Resources are the organizations' assets and are thus the basic building blocks of the organization. They include physical assets, such as plant, equipment, and location, human assets, in terms of the number of employees and their skills and organizational assets, such as culture and reputation (Hunger and Whelen, 2007). Barney (1991), identifies three categories of resources that is physical, human and organizational. Of these categories, human resources are conceived in terms of experience, knowledge and understanding that managers bring to the context of the organization. The third category of organizational resources such as its structure and its systems for planning, coordinating and controlling as well as informal aspects such as the nature of internal and external relationship. With enough resources development projects become successfully.

iv) Attitude

Luthans (2005), defines attitude as a persistent tendency to feel and behave in a particular way toward some object. Attitudes are evaluative statements either favorable or unfavorable concerning objects. Luthans (2005), provides three components of attitude as emotional, informational and behavioral. The emotional component involves the persons' feelings of affect-positive, neutral, or negative about an object. The informational component consists of beliefs and information an individual has about the object. It makes no difference whether or not this information is empirically real or correct. He proceeds by saying that the third component of attitude is behavioral, which consists of persons' tendencies to behave in a particular way towards an object of the three components of attitude, only the behavioral component can be directly observed. It is

assumed that if you want to know someone's beliefs, feelings and behavioral tendencies towards an object, all you need to do is measure his or her attitude. In this study, therefore, the third component was studied specifically on the individual attitude towards community participation. (Luthans, 2005).

v) Leadership qualities

Effective and efficient leaders are always endowed with good leadership qualities, without having the qualities of a good leader he/she may find difficult to direct the activities of subordinates for achieving organizational goals. Jain and Saaksh (2005) emphasize that the success or failure of an organization to a great extent depends on the quality of leadership (Jain and Saaksh, 2005). Nirmal (2002) asserts that there are three broad categories of the qualities of successful leadership namely personality traits, knowledge, ability and lastly skills. Personality traits cover issues of good character, intelligence, will power judgment, fellow feeling, faith mental and physical energy, enthusiasm and drive, emotional stability and humor. Knowledge and ability is the second category which covers aspects of good educational background, technical competence that is ability to plan, organize, delegate, analyze, make decisions and capacity to control and coordinate the group efforts, ability to appraise and evaluate employees, performance as well as self-appraisal. Leaders' possession of skills in the third category of leadership qualities that focus on the following skills: problem-solving and decision-making skills, communication skills, human relations skills, conceptual skills and administrative skills. With the leadership qualities explained above this means, a society having competent leaders will surely find better ways to educate and influence people to participate in development projects (Nirmal, 2002).

2.1.9 Importance of Community Participation

Extensive literature search has identified the importance of community participation in development projects since it is broadly accepted that community participation is one of the key ingredients of an empowered community. But community participation is far more than a requirement, it is a condition for success studies have documented that communities that engage their citizens and partners deeply in the work of community development raise more resources, achieve more results, and develop in more holistic and ultimately more beneficial way. Community participation then, is critical to community success (Norman, 2000). It is believed that participation ensures success as people get involved when they have a sense of ownership of project and feels

that the project meets their needs. This makes them readily oversee construction and then take care of the facilities to ensure their sustainability (Tacconi & Tisdell, 1992). In addition, it is suggested that participation can lead to greater community empowerment in the form of strengthened local organizations, a greater sense of pride and the undertaking of new activities (Oakley, 1999).

Lancaster (2002), points out the importance of community participation as follows: the approach helps the project to be sustainable as communities themselves learn how to adopt and correct changes resulting from the project ,partnership or participation helps to protect interest of the people concerned, it enhances self-respect and self-reliance among people, that is ,they are enabled to obtain and do this by themselves, communities become aware of the project implementation as they have a great store of wisdom and skills. They understand their local needs and the nature of new project which they achieve. They can easily spread the new knowledge they acquired to other communities, thus cause a rapid increase in growth of the new idea, participation promotes a sense of ownership among the community of equipment used in the project, and even projects itself. For example, they will protect and maintain the projects through their own means like dispensary buildings, water pumps and school buildings.

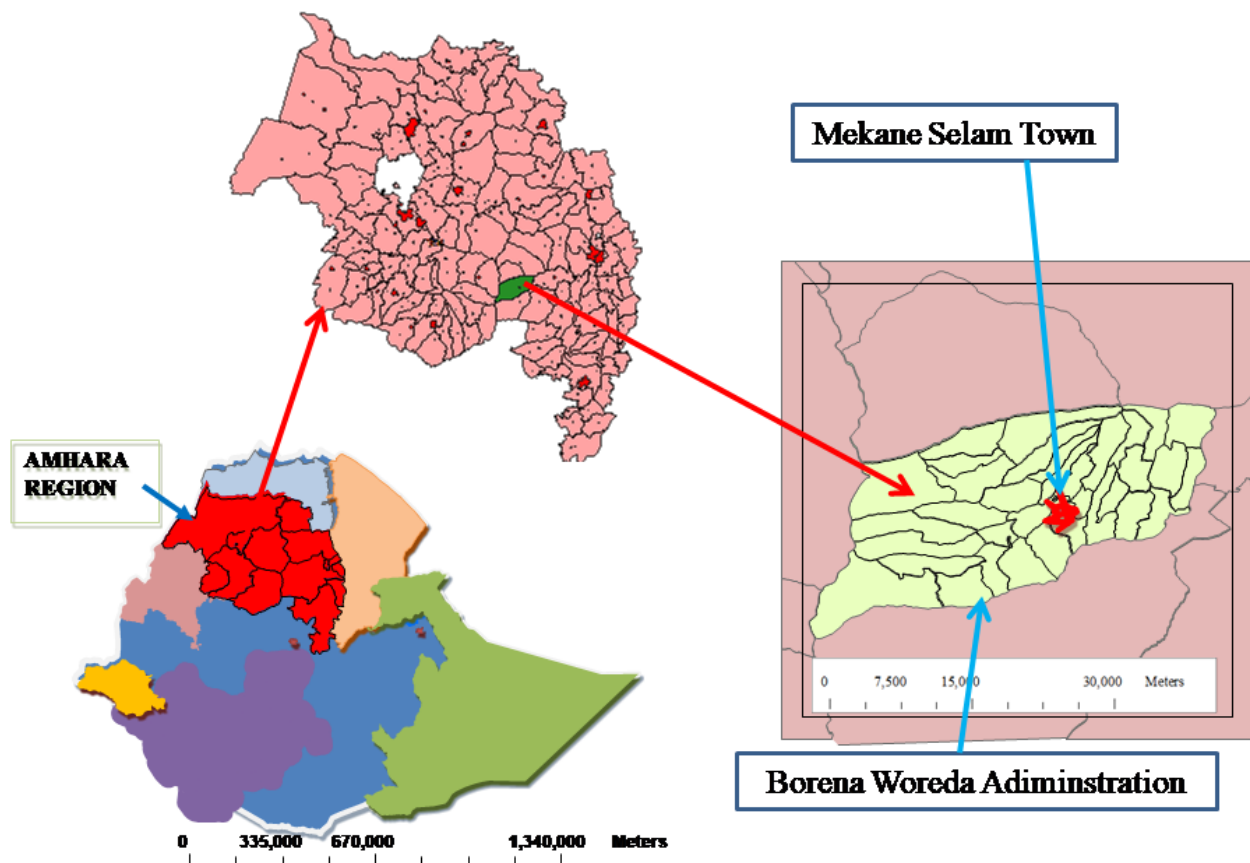
3. RESEARCH METHODS

3.1 Description of the Study Area

The Federal Democratic Republic of Ethiopia is administratively divided into nine national regional states and two administrative councils. The Amhara National Regional State (ANRS) is one of the nine National Regional States. The study was conducted in Borena district, which is among one of the rural district of South Wollo administrative Zone in the regional state. The district is bordered on south by Wogdi, on the north by Mehal-Saint, on north east by Saint, on the west by Abay River, which separates it from East Gojjam zone, on the east by Leg ambo district. The district is divided into 34 rural kebele administrations (PAs, which is the smallest administration units in the country) and its capital, Mekane Selam. The town is situated at a distance of about 182 kilometers from Dessie in the West direction. Woina Dega to Dega characterizes the agro-climatic zone to which the town belongs, which is 586 kms north of the capital city of Ethiopia, Addis Ababa.

The total land area in the districts is 100,088 hectares of which the cultivated land area accounts for 39.74% from the total area. Based on agro-ecological classification Borena, has 20% Dega, 47% Woina Dega, 32% Kola and 1% Wurch (BOA, 2018). The study area has an estimated total population to be about 168,058 out of which 34436 were food insecure and supported by PSNP. From the total population of the area, 85,242 are males and 82,816 females with 95% lives in rural areas (CSA, 2007). The farming system in the zone as well as in the study area is mixed farming. Cereals such as wheat, teff, barely, bean, maize are the major crops grown in the area Moreover, vegetables such as onion, tomato, potato) and other fruit trees. The commonly used cropping systems are belg and meher cropping system.

Figure 3.1: Map of study area (Borena District)



Source: Ethiopia district GIS Clip, 2017

3.2 Research Design

A research design can be defined as the strategy, the plan, and the structure of conducting a research project (Carriger, 2000). The research design gives an overview of how the study will be structured and should be elucidated as it has very great implications on how the study will be conducted in terms of data collection and analysis (Mtonga, 2014). The study adopted a descriptive research design. A descriptive design is concerned with determining the frequency with which something occurs or the relationship between variables. Thus, this approach was suitable for this study, since the study intends to collect comprehensive information through descriptions which were helpful for identifying variables. Bryman and Bell (2011) assert that a descriptive design seeks to get information that describes existing phenomena by asking questions relating to individual perceptions and attitudes.

3.2.1 Research Approach

There are different types of research approaches that can be used depending on the nature and type of the research question. The research approaches can be broadly divided into quantitative and qualitative research. However according to Creswell (1994), the inherent weaknesses of methods in quantitative and qualitative inquiry has led to the development of the third approach known as the mixed methods approaches which combines both qualitative and quantitative approaches. This was the approach that adopted in this research. The rise of the mixed approach came as researchers observed that the strengths and weaknesses inherent in each of the methods could cancel and neutralize biases in them (Creswell, 1994). Clarke (2005) acknowledges that the mixed methods approach incorporates both qualitative and quantitative elements in such a way that the information obtained from the approaches complement each other.

The advantages of the mixed approach are summarized according to Clarke (2005) below:

- Balances efficient data collection and analysis with data that provides context.
- Quantitative data quickly and efficiently captures potentially large amounts of data from large groups of stakeholders.
- Qualitative data provides contextual information and facilitate understanding and interpretation of the quantitative data.
- Because qualitative data is collected from a subset of the stakeholders, costs are mitigated.

3.2.2 Target Population

A population is the total collection of elements about which we wish to make inferences (Sekaran and Bougie 2009; Miruri and Robert, 2017). Morardet *et al.* (2005) described that five categories of actors are involved in project planning and implementation: financing institutions, governments (borrowers), executing agencies, beneficiaries and external consultants and the effectiveness of each stage of project is closely linked to the stakeholders involved in implementation and to the way the responsibilities are shared among them. So, the target population for this study were the selected small scale irrigation projects and its implementation stakeholders composed of 99 and 519 beneficiary registered members in Hocheche and Legemara small scale irrigation projects respectively, of Borena District Amhara National Regional State. Additionally, 21 key informants comprising 8 executive management committee members from district agricultural office, 12

agricultural office officials and technical officers and 1 project consultant. The project executive management committee members were involved in the study because they were in a position of providing vital information on the implementation of irrigation project.

3.2.3 Sample Size

The sample size is a subset of the population that is taken to be representatives of the entire population (Kumar, 2011). For this study, the sample size was 114 respondents (18% of target population). On the management committee members, officials and experts the researcher was not sample since the target population was small, hence the study employed a census method that is by capturing the entire population of management committee members, agricultural office Officials and technical officers. The study therefore used a total sample size of 114 respondents comprising 93 from beneficiaries, 21 from management committee and technical experts.

3.2.4 Sampling Procedures

The study selected the respondents using stratified proportionate random sampling technique. Stratified random sampling is unbiased sampling method of grouping heterogeneous population into homogenous subsets then making a selection within the individual subset to ensure representativeness. The goal of stratified random sampling is to achieve the desired representation from various sub-groups in the population. In stratified random sampling subjects are selected in such a way that the existing sub-groups in the population are more or less represented in the sample (Kothari, 2007). To increase a statistical efficiency and to provide adequate data for analyzing the various sub population, stratified sampling methods used to obtain the necessary information. Borena district and the two small scale irrigation projects (Hocheche Legemara) were selected purposively. The study used simple random sampling to pick the respondents from beneficiaries.

3.2.5 Methods of Data Collection

Both primary and secondary data used for the study. Primary data was used to study the whole situation of beneficiary farmers, executive management committee of the project, Agricultural Office Officials and experts in Borena District. The Questionnaires were made up of both closed and open ended questions. The open ended questions were used to encourage the respondents to give an in depth and felt response and the closed ended questions the respondent to respond from limited options that have been stated. The questionnaires were used in an effort to conserve time

and money as well as to facilitate an easier analysis as they are in immediate usable form. Enumerators were recruited and trained for the purpose of giving proper information.

Secondary data were collected from BOA, and other relevant institutions. Key informant interview and focus group discussion were used to collect qualitative data about the research agenda and to have a detail and reasonable description of the major characteristics of the projects. The drop and pick method was preferred for questionnaire administration so as to give respondents enough time to give well thought to the responses. The researcher booked appointment with respondent at least two days before visiting to administer questionnaires.

3.2.6 Data Analysis and Presentation

Data was analyzed by using statistical package for social sciences (SPSS version 21). Before the actual data analysis, the data was edited, coded, and tabulated based on the nature and type of the obtained data. Hence, the quantitative data was transferred to the computer and manipulate by using SPSS, processor. Furthermore, data obtained from open-ended questionnaire, structured interview and focus group discussion also analyzed through narration following each quantitative analysis presented in prose to strengthening the data validity.

Data presentation was by using tables and figures accompanied by textual descriptions. The tables and figures were constructed and listed in such a way that they clarify significant relationships and becomes self-explanatory.

3.2.7 Validity of Research Instruments

The study used content validity. Content validity is concerned with sample-population representativeness. Expert opinions were requested to comment on the representativeness and suitability of questions and give suggestions of corrections to be made to the structure of the research tools. This helped to improve the content validity of the data that were collected. Content validity is obtained by asking for the opinion of the lecturers and other professionals on whether the questionnaire was adequate.

3.2.8 Reliability of Research Instruments

Reliability is concerned with the question of whether the results of a study are repeatable. The questionnaires were administered to a pilot group of 12 randomly selected respondents and their responses used to check the reliability of the tool. This comprises 11% of the sample size. A pilot

study is carried out to determine how reliable the questionnaires are. Reliability analysis is subsequently done using Cronbach's Alpha which measures the internal consistency by establishing if certain items within a scale measure the same construct. Bryman and Bell (2011) established the Alpha value threshold at 0.7, thus forming the study's benchmark.

4. RESULTS AND DISCUSSION

4.1 Response Rate

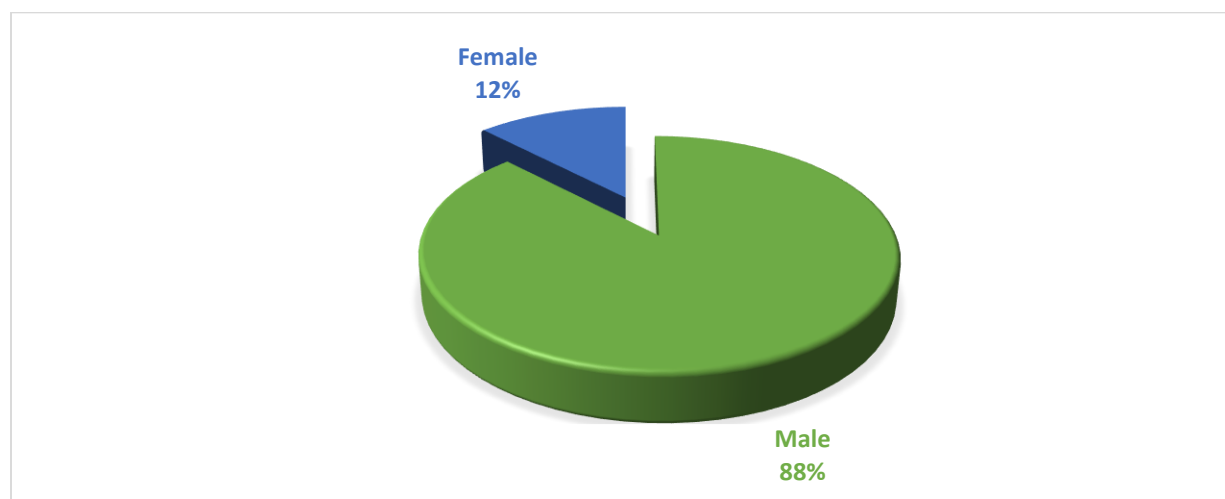
Data from the beneficiary farmers, district agricultural office officials, executive management committee and experts of the government and personal field observation analyzed and presented through the application of different descriptive and analytical instruments. The researcher collected data about the determinants of the implementation of SSI projects from Legemara and Hocheche SSI project sites and district agricultural office. Interview and focus group discussion conducted with beneficiary farmers, District Agricultural Office Officials, management committee and experts. Hence, 10 key informant interviewers and 15 elected beneficiaries interviewed and discussed. The entire sample sizes were 114 and 110 respondents provided the required information for the study and thus the respond rate was 96.4%.

4.2 The Respondents Socio-Demographic Features

Demographic characteristics of the sample dislocated respondents by sex, age, marital status and educational status, shown in Tables and figures below.

4.2.1 Sex Distribution

Figure 4.1: Sex distribution of respondents



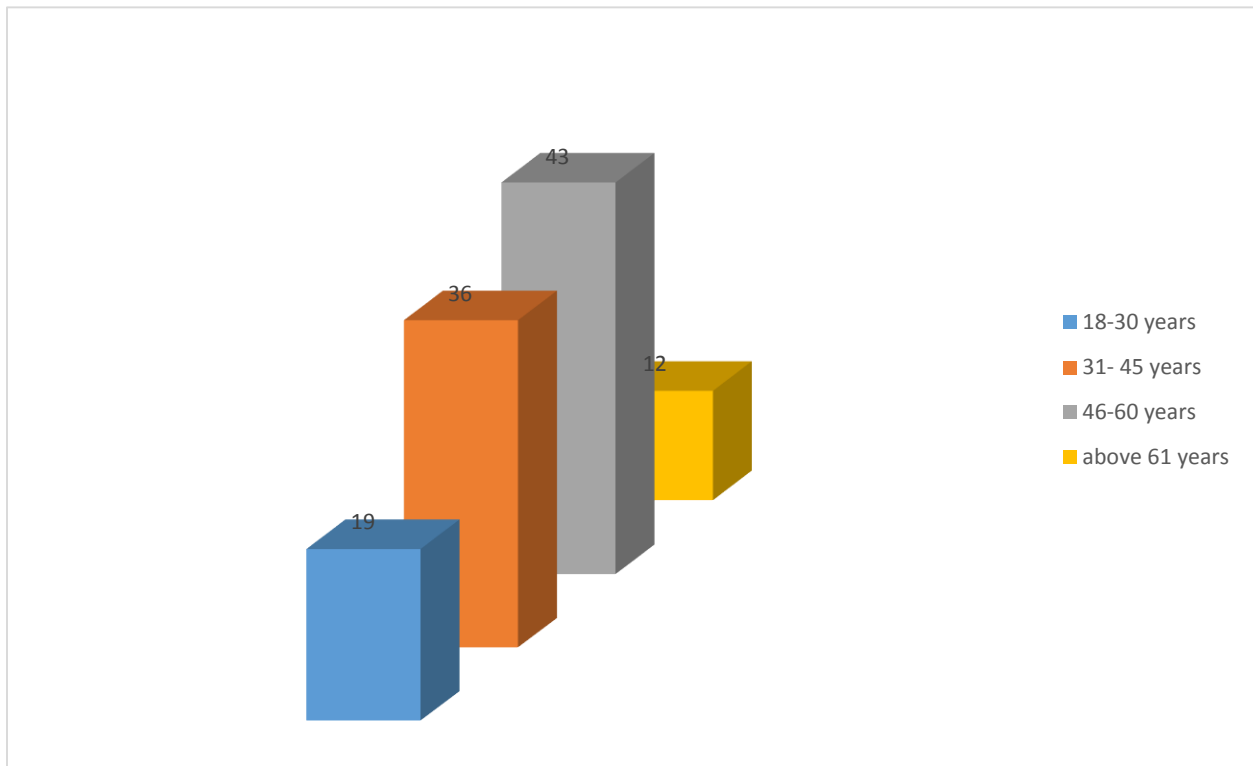
Source: Field data May 2019

Findings indicate that the number of male respondents whom the researcher managed to get information concerning the determinants of implementation of SSI projects were 100(88%) while the numbers of female respondents were 14(12%). This shows that the researcher intended to

collect information without inclining to one source and from the total number of respondents some house holders were female headed. Although it was easy to get information from women because they were available and more willing to provide information.

4.2.2 Age of Respondents

Figure 4.2: Shows age of respondents



Source: field data May 2019

As we can see from the above figure the respondents were youngsters, middle age group, adults and senior citizen. Majority of household head 43(39.1%) were the group of between 46-60 years. This implies that the majority of respondents were adults with higher experiences in their socio-economic dynamics including the implementation of irrigation projects and its impacts in the study area.

4.2.3 Marital Status of the Respondents

Figure 4.3: Shows that marital status of respondents

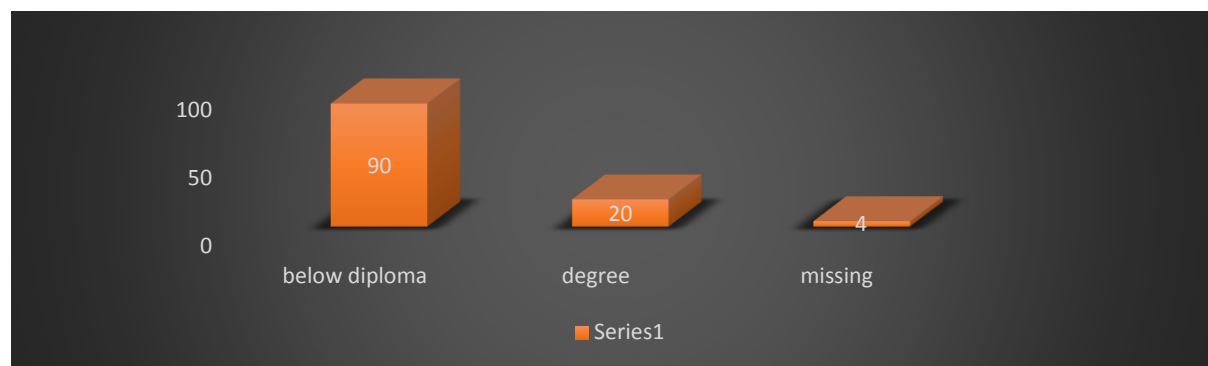


Source: field data May 2019

The above figure indicated that, the respondents were of varying marital status. From the total number of samples 96(84.2%) of respondents were married and 14(12.3%) of the respondents were single or female headed household head. The other 4 samples were not respond their marital status.

4.2.4 Educational Status of Respondents

Figure 4.4: Shows that educational status of respondents



Source: field data May 2019

The data illustrated that, 90(81.8%) of the respondents were below diploma (illiterate, read and write, primary education completed, secondary education completed). The other 20(18.2 %) were

degree holders. These were agricultural office officials, experts and management committee members.

4.3 Results or Findings

4.3.1 Determinants of the Implementation of SSI Projects

Table 4.1: Response of beneficiary farmers about factors that affect the implementation of SSI projects

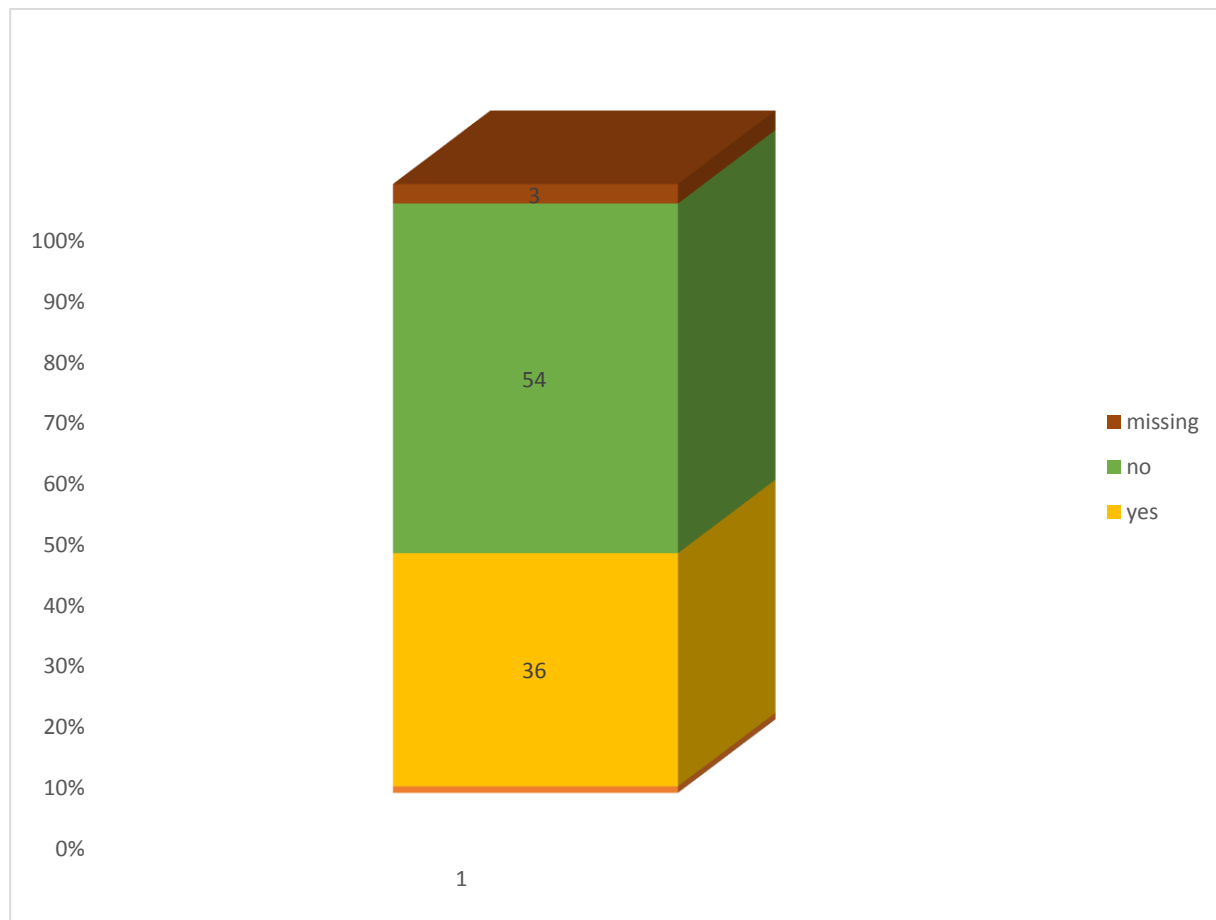
	Variables	Frequency	Percent	Valid Percent
Factors	management of the project	4	4.3	4.4
	participation of the community	6	6.5	6.7
	input supply	14	15.1	15.6
	monitoring and evaluation	11	11.8	12.2
	All	55	59.1	61.1
	Total	90	96.8	100.0
Missing	System	3	3.2	
Total		93	100.0	

Source: field data May 2019

The above table indicated that, management of project, community participation, supply of input and monitoring and evaluation were the determinant factors that affect the implementation of Small Scale Irrigation projects in the study area. Many projects in the past (not only agricultural projects) were designed and implemented in a top-down fashion, with little or no real participation of the supposed ‘beneficiaries’ in designing and implementing projects. Additionally the Ethiopian case study reported that some aspects of the study process are undertaken simply to comply with funding agencies’ requirements, but once the project is appraised and approved, there is often limited follow up during implementation and post-implementation. The main issues at this stage are therefore the flexibility in project design and the quality assurance process (Morardet *et al.*, 2005)

4.3.2 Community Participation in SSI Project Plan Preparation

Figure 4.5: Community participation in planning SSI projects

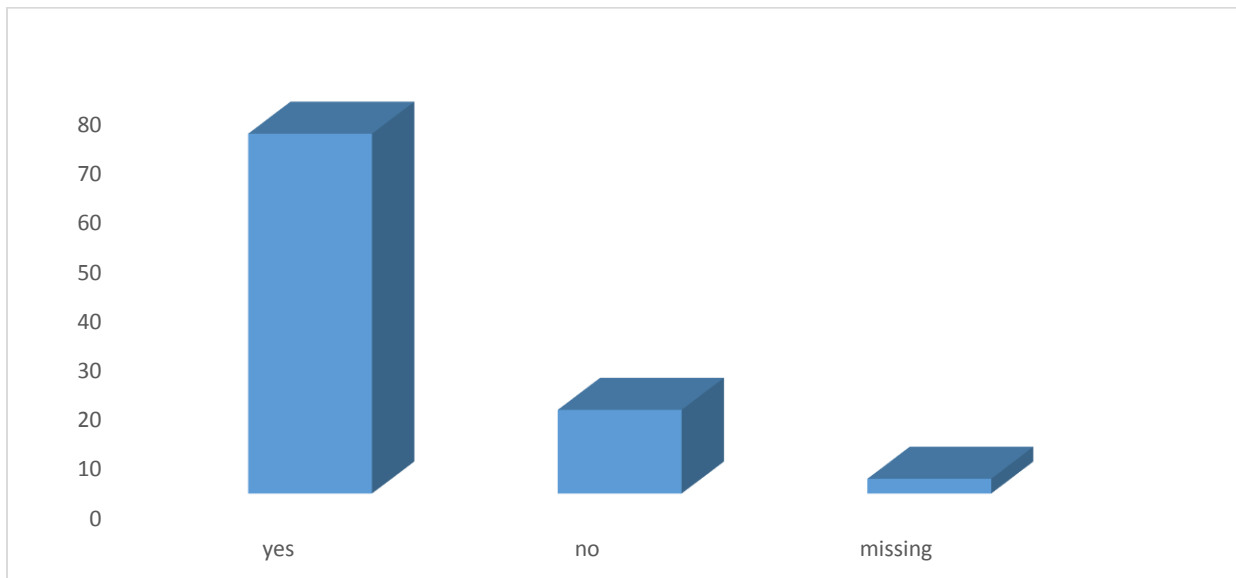


Source: field data May 2019

Figure 4.5 illustrated that 54(60%) of beneficiary respondents agreed with the absence of community participation in Small Scale Irrigation plan preparation. The remaining 36(38.7%) respondents were agreed the presence of participation of community in Small Scale Irrigation project plan preparation. This implies that ample time is needed to educate and motivate communities on the roles of citizens in development project plan preparation.

4.3.3 Community Participation in SSI Project Implementation

Figure 4.6: community participation in the implementation of SSI projects.



Source: field data May 2019

Figure 4.7: Focus group discussion with beneficiary farmers



Source: field observation June 2019

Figure 4.6 indicated that 73(81.1%) of respondents agreed that the participation of community in SSI project implementation in terms of sharing best practices and labor while 17(18.3%) do not agreed the participation of community in SSI project implementation resulted from the absence of sufficient and clear information to the communities. Mwiru (2015) described that political interference, ignorance, leadership, lack of dissemination of project related information, delay of funds from the government are the factors that influence the implementation of development projects at local level.

Focus group discussion with beneficiary farmers and an interview conducted in different time and space with 12 and 3 elected beneficiary farmer respondents respectively, the contents presented to them in an interactive way, and all the information they gave was taking a short note, at the end summarized as follows:

"Reasons that cause communities couldn't participated in small scale irrigation project implementation work were due to site selection or design problem, lack of awareness to the project work, poor communication between leader's and communities and mismanagement of public funds".

4.3.4 Management of the Project

Table 4.2: Illustrated that management of the project in SSI projects.

		Frequency	Percent	Valid Percent
Management problem	Yes	19	90.5	95.0
	No	1	4.8	5.0
	Total	20	95.2	100.0
Missing	System	1	4.8	
Total		21	100.0	

Source: field data May 2019

Figure 4.8: Focus group discussion with irrigation team experts



Source: researcher's observation June 2019

Table 4.6 illustrated that from key 21 respondents 19(95%) were agreed that management of the project affects greatly the implementation of SSI projects in Borena district. Akpan and Chizea (2002) defined “Project Management as the effective utilization of available human and material resources under time and cost constraints for the satisfactory realization of the pre-determined project objectives”. Ntamere (1995) defined project management as managing and directing time, materials and costs to complete a particular project in an orderly and economical manner, so as to meet established objectives in time, budgeted amount and to achieve technical results. Ndiomu (1994) opined that 'whatever the size of a project and how properly the project is planned, proper management guarantees the success of the project. Findings sought that inefficient management affects SSI project implementation negatively, while efficient management resulted best performance of SSI projects.

An interview and FGD conducted in different time and space with 10 respondents 6 from district Agriculture Office Irrigation Experts, 2 from Management Committee members and 2 from District Agricultural Office Officials. The contents presented to them in an interactive way, and all the information they gave was taking a short note, at the end summarized as follows:

Management of the project affects the performance of Small Scale Irrigation projects negatively due to the existence of poor commitment to project management, lack of accountability and transparency, bureaucracy in decision making process, absence of participatory planning, lack of effective communication with various actors, poor supplies and mobilization of necessary materials, lack of effective procurement management, lack of attention to development projects, lack of incentives from governments to attract and keep skilled and trained staff, Poor participation and capacity building of various actors (farmers, agricultural service providers, WUAs...), inadequate or non-existent monitoring and evaluation system and insufficient technical supervision.

4.3.5 Community Participation

Table 4.3: Community participation in SSI projects

		Frequency	Percent	Valid Percent
Participation of community	Yes	19	90.5	95.0
	No	1	4.8	5.0
	Total	20	95.2	100.0
Missing	System	1	4.8	
Total		21	100.0	

Source: field data May 2019

Table 4.3 indicated that similarly management of project 19(95%) respondents were agreed that community participation greatly affects the implementation of SSI projects in the study area. Mwiru (2015) explained ownership of the projects, ensuring value for money fostering development are benefits of community participation in development projects. Findings indicated that community participated by supplying local materials, protecting or controlling project materials, giving real data and generating use full ideas about project implementation, transporting factory construction materials and contributing labor for project work. So that community

participation affects the implementation of SSI projects negatively due to the absence of the above conditions.

4.3.6 Adequacy of Resources or Resource Supply

Table 4.4: Input supply to SSI projects.

		Frequency	Percent	Valid Percent
Supply	Yes	14	66.7	70.0
	No	6	28.6	30.0
	Total	20	95.2	100.0
Missing	System	1	4.8	
Total		21	100.0	

Source: field data May 2019

The above table shows that 14(70%) respondents were responded that adequacy of necessary resources affected that of implementation of SSI projects in the study area. The other 6(30%) of respondents were explained resource supply do not affect the implementation of SSI projects.

Interview conducted with Agricultural office officers, management committee members and agricultural office experts revealed that most respondents responded financial and material adequacy, land resource supply to construction sites and farmers greatly affects the implementation of SSI projects while human capital lowly affect the implementation of SSI projects in the study area. Thus, the study indicated that resource adequacy affect the implementation performance of public SSI projects in Borena district.

4.3.7 Project Monitoring and Evaluation

Table 4.5: SSI project implementation monitoring and evaluation performance

		Frequency	Percent	Valid Percent
Monitoring and evaluation	Yes	18	85.7	90.0
	No	2	9.5	10.0
	Total	20	95.2	100.0
Missing	System	1	4.8	
Total		21	100.0	

Source: field data May 2019

Table 4.5 indicated that 18(90%) of respondents were responded that monitoring and evaluation greatly affected the implementation of Small Scale Irrigation projects, the remaining 2 (10%) explained that monitoring and evaluation was not impact on the implementation of SSI projects in the study area.

Similarly, like management of project, community participation and resource supply an interview conducted with Agricultural office officers, management committee members and agricultural office experts revealed that most respondents responded that there was no planning a monitoring and evaluation system and key stakeholders had no understanding the benefit of monitoring and evaluation in SSI project work. The study indicated that monitoring and evaluation affects greatly the implementation of SSI projects in Borena district.

4.3.8 Accuracy of Design and Specifications

Table 4.6: Accuracy of design and specifications in SSI project

		Frequency	Percent	Valid Percent
Design and specification error	Yes	13	61.9	65.0
	No	7	33.3	35.0
	Total	20	95.2	100.0
Missing	System	1	4.8	
Total		21	100.0	

Source: field data May 2019

The above table indicated that 65 % of respondents were agreed accuracy of design and specifications affected moderately the implementation of SSI projects. The other 35% were explained accuracy of design had no impact on the performance of the implementation of small scale irrigation projects in the study area.

4.3.9 Accuracy of Time Estimates for Project Schedule

Table 4.7: Time estimates for project schedule in SSI project

		Frequency	Percent	Valid Percent
Schedule	Yes	14	66.7	70.0
	No	6	28.6	30.0
	Total	20	95.2	100.0
Missing	System	1	4.8	
Total		21	100.0	

Source: field data May 2019

The above table shows that 70 % or majority of respondents agreed accuracy of time estimates for project schedule affects the implementation of SSI projects. The remaining 30% of respondents explained that accuracy of time estimates for project schedule had no impact on the implementation of SSI projects in the study area

4.3.10 Clearly defined Goals and Directions

Table 4.8: Respondents towards goals of SSI project.

		Frequency	Percent	Valid Percent
Goals	Yes	9	42.9	45.0
	No	11	52.4	55.0
	Total	20	95.2	100.0
Missing	System	1	4.8	
Total		21	100.0	

Source: field data May 2019

Table 4.8 illustrated that 55 % of respondents respond clearly defined goals and directions had no impact on the implementation of SSI projects. The remaining 45% of respondents confirmed that clearly defined goals and directions affect the implementation of SSI projects in the study area. The study deduced that clearly goals and directions was low impact on the implementation of SSI projects in Borena district.

4.3.11 Accuracy of Project Cost Estimates

Table 4.9: Accuracy of project cost estimates in SSI project.

		Frequency	Percent	Valid Percent
Cost estimate	Yes	15	71.4	75.0
	No	5	23.8	25.0
	Total	20	95.2	100.0
Missing	System	1	4.8	
Total		21	100.0	

Source: field data May 2019

The above table indicated that majority (75%) of respondents gave respond accuracy of cost estimates affect the implementation of Small Scale irrigation projects. The other 25% of respondents explained that accuracy of cost estimates had no impact on the implementation of SSI projects in the study area. Thus the study deduced that accuracy of cost estimates for project implementation moderately affects the implementation of SSI projects in Borena district.

4.3.12 Timely and Comprehensive control

Table 4.10: The performance of timely and comprehensive control in SSI project.

		Frequency	Percent	Valid Percent
Supervision	Yes	18	85.7	90.0
	No	2	9.5	10.0
	Total	20	95.2	100.0
Missing	System	1	4.8	
Total		21	100.0	

Source: field data May 2019

Table 4.10 illustrated that 90 % of respondents explained timely and comprehensive control of project affects the implementation of SSI project and 10% of respondents were responded timely and comprehensive control had no impact on the implementation of SSI project in the study area. The study revealed that timely and comprehensive control affects greatly the implementation performance of SSI projects in Borena district.

4.3.13 Communication and Consultation with Stakeholders

Table 4.11: Communication and consultation with stakeholders in SSI project.

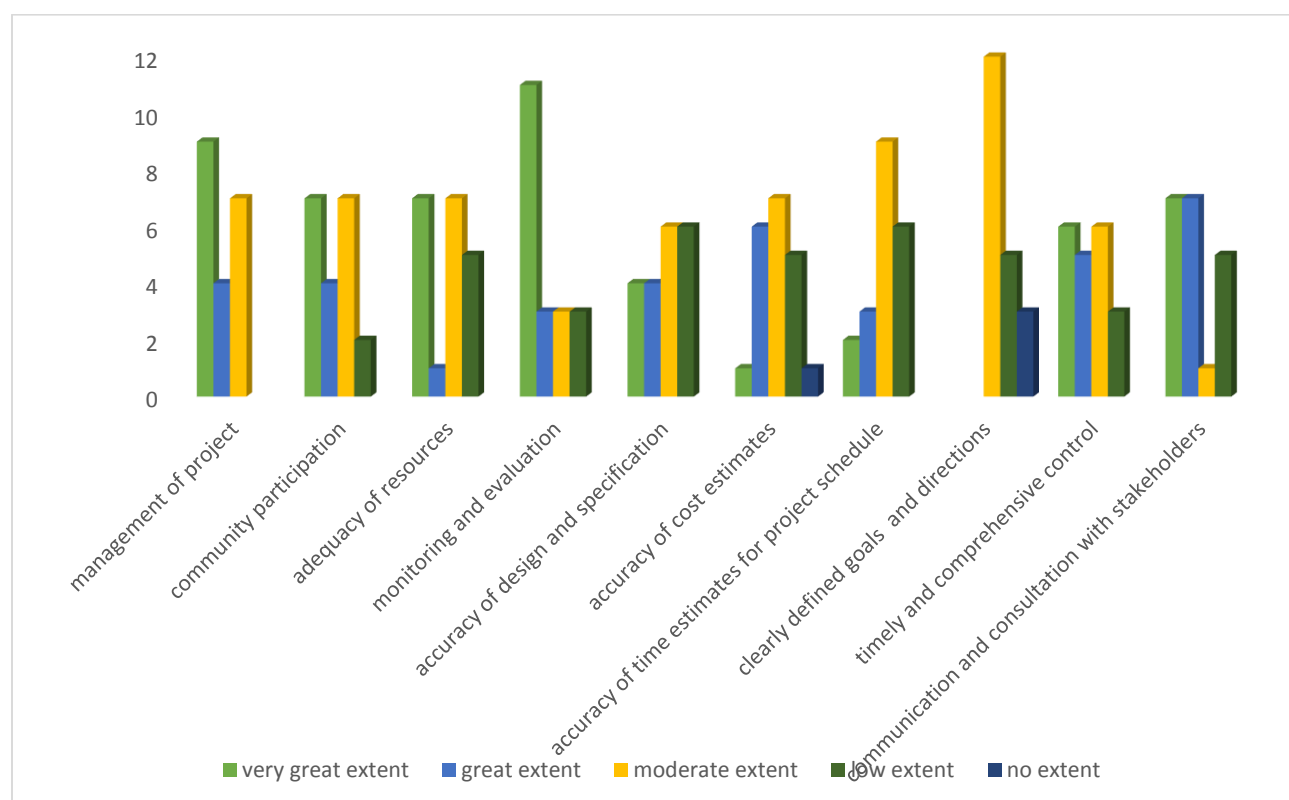
		Frequency	Percent	Valid Percent
Communication	Yes	13	61.9	65.0
	No	7	33.3	35.0
	Total	20	95.2	100.0
Missing	System	1	4.8	
Total		21	100.0	

Source: field data May 2019

Table 4.11 indicated that 65% of respondents agreed with the impact of communication and consultation with stakeholders on the implementation of Small Scale Irrigation projects.

4.3.14 Extent of the Impact of Independent Variables on the Implementation of SSI Projects

Figure 4.9: Extent of the impact of independent variables on the implementation of SSI projects



Source: field data May 2019

Figure 4.8 indicated that management of project; community consultation service to stakeholders, community participation, timely and comprehensive supervisory control were greatly or largely affects the implementation of SSI projects in the planned time. While adequacy of resources or input supply, accuracy of design and specifications and accuracy of cost estimates for project implementations were moderate impact on the implementation of SSI projects. The other two variables: accuracy of time estimates and setting defined goals and directions were no impact on the implementation.

Figure 4.10: Legemara earthen dam construction in different sides

a)



b)



c)



Source: researcher's observation May 2019

Figure 4.11: Hocheche river diversion





Source: researcher's observation May 2019

5. CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusion

The study concluded that project and program management, communication and consultation with stakeholders, community participation, comprehensive control and supervision of project activity, user acceptability, institutional capacity and leadership greatly affects the performance of public SSI projects in Borena district. The study deduced that project management (planning the project, implementation of the project, resource supply and mobilization of the project, monitoring and evaluation of projects by participating stakeholders) greatly affects the implementation performance of public SSI projects in Borena District.

The study concluded that material adequacy and resource utilization affects the implementation of public SSI projects in Borena district. The study again deduced that local and factory material supply inadequacy and reliability and transport infrastructure affect the implementation of public SSI projects in Borena District. Similarly they also showed that accuracy of design and specifications, accuracy of cost estimates for project implementation moderately affect the implementation of public SSI projects in the study area.

5.2 Recommendations

The following recommendations are stated as a vital actions to be performed by the key stakeholders for the implementation and development of SSI projects:

- Performance management is a key aspect of project management. In order to implement this, project managers and other stakeholders have to have enough knowledge and skill.
- Management of the projects should adopt stringent measures which would arrest input related factors. This also should include less bureaucratic procedures and processes in disbursement of both material and financial resources required by contractors to implement small scale irrigation projects.
- The study also recommends that promote full participation of members at various stages of project implementation (indecision making, in planning, designing, organizing, implementation activities and workshops) in order to create consensus thus enhancing ownership.

- Reduce community participation barriers and challenges, encourage dialogue, share information and create strategies and actions to promote public SSI projects.
- Determine proper communication flows for project members and develop a way to inform what information needs to be informed to project members.
- Project management should strengthen the capacity of supervisory staff involved in small scale irrigation projects. Supervision would enhance the identification of trouble areas through spot checks of project implementation activities in order to reduce massive loss of resources and project delay.
- Build a result-based participatory monitoring and evaluation system.
- Due to shortage of money and problem of time management the most important limitation of this study was that the author selected a small sample size while there was a larger population size as compared to the sample size especially beneficiary farmers Therefore, a larger sample size should be used by the other authors for further research studies.

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6. APPENDICES

Appendix 1: Introduction Letter

To whom it may concern

Dear Sir/Madam,

Re: REQUEST FOR PARTICIPATION IN A RESEARCH STUDY

I am a final PPM student at Debre Markos University. My area of specialization is Project Planning and Management. I am currently undertaking a research thesis on “**Determinants of Small Scale Irrigation Project Implementation Performance: The Case of Hocheche and Legemara Small Scale Irrigation Projects in Borena District, Ethiopia**”. I would be grateful if you could spare some time from your busy schedule and complete the enclosed questionnaire. All the information provided was used purely for academic purposes and was treated with utmost confidentiality. Thank you for your cooperation.

Yours faithfully, Temechew Wassie PPM Student, Debre Markos, Ethiopia

Temechew Wassie Tessema

Mekane-Selam, Ethiopia

April 2019

Appendix I: Questionnaire

Part One: General Information

Please tick as appropriate space

1. Sex: Male ☐ Female ☐
2. Age: 18-30 years ☐ 31-45 years ☐ 46-60 years ☐ above 60 years ☐
3. Marital status: Married ☐ Single ☐
4. Educational status: Diploma: ☐ Degree ☐ Masters and above ☐

Others (please specify) _____

5. What is your current designation within the organization? Head office ☐ Vice head office ☐
Project consultant ☐ Team leader ☐ Expert ☐

Others (please specify) _____

6. Work experience in Governmental and other NGO sector?

- 1 – 5 years ☐ 16 – 20 years ☐
6 – 10 years ☐ above 21 years ☐
11 – 15 years ☐

7. Work experience in Borena District Agricultural Office?

- 1 – 5 years ☐ 16 – 20 years ☐
6 – 10 years ☐ above 21 years ☐
11 – 15 years ☐

Part Two: Main Body of the Questionnaire

8. What is/are the determinant factors that affect the implementation performance of small scale irrigation projects in Borena District? Write tick a mark in the correct space.

- a) Management of the project Yes ☐ No ☐
- b) Community participation Yes ☐ No ☐
- c) Adequacy of resources or resource supply Yes ☐ No ☐
- d) Project monitoring and evaluation Yes ☐ No ☐
- e) Accuracy of design and specifications Yes ☐ No ☐
- f) Accuracy of time estimates for project schedule Yes ☐ No ☐
- g) Clearly defined goals and directions Yes ☐ No ☐
- h) Accuracy of project cost estimates Yes ☐ No ☐
- i) Timely and comprehensive control Yes ☐ No ☐
- j) Communication and consultation with stalk holders Yes ☐ No ☐

9. The following are likert scale statements that relate to the extent of factors that affect the implementation of small scale irrigation projects. Using scale 1-5 where 1- Very great extent 2- Great extent 3-Moderate extent 4- Less extent and 5-No extent

VGE –Very great extent GE – Great extent ME – Moderate Extent LE – Less extent NE– No extent

To what extent these determinant factors affect the implementation performance of small scale irrigation projects in the study area? Write tick mark on the correct space

S/N	Questionnaires/variables	VGE	GE	ME	LE	NE
A	Management of the project					
B	Community participation					
C	Supply of necessary resources					
D	Project monitoring and evaluation					
E	Accuracy of design and specifications					
F	Accuracy of time estimates for project schedule					
G	Clearly defined goals and directions					
H	Accuracy of project cost estimates					
I	Timely and comprehensive control					
J	Communication and consultation with stalk holders					

10. In what ways management of the project affect the implementation of small scale irrigation projects?-----

-----.

11. In what ways are community involved in the implementation of small scale irrigation projects?-----

-----.

12. In what ways community participation affect the implementation of small scale irrigation projects?-----

-----.

13. In what ways supply of resources affect the implementation performance of small scale irrigation projects?-----

-----.

14. In what ways monitoring and evaluation affect the implementation performance of small scale irrigation projects?-----

-----.

Thank you for your cooperation!

Questionnaires for Beneficiary Farmers

Part One

Respondents General Information

Instructions: write a tick mark in the blank space for each question.

1. Respondents full name _____
2. District _____
3. Kebele _____
4. Sex Male-----Female _____
5. Age
Between 18-30 Years _____ Between 31-45 years _____
Between 46-60 Years _____ above 61 Years _____
6. Marital Status
Married-----Unmarried _____
7. Educational status
Illiterate-----Read and Write _____ Completed Primary Education _____ Completed
Secondary Education _____ Diploma and above _____

Part Two

Main Body of the Questionnaires

Instructions: Select and circle your answers

1. What are the determinant factors of the implementation of SSI Projects in Borena District, especially in your surroundings?
 - a. Management of Project
 - b. Community Participation
 - c. Input Supply
 - d. Monitoring and Evaluation
 - d. All
2. Was the Community participated SSI project Planning? a. Yes b. No
If no
why? _____

3. Was the community participated in SSI project implementation? a. Yes b. No

if no

why_____

4. Was the community participated in SSI project input supply? a. Yes b. No

If your answer Yes in what ways the community participated in input supply?

specify_____

5. If there is another way of community participation

6. please specify_____

Thanks for your cooperation!

Appendix II: Interview

An interview guide line for, management committee and experts of district Agricultural Office and kebele leaders.

Part one: general information

Name of Respondent _____

District _____ Kebele _____

Occupation _____

Position _____

Level of Education _____

Part two: Interview questions for respondents

1. Do you know the factors that affect the implementation of small scale irrigation projects in Borena district?-----

-----.

2. What are the determinant factors that affect the implementation of small scale irrigation projects **in planning stage**?-----

-----.

3. What are the determinant factors that affect the implementation of small scale irrigation projects **in implementation stage** in Borena district?-----

-----.

4. What are the determinant factors that affect the performance of small scale irrigation projects **in application stage** in Borena district?-----

5. What are the causes of those **failure factors** on the implementation of small scale irrigation projects?-----

6. What are the main current and future challenges or problems of implementation of small scale irrigation projects? Please describe -----

7. Was management of the project affects the implementation of small scale irrigation projects?

Yes ☐ No ☐

How-----

8. Was community participation affects the implementation of small scale irrigation projects in

Borena district? Yes ☐ No ☐

How-----

9. Was resource adequacy affect the implementation of small scale irrigation projects in the study

area? Yes ☐ No ☐

10. Was monitoring and evaluation affect the implementation of small scale irrigation projects in

the study area? Yes ☐ No ☐

How? Explain-----

11.What are the relevant mitigation measures to failure factors of the implementation of small scale irrigation projects in Borena district?-----

-----.

12. What has the government plans to do in improving the implementation of small scale irrigation projects? What do you expect the government to do? Explain -----

Thank you for your cooperation!

Appendix III:
Guideline for Focus Group Discussion

Warm up activities

1. What factors affect negatively the implementation of small scale irrigation projects in your surrounding?
2. What kind of support to the implementation of small scale irrigation projects by key stakeholders?
3. Who is the responsive body to reduce the negative impacts of the implementation performance of small scale irrigation?
4. What measures should be taken to manage or develop the implementation performance of small scale irrigation projects in efficient way?

Approval Page of MSc Thesis

Title of MSc Thesis Determinants of Small Scale Irrigation Project Implementation Performance:
The Case of Hocheche and Legemara Small Scale Irrigation Project in Borena District, Ethiopia

Submitted by:

-----	-----	-----
Name of student	Signature	Date

Approved by:

1.-----	-----	-----
Name of Advisor	Signature	Date

2.-----	-----	-----
Name of Chair person, DGC	Signature	Date

3.-----	-----	-----
Name of PG Coordinator (V/dean)	Signature	Date

4.-----	-----	-----
Name of College Dean	Signature	Date

5.-----	-----	-----
Name of Postgraduate Dean	Signature	Date

