COMMUNICATION INTERVENTIONS USED IN AGRICULTURAL EXTENSION: AN EXPLORATORY STUDY IN SIDAMA REGION, ETHIOPIA

BY:

HAILEMESKEL ZEWDIE GEBEYEHU

A DISSERTATION SUBMITTED TO THE SCHOOL OF JOURNALISM AND COMMUNICATION, COLLEGE OF HUMANITIES, LANGUAGE STUDIES, AND JOURNALISM AND COMMUNICATION

IN FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY (PhD) IN MEDIA AND COMMUNICATION STIDIES

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HAILEMESKEL ZEWDIE GEBEYEHU

ADVISOR

YOHANNES SHIFERAW JIRA (PhD)

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This is to certify that the thesis prepared by Hailemeskel Zewdie Gebeyehu, entitled "COMMUNICATION INTERVENTIONS USED IN AGRICULTURAL EXTENSION: AN EXPLORATORY STUDY IN SIDAMA REGION, ETHIOPIA" is submitted in fulfillment of the requirements for the Degree of Doctor of Philosophy in Media and Communication Studies complies with the regulations of the University and meets the accepted standards with respect to originality and quality. We, the board of examiners, approve that this thesis has passed through the defense and review processes.

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DECLARATION

I, the undersigned, declare that this thesis is my original work and has not been presented for a degree in any other university, and that all sources of materials used for the thesis have been duly acknowledged.

Name: Hailemeskel Zewdie Gebeyehu

Signature: _____

Date: _____

Place: College of Humanities, Language Studies, Journalism and Communication School of Journalism and Communication, Addis Ababa University

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ABSTRACT

This study explores the nature and strategies of existing communication interventions and their role in enhancing agricultural production that improves the livelihood of rural communities in Sidama region, Ethiopia. It further pinpoints challenges that prevent the application of effective communication techniques of farm practices in the region. This descriptive study used exploratory sequential mixed design, and two woredas, Hawassa Zuria and Dara woredas, were sampled from the Sidama region. Agricultural agents, farmers, journalists, and agricultural experts were subject to surveys, focus group discussions, and in-depth interviews. The results of the study show that top-down communication is still the most common approach. Development agents created the majority of project proposals, which were then altered by experts without consulting the farmers. Additionally, it was discovered that the communication intervention targeted model farmers exclusively, depriving other farmers of the extension services, since they were more receptive to DAs. Despite the belief held by development agents and agricultural specialists that participatory communication plays a crucial role in guaranteeing community involvement, the implementation of the participatory approach was hindered by the usual tasks performed by these individuals.There were not enough opportunities for farmers to engage and talk about agricultural concerns.There was no regular, planned communication between farmers and development agencies. Many of the farmer training centers were not running efficiently and were in bad shape. Woreda and local specialists mostly relied on the monthly reports provided by DAs and did not frequently visit and inspect farm locations. Additionally, communication between DAs and farmers was limited to the plowing season. It was also discovered that there were no dialogue sessions accessible for the community to talk with the resource people about issues. It was also discovered that farmers had very little interest in taking part in the training that the DA had initiated. There was a concerning tendency among farmers to link any kind of involvement to assistance. In addition, several DAs were searching for chances elsewhere due to their dissatisfaction with their jobs. Due to certain farmers engaging in non-agricultural activities as a means of generating additional money, DAs' complete participation in the extension was impacted. Additionally, it was discovered that DAs lacked the required expertise. The findings suggest that agents exhibited suboptimal information-seeking conduct and little interaction with researchers. DAs participated in non-agricultural activities. The culture of attending agricultural programs is not good, and there is limited access to and use of the media for spreading agricultural programs. Therefore, it was advised that interventionists employ an inclusive, multilayered intervention in rural agriculture. Promoting non-model farmers' policies is necessary to involve the community's marginalized individuals. Investigating the causes of DAs' disinterest in their work is essential. Development agents need to improve their information-seeking behavior by reading, attending to the media, and browsing agricultural knowledge from different sources. Agricultural offices and research centers need to strengthen their link to make research findings more accessible to the end-users. It is necessary to learn more about agriculture from a variety of other sources. The manner in which aid promotes dependency in communities requires proper attention. Media coverage of agricultural programs needs to be improved.

Keywords: communication intervention, livelihood, agricultural production, participatory, development agents, top-down, mass media, pro-non model farmers

ACRONYMS/ABBREVIATIONS

AESE	Agricultural Extension Strategy of Ethiopia
ARDU	Arsi Rural Development Unit
ATA	Agricultural Transformation Agency
ATVET	Agriculture, Technical Vocational Education and Training
CADU	Chilalo Agricultural Development Unit
CSA	Central Statistical Agency
DA	Development agent
DAs	Development Agents (extension workers)
EATA	Ethiopian Agricultural Transformation Agency
EIAR	Ethiopian Institute of Agricultural Research
EPRDF	Ethiopian People's Revolutionary Democratic Front
FAO	Food and Agriculture Organization
DC	Development Communication
FGD	Focus group discussion
FGDs	Focus group discussions
FTC	Farmers' Training Center
GOs	Governmental organizations
ICT	Information and Communication Technologies
II	In-depth interview
IIs	In-depth interviews
IVR	Interactive voice response system
LDCs	Less Developed Countries
MoA	Ministry of Agriculture
MPP I	Minimum Package Programs First
MPP II	Minimum Package Program Second
NGOs	Non-government Organizations
PADEP	Peasant Agriculture Development Extension Project
PADETES	Participatory Demonstration and Training Extension System
SIDA	United States Agency for International Development
T & V	Training and Visit
UNICEF	United Nations International Children's Emergency Fund

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CHAPTER ONE

INTRODUCTION

1.1Background of the Study

Agriculture is the mainstay of Ethiopian's economy. About 85% of the population earns thier basic income from agriculture (Alemu, 2017). Knowing this, the Ethiopian government implemented several initiatives to improve the lives of rural society. Even with all the work that GOs and NGOs have done, Ethiopia still needs to become food-self-sufficient. Low production is a defining feature of Ethiopian agriculture (Mekonnen et al., 2016). The controversy here would be why food scarcity has become a persistent problem in Ethiopia despite a tremendous amount of fertile land and human resources.

The Ministry of Agriculture (MoE) has taken various approaches to improve agricultural production. To increase agricultural productivity, the Ministry employs mainly agricultural extension initiatives. According to Oto et al. (2006), agricultural extension is an intervention that employs communication as a tool to bring about change. Its job is to provide information to extension clients by making greater use of available resources, technological advancements, and organizational abilities. Therefore, helping farmers takes more substantial advantages over production and market prospects will be the ultimate purpose of extension services (NAEP, 2001). In order to provide the extension service, extension staff typically incorporate new knowledge and training, technology transfer, facilitation, and other strategies (Rivera & Kalim, 2003). Development agents use agricultural extension as a means of assisting farmers in recognizing challenges, expanding their knowledge and gaining insight into matters, organizing their current knowledge, obtaining specialized knowledge pertinent to a given circumstance, acting on potential alternatives, carrying out their decisions, and ultimately enhancing their capacity for making decisions (Kaur, 2022; Chandra, 2004; Servaes, 2002; Melkote & Steeves, 2015).

Since the 1950s, the agricultural extension program has been a key tool in increasing agricultural productivity due to the nation's inadequate agricultural output (Belay, 2003). Even though Emperor Haileselassie made numerous attempts, the agricultural extension did not receive enough attention until the third five-year plan, which was implemented from 1967 to 1973. Increasing agricultural output was the primary goal of the initiative. Compared to small-scale community-based agriculture, it placed more emphasis on large-scale commercial agriculture (Abate, 2007; Belay, 2003).

The MoA created and implemented a number of extension projects around the nation between the 1960s and the present. The Chilalo Agricultural Development Unit (CADU) was one of the most well-known programs. The other well-known project, called the Arsi Rural Development Unit (ARDU) (Spielman et al., 2012; Belay, 2003; Davis et al., 2009), was developed out of CADU. Subsequently, in 1970, the Wolayita Agricultural Development Unit (WADU) was established, and in 1972, Ada's District Development Project got underway. An integrated approach to agricultural production was used in each of these initiatives.

Amidst Derg's rule, the MoA persisted in carrying out agricultural extension initiatives. Launched at the end of Emperor Haileselassie's reign, the Minimum Package Programs First (MPP I) and Second (MPP II) were implemented under the Derg dictatorship. The project's goal was to assist several farmers in implementing innovations by reaching out to them (Belay, 2003). Its primary flaw was that it was unable to get in touch with as many farmers as it could in numerous districts. The restricted quantity of developing agents was the cause. Various international institutions, including the World Bank, financed the projects under the Emperor and Derg regimes (Belay, 2003).

The Peasant Agriculture Development Extension Project (PADEP) was introduced in various regions of the nation between the early 1980s and 1995. Using the modified training and visit (T&V) extension strategy was the main objective of the project (Abate 2007; Belay 2003). Preventing soil depletion, introducing an appropriate farming method, and concentrating on agricultural productivity were the main goals (Belay, 2003). Many of the projects that were started at this time ended quickly. It was the result of numerous foreign sponsors stopping their financial support. From the standpoint of foreign donors,

the Derg regime's economic policies and tactics were very different. The development of agricultural extension services suffered as a result of this circumstance. As depicted by Wordofa (2019), the Participatory Demonstration and Training Extension System (PADETES) was prioritized as an agricultural extension system after the EPRDF came to power. This project was mostly led by NGOs (Abate, 2007; Belay, 2003). The main goal of PADETES was to assist small farmers in obtaining innovations and technologies that would enable them to increase agricultural production (Spielman et al., 2012; Abate, 2007; Belay, 2003). Although PADETES was first implemented with a lot of work, the results were not entirely satisfying. It was due to the prevalent practice of the governance system's top-down approach, which hindered the adoption of novel concepts and improvements in the agricultural sector. In addition, there weren't as many development agents as there were farmers, there were capacity issues, kebele and woreda institutions weren't well organized, and there weren't enough administrative resources to support agricultural extension (Belay 2003).

The Participatory Extension System (PES) took the place of PADETES in 2004 (Gerba, 2018). Providing the best extension services possible to the majority of rural communities was the goal of PES. Increasing agricultural production is the main focus of this initiative (Gerba, 2018). For this reason, the Ministry of Agriculture has long used a participatory extension strategy. It was thought that the participative strategy would make it possible to produce enough food to meet Ethiopia's rapidly expanding population's needs (Tsedeke 2006). Participatory communication has become more prestigious in development projects, according to Paolo (2008).

Ethiopia's modern extension system places a lot of emphasis on the establishment of the Farmer Training Center (FTC). The Ethiopian agricultural extension system is primarily dependent on Farmer Training Centers (FTCs) and trained development agents who assist farmers with extension, according to the Ministry of Agriculture's policy. It is expected that the FTC will serve as a conduit for providing effective and profitable extension services. Moreover, the FTCs will function as hubs for knowledge and information sharing as well as centers for promoting best practices. Nonetheless, their document confirms that FTC's use of the agricultural extension technique has been insufficiently

effective. The primary cause is farmers' insufficient participation in FTC administration (AESE, 2017).

Furthermore, one of the other reasons listed in the plan is the lack of attention paid to farmers' needs and goals while developing research agendas and extension packages (EATA, 2018). Farmers view FTCs as government agencies rather than their own because of a lack of understanding, confusion about the main benefit of FTCs, and the use of FTCs for non-extension activities. These factors have led to the inactivity of numerous FTCs (EATA, 2018).

The medium itself is the second most important idea in terms of extension. Agricultural extension is implemented through communication channels. Knowledge and extension services can be shared through group modalities, in-person interactions, and the media (print, radio, TV, and the internet). Many people can be simultaneously reached with the same knowledge thanks to mass media. According to Rogers (2003), mass media channels are typically thought to be the quickest and most efficient means of informing a potential adopter audience about the existence of innovation-awareness creation. Mass media can influence an audience's capacity to consider an issue they see or hear about, even though it is a unidirectional process. Using media, such as radio, television, movies, newspapers, pamphlets, brochures, posters, and the internet, could hasten the farmers' adoption of a new concept. In various areas and activities, broadcasting is crucial (Chandra, 2004). Although the media can help disseminate new ideas and generate interest in agricultural technologies, they are not able to perform all of the functions of an extension agent (Oakley & Garforth, 1985).

In interpersonal channels, individuals exchange information face-to-face. In addition to mass media, the interpersonal channel is vital in persuading individuals to accept new ideas (Rogers, 2003). As to Rogers, communication among individuals or groups, such as between opinion leaders and farmers, would become crucial in affecting audiences' opinions.

Extension agents could employ group methods besides individual extension communication methods in the communication process. The individual method is where the agent communicates with farmers one-on-one. In contrast, the group method is implemented by calling on farmers to communicate among themselves as a group. Group discussions, demonstrations, field days, and tours are common group extension methods (Oakley & Garforth, 1985). The most appropriate methodologies can be selected and implemented depending on various factors. The type of message, the context, the specific goals, the knowledge level, and the client's capacity determine which extension methods or approaches are preferable.

Extension focuses on many different target processes and outcomes. The transfer and exchange of practical information must be undertaken through properly programmed extension work, mainly in dyadic or small-group communication. Agricultural extension aims to support farmers in solving problems and alleviating poverty and, in turn, advances community participation in the development process (Nyakuni et al., 2001). Concerning extension service, as noted by Jones and Garforth (1998), one must remember that the information needs to be organized, systematized, and supplemented with new agricultural methods compatible with the specific area. Jones and Garforth (1998) further state that agricultural information must be refined, promoted, and appropriately disseminated to the existing knowledge of body (Kurtzo et al., 2016). Therefore, appropriate communication approaches are fundamental for sustainable development (FAO, 2005). Appropriate and effective communication approaches can reveal people's underlying attitudes, and traditional wisdom helps people change their viewpoints and pick up innovations and abilities for better achievements (Servaes, 2002). Appropriateness in communication involves utilizing planned communication techniques, activities, and media to give people the power to experience change (Getahun, 2020; FAO, 2005).

One main issue in communication is spreading new social messages to large audiences (Zikargae et al., 2022; FAO, 2005) and intensifying the exchange of ideas among all sectors of society to lead people to greater involvement in decision-making at all stages (Sylvester, 2016; Farm Africa, 2002). In agricultural communication, DAs and

agricultural experts must recognize existing knowledge, help incorporate indigenous knowledge into projects, and empower the local community (Sylvester, 2016; Van den Ban & Hawkins, 1996; FAO, 2003). Communicating appropriately and, hence, mobilizing rural society to attain specific development programs is, therefore, one of the main goals of extension service (Mefalopulos, 2008). The more these high community components are included in the various development programs, the more likely they are to achieve the goals set by the government (FAO, 2005). It will happen when people are addressed through properly designed methods of communication, which demands genuine participation and thus helps to make a decision (Zikargae et al., 2022).

Scholars have explicitly explained that poor extension systems and communication approaches result in poor achievements in production (Matouš et al., 2013). When scholars illustrate the importance of appropriate communication interventions for development activities, they say that inappropriate communication interventions could impede development activities. A suitable communication approach demands the systematic utilization of proper communication channels, methods, and techniques to increase popular participation in development activities (Kaur, 2022; Servaes, 2002). By utilizing a range of communication channels, the intervention must identify the rural community's most pressing challenges (Norton, 2020). Therefore, the main aim of this study is to explore the nature and strategies of existing communication interventions to the area and investigate the contribution of communication interventions in enhancing farmers' productivity in the Sidama Region.

1.2. **Statement of the Problem**

The Ethiopian Ministry of Agriculture has been implementing several intervention measures to enhance agricultural production for many years. However, the country's agricultural output has not kept up with the consistently growing population. In this instance, there are several questions that need to be addressed, such as why Ethiopia has not made significant progress despite all initiatives and interventions? Why has Ethiopia's agricultural output continuously lagged considerably below average yields in East Africa and the rest of the world? (Schneider & Anderson, 2010). Many scholars have argued that a variety of reasons could contribute to the problem, but one aspect that could potentially

limit the success of current solutions is the inappropriateness of communication tactics and approaches (Finaly, 2008).

As was previously noted, extension activities have extensively been used in Ethiopia for a long time to increase agricultural output. However, as noted by Gebremedhin and Swinton (quoted in Mekonnen et al., 2016), not much progress has been made. While using new technology is essential to boosting productivity, spreading those technologies requires efficient communication as well. According to Matouš et al. (2013), the primary obstacle preventing Ethiopian farmers from implementing new techniques is typically thought to be the absence of suitable communication strategies.

According to Seers (2001), development communication in many third-world nations has traditionally followed a one-way, top-down method, moving from the center to the regions and districts in decreasing order. Fraser & Restrepo-Estrada (1998), quoted in (Godana, 2014), pointed out that one of the overlooked topics of our day is the use of communication for growth.

Innovations are frequently introduced without being thoroughly evaluated to see if they are appropriate for farming systems or the needs of the people (Ayalew & Abebe, 2017; Davis & et al., 2010). Regarding the development's design, Masilela (1994), referenced in Paolo (2008), said that if peasants do not control their development, there can be no guarantee that their best interests are being served. Ethiopian smallholder farmers have a slow rate of innovation dissemination, technology and input use, and adoption of validated research findings (Ayalew & Abebe, 2017). Thus, the primary concerns that must be looked at from the perspective of communication for development are the characteristics and communication approaches employed by the key players. In this sense, it's important to carefully consider how various levels of stakeholders engage with one another to promote communication.

Analyzing the available communication channels for delivering innovations to the community and how communicators have made use of them is another area that needs research. A key factor in farming techniques changing is communication. This makes it necessary to look into the actual methods by which interventionists are interacting with

end users. It is essential to comprehend the main obstacles that experts, agents, and farmers encounter when exchanging information with one another. This aids in enhancing current circumstances and offering solutions. Evaluating the communication abilities and knowledge of the experts and agents would help determine how well these individuals support farmers in raising their standard of living and productivity.

Research on agricultural communication is quite broad. Numerous academics have investigated how communication might improve productivity and output in agriculture throughout the world. In a similar vein, a great deal of research has also been done in Ethiopia. While the majority of these studies concentrated solely on agriculture, a few studies primarily examined the use of communication in the industry. One of these was a research by Gerba (2018) that examined the governance, involvement, and development of agricultural extension with a particular focus on Ethiopia's agricultural extension system. This study examines governance pathways, agricultural extension, knowledge development, and its applications using the evolutionary governance theory. The further research was carried out by Meseret and Mossie (2015). This study examined the process of converting the current system of subsistence agriculture into a production system focused on the market. The market's challenges and the delivery of other services, like rural water supply, are the primary topics of the evaluation. The goal of this article is to demonstrate how extension services are used in relation to overall rural development. Derso & Ejiro (2015) carried out the other relevant study, which had the objective of assessing Ethiopia's agricultural extension program benefits from using information and communication technology (ICT). The most current agricultural knowledge systems were also examined. Despite some improvements, their research revealed that ICT utilization is low. Specifically, they found that ICT can effectively facilitate agricultural communication.

Based on the theories of participatory communication and the diffusion of innovation, Workineh, Chanie & Woldearegay (2022) have conducted a study aimed to investigate the main obstacles in agricultural extension communication activities, emphasizing the Ethiopian Institute of Agricultural Research (EIAR). The study is founded on the theoretical frameworks of participatory communication and diffusion of innovation. Six

themes emerged from the analysis of the study's key findings. Their investigation revealed several barriers to implementing agricultural extension communication, among other challenges; they identified stakeholder participation and communication channels as problems that demand the establishment of a system that enables stakeholders to work in synergy. Low stakeholder involvement, poor information exchange, knowledge and skill gaps, scarce resources and supplies, and farmer perceptions have impeded agricultural communications activities. Their research confirms that there needs to be more information exchange and involvement from stakeholders.

Abebe and Hailemariam (2018) conducted a study on the historical evolution of Ethiopia's agricultural extension service strategy, which included a summary of the past and present circumstances. Ethiopia's agricultural extension plan saw revisions and breakthroughs beginning in 1931, as the study illustrated. The Farmers' Field School, General Agricultural Extension, Commodity Specialized Extension, Training and Visit Approach, Participatory Approach, Project Approach, and Cost-Sharing Approach were among the agricultural extension programs evaluated in the article. The evaluations demonstrate that earlier approaches focused primarily on crop development, particularly grain output, and gave priority to regions with significant agricultural potential. The analysis shows that the current strategy for extension services benefits a number of stakeholders, including the farmers who use them. Based on the data analyzed, this study finds that participatory extension strategies are adaptable and enable the deployment of integrated approaches to address the majority of general problems faced by farmers. Nonetheless, among other things, it requires more effective national monitoring and assessment systems and continuously battles with severe crises. They also suggested carrying out a thorough assessment of the current methods for providing extension services.

Another related study by Chanie investigates how participatory communication is perceived and used for development in a local organization. According to his research, the development process lacked participatory communication and the top-down approach that dominated conceptions of development communication. This is because

communication was not seen as a process of empowerment but rather as a means of transmitting development information and building an image.

The research mentioned above has to do with agriculture and agricultural communication. This specific study stands out from the others since it offers a thorough analysis of the stakeholder communication interventions. The primary focus of the study was on the types of communication that are used, the tactics that communicators employ, and the difficulties that interventionists encounter. Every particular issue pertaining to communication in agriculture was noted and evaluated. Approach, method, obstacles, professionalism, curiosity, confidence, and many more well-researched ideas are all part of communication. The communication intervention implemented could demonstrate how development agents engage with farmers in an interactive manner to identify and prioritize issues, create strategies, monitor, and assess progress.

1.3.**Objectives of the Study**

1.3.1. General Objective

The study aims to explore the communication interventions used in the agricultural extension process in the Sidama Region.

1.3.2. Specific Objectives

The specific objectives of the study are to:

- study how agricultural and technological innovations are communicated to end-users/farmers .
- find out the major communication tools used in communicating agricultural issues.
- examine the inclusiveness of the communication intervention in light of the participatory communication approach.
- assess the level of confidence DAs have in communicating agricultural issues with farmers.

- identify the perceptions of DAs about the existing practice of communication intervention.
- find out agricultural agents' access to mass media and researchers.
- identify the major challenges that DAs and farmers face in the utilization of communication strategies.

1.4. **Research Questions**

- How agricultural and technological advancements is communicated to end users?
- What are the major communication methods used to communicate agricultural issues?
- To what extent are the communication approaches in place inclusive in light of the participatory communication approach?
- What is the level of confidence DAs have in communicating with farmers?
- How do DAs perceive the existing communication intervention practice?
- What are the major media that are accessible to DAs in the area?
- What are the challenges farmers and development agents are facing in the process of utilizing effective communication strategies?

1.5. **Significance of the Study**

To succeed in development initiatives, well-thought-out and appropriate communication interventions are necessary. It is envisaged that this research will be significant in the following ways:

- it can highlight the current communication gap between development agencies, farmers, and agricultural specialists.
- researchers would benefit from a deeper comprehension of the current state of communication intervention, including its advantages and disadvantages.

- it may also provide practitioners with further concepts and in-depth understanding by analyzing modern communication interventions related to participatory communication theory.
- by pointing out relevant problems and best practices in agricultural extension services for communication intervention, it might help by giving legislators input.
- it would draw attention to the challenges faced by stakeholders in putting effective communication interventions into practice, urging concerned parties to make decisions that are solution-focused.

1.6. **Scope of the Study**

The southern Ethiopian region of Sidama served as the study's location. Six kebeles from the Hawassa Zuria and Dara woredas in the area were the subject of the study. The research on communication interventions employed in the designated regions is the only area in which the topic is severely limited. The primary focus of the study is on agricultural specialists and agents and how they interact with farmers. Regarding the methodological scope, three research instruments were utilized to gather data: a quantitative survey on the one hand, and focus groups and in-depth interviews as a means of gathering qualitative data on the other. This research work's generalizability will be limited to the subject field and mostly context-oriented. The period of time during which the data was gathered was specifically from 2022 to 2023.

1.7. Limitations of the Study

The data were gathered from two woredas of the Sidama region. The region is geographically vast, and farmers live in a dispersed fashion; thus, accessing these areas requires more time and resources. If more places had been included in the study, more detailed and extensive data would have been acquired.

1.8. **Organization of the Study**

The following framework is used to arrange this study: In chapter one, the context, problem statement, objective, key research questions, and significance of the study are are presented, along with an overview of Ethiopian agriculture, agricultural communication, and its extension system. A survey of the literature is included in chapter two. Chapter 3 presents the methodological appraoch along with a description of the study area. Chapter four presents the study data, interpretation, and analysis. The thematic presentation and analysis of the qualitative data is done first, followed by the presentation and analysis of the data from the survey. A section with recommendations and conclusions wraps up Chapter 5.

1.9.**Operational Definition of Key Terms and Concepts**

1. Adoption: On the other hand, adoption is the decision to make full use of innovation as the best available course of action. The invention distribution process consists of five stages, according to Rogers (1983): knowledge, persuasion, choice, implementation, and confirmation.

2. Agricultural communication: According to Kaur (2022), this is the method by which information is conveyed to the farm family. All forms of communication, including those with the rural population, are included in agricultural communication.

3. Communication: According to the FAO (1987), "sharing of information" includes expressing ideas and feelings, giving information to others, and using channels to transmit information. Interactions between people and messages generate meanings (Fiske, 2004). Communication channels: This research employs the term "communication channels" to encompass both interactive (like dialogues and discussions) and non-interactive (like radio and posters) channels utilized in the dissemination of agricultural innovations.

4. According to this study, communication for development is the use of communication interventions to encourage the adoption of innovative farming

practices and bring about rural transformation through improving information access, strengthening genuine participation, and empowering stakeholders — farmers in particular.

5. Communication strategies: In this context, "communication strategies" refers to the whole framework or plan of communication processes, which includes channels, "target audience," "communication plan," and communication objectives.

6. Agents of development Extension agents are educated, skilled individuals who have access to up-to-date knowledge. Their crucial function is to increase consciousness regarding issues in rural communities, expanding knowledge and gaining insight into issues, organizing farmers' preexisting knowledge, gaining specialized knowledge about particular issues, acting on potential alternatives, carrying out their decisions, and enhancing their ability to make decisions (Oakley & Garforth, 1985).

7. Diffusion of Innovation: How novel concepts or new technologies proliferate across the farming communities. Diffusion of innovations aims to provide a rationale for the timely and widespread adoption of novel ideas and behaviors. And diffusion is the process through which an innovation spreads over time among the participants in a social system via specific channel (Rogers, 1983).

8. Innovation: Innovation is an idea, practice, or thing that are pertinent to the agricultural community that the adoption unit views as novel (Rogers, 1983).
9. The term "innovation diffusion process" in this study refers to the steps of conception, trial, introduction, dissemination, and adoption of agricultural innovation approaches employed by development agents. The idea behind innovation diffusion is to make new ideas and technologies accessible to people so they can take advantage of them (Rogers, 2003).

10. Interaction: Here, "interaction" refers to gatherings of key stakeholders such as farmers, development agents, agricultural experts, and researchers, for communication and message exchange.

11. Participation: During every stage of the dissemination of agricultural innovation, farmers, development agents, experts, and agricultural researchers must actively engage in the process.

12. Stakeholders: Those who actively engage in the agriculture industry are considered stakeholders in this study. Stakeholders include specialists, researchers, development agencies, and farmers.

13. Participatory communication: Melkote and Steeves (2015) define participatory communication as the following: it is people-centered, embraces a variety of issues, traces community needs, involves the community, gives self-reliance, encourages dialogue, provides time and space for both parties to communicate, and results in mutual understanding. "A high level of public involvement in a communication system" is what defines it (Servaes, 2002, p. 85).

CHAPTER TWO

REVIEW OF LITERATURE

2.1. Introduction

This chapter starts with a general overview of development communication and its function in agriculture. It then goes over the theoretical underpinnings of both agricultural and development communication as well as the relevant literature that is necessary to understand the conceptual problems. The chapter also discusses agricultural productivity, communication routes, the function of agricultural agents, the practice of agricultural extension in Ethiopia, and the difficulties associated with these practices in Ethiopia. Moreover, there has been discussion on media and ICT use in agriculture. The study's issue was addressed through the presentation of empirical research and associated ideas. As a result, the chapter provides an explanation of the prevalent theories and paradigms in the development communication sector. Five well-known theories are outlined in the theories section.

2.2. Development Communication and Agriculture

Development communication (DC) is a broad concept. Over time, the concept's use and meaning have evolved, shaped by many contextual influences. Despite differences in strategy and implementation strategies, the ultimate purpose of development communication is to assist the larger community in achieving a higher standard of living (Servaes, 2008; Cambridge, 2007; Moemeka, 1994; Rogers, 1976).

It has been proposed that development communication should become increasingly important for those who reside in small-scale farming communities in developing countries. The greater rural community's standard of living has not increased as a result of their inadequately established agricultural system (Mekonnen et al., 2016). Poor agricultural systems provide the majority of rural populations in developing countries with a living; numerous communication techniques and approaches have been used to help address the problem (Moemeka, 1994). Improving the great majority's quality of life through the execution of various development initiatives is the primary objective of

development communication (Cambridge, 2007; Moemeka, 1994). To accomplish significant gains in human life, as Servaes (2002) pointed out, well planned development communication interventions must be put into practice. Development efforts are aided by communication based on a common understanding, claims Rogers (2003). In development communication, actors or communicators must consider and comprehend challenges related to political and socioeconomic contexts, especially those pertaining to the contextual form of reality in relation to global dynamism (Melkote & Steeves, 2015).

The word "development" embraces a wide range of ideas. Agricultural production, particularly in less developed countries, is one of the main ideas integrated into the development concept. Ethiopia and other less developed nations primarily rely on agriculture. Therefore, the primary goal of any development intervention is to increase agricultural productivity. In this sense, May et al. (2007) pointed out that in addition to making the nation self-sufficient, sustainable agricultural productivity and production offer a substantial chance for both economic expansion and the eradication of poverty. The communication elements entwined with development communication become critical to achieving progress and development in agriculture. Development communication, as defined by Oakley & Garforth (1985), is the method by which knowledge is disseminated to the agricultural society. Development agents who have acquired agricultural knowledge and communication skills are primarily responsible for presenting agriculture to the rural population in less developed nations (AESE, 2017). The major goal of development is to improve people's quality of life; therefore, efforts in this area have focused on increasing knowledge and sharing innovations with the farming community through well-designed communication methods, methodologies, and channels (Kayode-Adedeji et al., 2017). Thus, the core idea of development communication would be gathering and disseminating agricultural skills and knowledge to the agricultural community (Oakley & Garforth, 1985).

2.3.**Communication and Development**

According to the FAO (1987), "sharing of information" refers to the expression of thoughts and sentiments, providing information to others, and conveying information through channels. The relationships that people have with communications produce

meanings (Fiske, 2004). In relation to developmental activities, communication can be understood as a continuous, socially and culturally appropriate conversation between clients and development providers as well as within the recipient group (Servaes, 2008). Persuasion was the primary goal of the discussion or message exchange in the past, when communication was perceived as a linear, one-way act in which a person attempted to convey a message to another in order to achieve specific outcomes (Rogers, 2003). Subsequently, it was understood to be a dynamic, multivariable interaction of multiple, sometimes intangible, components (Bordenave, 1976; Rogers, 2003). According to Acunzo et al. (2016) and Melkote and Steeves (2015), communication is now seen as a process that carries with it a number of difficulties relating to the context at all levels—grassroots, community, regional, national, and international. In order to build projects and mobilize the target population for success, communication is essential (Sylvester, 2016).

Organizing communication tactics, events, and media is necessary to empower people to experience change and improved outcomes (Getahun, 2020). In this situation, experts and development agents (DAs) can identify problems and create programs more easily when they communicate (Kaur, 2022). It creates legitimacy and encourages people to take an active role in decision-making by expanding the reach of new social messages and improving communication across all society groups (Zikargae et al., 2022; Sylvester, 2016). Thus, it is imperative that DAs and agricultural specialists recognize the existing knowledge, assist in incorporating indigenous knowledge into projects, and empower the local population (Sylvester, 2016). Above all, inspiring rural people to support specific development initiatives is one of the main goals of agricultural activities that involve genuine participation (Mefalopulos, 2008).

According to Rogers, one of the leading thinkers in development communication, Development is "a purposeful change towards a social and economic system that a country decides it wants; it is impossible to specify the exact direction of Development. Every country will grow uniquely (Rogers, 1976). Cambridge supported this idea by stating that development is a complex, multidimensional, and dialectic process that had no universal recipe (2007); this suggests that no concept of Development fits all situations; it varies from country to country. According to Rogers, as cited in Cambridge,

development communication is a highly participatory process of directed social change in a society that aims to advance society both socially and materially by giving the majority of people more control over their surroundings and bringing about greater equality, freedom, and other desirable qualities; constant social transformation for the benefit of people at all stages of life (Ahuja & Chhabra, 1992). In this sense, any change at any point in time should lead to another change, but Development should be dynamic and ongoing. Development communication is a multifaceted process that aims to eliminate poverty and reduce inequality by transforming societal institutions and public perceptions. Development and developmental efforts also include the expansion of human confidence, the fusing of human spirit, the rise of new consciousness, and the increase of knowledge and skills. It should be acknowledged as a multifaceted, integrated, participatory process with stakeholders and beneficiaries to raise the standard of living for all people by enhancing several social sectors in an ecologically responsible way (Cambridge, 2007).

Despite the numerous debates around the definition of development communication, the Cambridge definition would be a more accurate representation of what the term means in this study: putting the needs of the poor first, trying to meet the most basic needs, utilizing natural resources as efficiently as possible while keeping in mind the potential of the local ecosystem and the current and upcoming constraints imposed by global concerns for the biosphere; and establishing the process on genuinely democratic and participatory methods of decision-making at all societal levels (Cambridge, 2007). Therefore, the development goal must be the spiritual, moral, and material improvement of all human beings, both from the individual's perspective and as a member of society. Development is not about developing things but about developing men (Poostchi, 1987). When discussing development communication, we usually mean using communication methods and principles to carry out development programs (Cambridge, 2007).

2.4.**The Role of Communication in the Agricultural Sector**

According to Kaur (2022), agricultural communication is the process of disseminating knowledge to the farming community. It includes all forms of communication, including

communicating with the rural population. In relation to agricultural developmental efforts, communication can be understood as a meaningful and continuous dialogue between recipients and development service providers as well as within the recipient group (Servaes, 2008). Assuring communicators have a common understanding of the subjects is the primary objective. Effective communication between agricultural specialists and rural populations is necessary to understand the shared concern in agricultural activities. Agricultural communication is a process that takes time and effort to complete, as opposed to being a one-time event. In less developed nations, agriculture necessitates ongoing engagement, connection, and communication (Servaes, 2002). In an economy where the primary source of income for small-scale farmers is subsidies, it is imperative to put in endless effort to achieve a particular level of development. To assist people in completing the process of changing their lives, we need to implement development communication initiatives that are appropriate and unambiguous (FAO, 2006). In interacting with the rural population, academics have evaluated interpersonal communication (Acunzo et al., 2016; Singh, 2014). Extension agents that work at the program and project level and have direct interaction with farmers and their families typically lead and assist this process (Oakley & Garforth, 1985). Extension agents play a key role in raising awareness of issues in rural communities, gaining knowledge and understanding of issues, organizing farmers' preexisting knowledge, obtaining specialized knowledge, acting on potential alternatives, carrying out their decisions, and enhancing their ability to make decisions (Oakley & Garforth, 1985).

According to Oakley and Garforth (1985), agricultural communication is an intervention that employs communication as a tool to bring about change. With an emphasis on better seed types and fertilizer application, agricultural communication in Ethiopia sought to increase agricultural output (Tenkir & et al., 2004; Gezahegn et al., 2006). Though less successfully, crop production is the focus of all extension programs (EIAR, 2014).

2.5.**Theories in the Field of Development Communication**

2.5.1 Modernization theory

For a long time, modernization theory was regarded as the primary route to development. History reveals that during the Cold War, capitalists promoted capital as a means of wealth, while socialists sought fair distribution of wealth and equity in access to health, nutrition, and education (Cambridge, 2007). Modernization via capitalism and progress via socialism both aim to promote growth and improvement in human life. Furthermore, proponents of the modernization paradigm collectively assumed that modernization was the only answer to every issue facing the world, ignoring contextual differences among nations (Black, 1984). The pioneers of this paradigm, including Walt Rostow, David McClelland, Daniel Lerner, Wilbur Schramm, and Everett Rogers, observed that advanced modern society maintains progress (Cambridge, 2007).

Modernization theory's fundamental tenet is that human growth proceeds in a linear fashion, moving from traditional cultures to contemporary social organization structures. In this specific way, Third World rural communities with restricted social and geographic mobility associated with cultural practices were referred to as "traditional" when the phrase was first used (Cambridge, 2007). Furthermore, third-world nations' cultures have been perceived as a "bottleneck" in the modernization paradigm since they impede the adoption of contemporary attitudes and behaviors (Chandra, 2004). According to Cambridge (2007), people of African, Latin American, and Asian descent are stereotyped as conventional, autocratic, dim-witted, reluctant to change, and the antithesis of modern personalities. On the other hand, modern societies were endowed with the exact opposite qualities. In the modernization paradigm, the cause of "underdevelopment" is exclusively attributed to internal factors in Third World countries. Culture, norms, societal experience, customs, indigenous activities, and beliefs are considered setbacks to progress. The proponent of this paradigm believes that to materialize development, societies must pass through the stages of the modernization process (Rogers, 2003). Modernization theorists, as cited in (Bernstein, 2001; Seers, 2001; Black, 1984), advocate the belief that introducing new ideas and practices could accelerate the process of modernization of society.

The other feature of modernization theory was the excessive importance given to mass media. According to modernists, broadcast media is primarily needed to accelerate societal behavioral and structural changes. They did set goals to instill modern values and information by transferring media technology and adopting innovations and cultures originating from the developed world (Servaes & Malikhao, 2007; Rogers, 1976). This thought was grounded in Daniel Lerner and Wilbur Schramm's models, which state that communication is meant for transmitting information. During the introduction of modernization theory, scholars were influenced by the sender-receiver strategy of the Shannon and Weaver communication model and the "magic bullet" effect of mass media (Servaes & Malikhao, 2007; Rogers, 1976).

A top-down communication strategy was promoted by the modernization paradigm. This one-sided strategy originated with the persuasive model of thought, which holds that audiences are greatly impacted by mass media. Within this legacy of the prevailing paradigm, there was a strong emphasis on ethnocentric and paternalistic perspectives on development (Servaes & Malikhao, 2007; Rogers, 1976). The main notion behind this particular school of thinking is to use media-centered persuasive techniques to move people from "traditional" to "modern" demographics. It is assumed that the "magic bullet" effect of mass media exists (Chandra, 2004). According to Cambridge (2007), traditional systems are characterized by a preponderance of rural areas, limited social and geographic mobility, and adherence to cultural norms that reject materialism and the use of money as a method of attaining wealth.

Persuading and maybe affecting audiences is the role of communication, which is perceived as a linear, unidirectional process. Similarly, it is acknowledged that effective development interventions depend heavily on development communication. Using mass media (radio, newspapers, movies, television) and media technology might make this a reality. Taking this into consideration, Third World governments and experts suggested and employed mass media to spread contemporary ideas to enhance agriculture, health, education, and politics. Broadcasting is often crucial to the modernization paradigm in a number of ways and activities.

Development, according to modernization theory, is entirely dependent on industrialization and total gross income (Rogers, 1976). It is measured by the rate of economic growth and the increase of material outputs. Generally speaking, development was coined as something that happens everywhere uniformly, but this modernist view was later criticized, and scholars began to reinterpret development as a deliberate shift toward a particular type of social and economic structure. Even modernists had to concede that each country will develop in its own unique way (Rogers, 1976). Cambridge (2007) further supported this idea by asserting that development is a complex, dialectic process that lacks a universal recipe. Over time, it has been identified that implementing top-down intervention became less fruitful and ineffective in alleviating socioeconomic problems (Seers, 2001).

2.5.2.Dependency paradigm

The Dependency Paradigm emerged as a result of critics of the modernization paradigm. The dependence school of thought's primary criticism of the modernization paradigm was that it assumed a type of progress that only Western nations experienced. Modernization theory proponents aimed to replace the lifestyles of Third World countries with Western ones. Furthermore, rather than external barriers to progress, the internal circumstances of emerging countries have been viewed as such in modernization theory. The work of the United Nations Economic Commission on Latin America was the subject of the other criticism. The opponents developed the term "dependency" by following the UN Economic Commission's engagement in the field (Sylvester, 2016; Cambridge 2007). Their justifications showed that the industrialized north's ability to control the entire process was made possible by the patterns of global economic relations that currently existed, which contributed to the developing region's "underdevelopment." Chandra (2004) links these circumstances to the unequal distribution of resources resulting from the globalization of Western capitalism. Furthermore, the proponent of dependence theory argued that the mass media systems found in emerging nations were built in a way that bolstered the structure driven by capitalism and the market. Dependency scholars contend that the modernization-era broadcasting system served mainly to advance the political elites' agendas and depended on outside sources for its programming (Cambridge, 2007).

The conclusion drawn from all of the arguments made by dependency theorists is that the modernization-led intervention was ineffective and could not assist in achieving the targeted degree of development. Furthermore, they contend that the West's assistance, in keeping with modernization's methodology, actually fostered reliance. Their theory leads them to the conclusion that industrialized countries' current political and economic dominance—rather than a lack of information—is the real issue facing Third World countries (Cambridge, 2007). Third World countries continue to be underdeveloped and dependent on developed nations due to the economic and political decisions made by these nations. Finally, rather than implementing a community-dependent proliferation plan through aid or other means, dependency theorists eagerly sought to adopt a self-reliant development strategy (Servaes, 2002).

The fact that modernization's communication infrastructure advances Western culture and knowledge against the interests of people in less developed nations is one of the arguments used to oppose it (Cambridge, 2007). Modernization theory holds that because of the inherent social structure of the community, internal impediments to modernization or acceptance of contemporary practices are the only reasons contributing to the underdevelopment of developing countries (Cambridge, 2007). Supporters of the dependency theory critique and highlight the shortcomings of the modernization theory, even though they haven't detailed precisely how communication should be built up for development goals.

Supporters of dependency theory claim that the framework of modern global economic growth is responsible for the underdevelopment of developing countries (Oum, 2020; Cambridge, 2007). They also argue that the political and economic decisions made by developed nations reinforced the underdevelopment and dependency of third-world countries (Cambridge, 2007). One criticism leveled at these claims was that aid programs had unintended consequences, and that the entwining of political interests with aid initiatives makes people in developing countries more dependent and willing to wait for support. Throughout the contemporary age, people in third-world countries remained dependant on one another (Matunhu, 2011). Reliance theory states that "modernization ideas impoverished Africa" (Matunhu, 2011: 67). The main critique of dependency

theory is that third-world countries were further forced into dependency by the modernization strategy, which served the interests of the developed world (Stanford, 2015; Shah, 2007). Dependency theorists favored an independent approach to development over the misguided Western plan of bringing about development through assistance initiatives (Servaes 2002).

2.5.3.Diffusion of innovations and the two-step flow

One of the most popular modernization theory philosophies was Everett Rogers' "diffusion of innovation" notion. The idea behind innovation diffusion is to make new ideas and technologies accessible to people so they can take advantage of them (Rogers, 2003). It is thought that the linear development of civilization from traditional cultures to modern systems of social organization was made easier by the diffusion of innovations (Cambridge, 2007). It's thought that implementing cutting-edge concepts and methods could hasten the emergence of modern civilization (Seers, 2001; Bernstein, 2001; Black, 1984).

Persuading cultures and perhaps even influencing them to accomplish the specified goal was the aim of communication. It was believed that communication was a one-way, linear process. According to the invention diffusion theory, top-down communication occurs. Ethiopia's agricultural sector, like many other third-world nations, has historically had challenges in adopting new agricultural technologies because to the top-down administration structure that resulted from modernization ideas (Belay, 2003). In Ethiopia, poor research-farmer linkage and insufficient technology transmission to farmers were caused by top-down communication (Sewnet et al., 2016; Kelemework & Kassa, 2006). According to Melkote and Steeves (2015), the diffusion of innovations framework served as a means of communication with less developed countries (LDCs) and the dissemination of development messages through the media. The theory's proponents were hopeful that people would positively perceive innovation diffusion interventions and gradually adopt new behaviors over time. According to Rogers (2003), the stages that innovation diffusion essentially goes through are awareness, knowledge, interest, choice, trial, and, at the end, adoption/rejection. There is no need for concrete input from the grassroots; communication is vertical and comes from the center. The two-

or multi-step information flow is employed in the diffusion of innovation because it influences people to accept new technologies in a comparatively short amount of time (Mekonnen et al., 2016).

The ultimate goal of innovation dissemination, as previously discussed in this text, is to assist individuals in embracing and internalizing novel ideas and technology so that the community can profit from the intervention. Rogers' "diffusion of innovation" theory for modernization is well-known and broadly embraced. In particular, the diffusion of innovation concept has been widely applied in rural development initiatives. The term "diffusion of innovations" refers to the process by which one person informs one or more other people about a novel notion. A novel idea that specialists and scholars think is significant would be introduced to the rural community. The suggestion is that when new concepts or technology advancements are introduced to rural people, their way of life would improve. The perceived novelty of an idea or object will depend on how each person responds to it. An idea is an innovation if it appears novel to the individual (Rogers, 2003).

The significance of communication routes has been underlined here. Notably, mass media channels are thought to be the quickest and most efficient means of introducing innovations to a prospective user base. Interpersonal channels were found to be more successful in persuading users to adopt innovations than mainstream media Rogers (2003). Interpersonal channels refer to direct contact between individuals. Communication between individuals and groups—such as an opinion leader and their followers—becomes crucial for influencing the opinions of audiences (Rogers, 2003). Information will move through the opinion leader communication system in two stages: "the first step is the transfer of information from the media source to opinion leaders; the second step is the spread of interpersonal influence from opinion leaders to their followers" (Rogers, 2003: 304). Because the interpersonal network is thought to be crucial for the dissemination of innovations in rural societies, field workers have employed the opinion leader strategy in these areas (Chandra, 2003). The development agent's job in this process is to set up an educational opportunity that will take participants from one phase to the next (Oakley & Garforth, 1985). It is not uncommon

for extension agents to employ the opinion leader strategy in rural areas. It is typically noticed, particularly in poor countries, when agricultural development programs are implemented using the two-step flow paradigm (Rogers, 2003).

In agricultural communication, two-step-flow communication and opinion leaders theory are well-known ideas (Kaur, 2022). Interpersonal communication can work better when trying to convince someone to adopt innovations (Rogers, 2003). Experts and DAs acted as a middleman to distribute information to farmers while preserving the content's integrity (Melkote and Steeves, 2015). According to modernization theorists, the LDCs' industrial and technological backwardness caused underdevelopment, therefore top-down communication was expected to be an efficient means for their inhabitants to swiftly assimilate and adapt knowledge and skills from the West (Rogers, 2003).

Opinion leaders are supposed to use their social connections to sway others (Rogers 2003). Mekonnen et al. (2016) shown that social networks have the potential to promote knowledge externalities by influencing individual behavior through member interactions. Individuals' hopes and aspirations are influenced by their experiences as well as those of others in their social network, and they modify their opinions in response to their behavior (Mekonnen et al., 2016).

The extensionists' advice was not as heeded by the Ethiopian agricultural system, and opinion leaders have not been successfully targeted (Matouš & et al., 2013). The contribution of social networks to the adoption of agricultural technologies and the enhancement of farm productivity is largely disregarded in Ethiopian agriculture (Mekonnen et al., 2016).

2.5.4.Participatory theory and models

Scholars from the third world who were active in the field of development communication in the 1970s advocated for the participatory method. The modernization paradigm was criticized by chronologically participatory theory as it developed. progress and industrial progress are combined in the concept of modernization, and total gross income is calculated on a large scale (Rogers, 1976). The pace of economic growth and the increase in material output are the main foci of the measurement. In contrast to

modernization theory, the participatory method acknowledges the reality of a given society and understands the context in which it exists. People's cultures are not seen as development roadblocks in participative theory. Development efforts must therefore be contextualized and truly involve all stakeholders. "Development is a complex, multidimensional and dialectic process that had no universal recipe" (Cambridge, 2007, p. 185).

The inclusion of participatory theory's approach is one of the primary differences between it and modernity. Participation is necessary to organize individuals and assist them in being involved in development initiatives. Involvement at the grassroots level is crucial in order to promote genuine interaction among stakeholders, which is the essence of participation. Development communication, as defined by FAO (1987), is the methodical application of suitable communication channels and strategies to boost public involvement in development initiatives. Effective involvement fosters commitment, comprehension, and connection—all of which lead to synergies, without which communication is useless (FAO, 2006). The ultimate purpose of development communication is, thus, to improve population quality of life, including income and well-being, as implied by participatory theory.

In addition to stimulating locals, empowering the community, fostering a feeling of ownership, and improving decision-making capacity, the participatory approach recognizes the significance of interpersonal communication channels in the development decision-making process (Chandra, 2004; FAO, 2005; Servaes, 2002). Participatory communication's nature enables people to change their perspectives, uncover underlying attitudes and conventional wisdom, and gain new information and abilities for greater success (FAO, 2005; Servaes, 2002). To empower people to experience change, better outcomes necessitate the use of organized communication strategies, events, and media (Getahun, 2020; FAO, 2005). In this context, stakeholder identification and program design are aided by participatory communication (Kaur, 2022). It disseminates fresh social messages to broad audiences and enhances communication between all societal segments, encouraging individuals to participate more actively in decision-making and establishing legitimacy (Zikargae et al., 2022; Sylvester, 2016). In order to identify

existing knowledge, incorporate indigenous knowledge into initiatives, and develop the local community, DAs and agricultural professionals should approach farm activities through participatory communication (Sylvester, 2016; FAO, 2003; Van den Ban & Hawkins, 1996). Above all, one of the primary objectives of agricultural operations is to mobilize rural community to achieve certain development programs through authentic involvement (Zikargae et al., 2022; Mefalopulos, 2008; FAO, 2005). Reputable interventions and decision-making processes raise important questions to improve their standard of living (Norton, 2020).

According to recent research, development communication is an essential strategy that needs to be planned in order to establish the conditions necessary to achieve development objectives. According to Servaes (2002), integrated, multidimensional, and dialectic approaches toward development become more acceptable and usable than traditional, top-down, one-way, and centralized development communication tactics in an environment with a high concentration of complicated situations. In this instance, communication would be two-way and participatory, with the goal of achieving mutual understanding between the communicators (Fiske, 2004). Bordenave (1976) explained that communication is made up of several interconnected factors as well as multivariable elements. Extension agents would participate in a process of knowledge creation and exchange in order to reach mutual understanding (Rogers, 2003). In development, communication aims to disseminate critical information to the larger community over time and through a variety of channels so that they can eventually reap the benefits. The strategy requires a thoughtful, naturally inclusive communication intervention. According to Servaes (2002), a high degree of community involvement in the development, management, and planning of a communication system is referred to as participation in the system.

The participatory communication approach acknowledges the importance of indigenous knowledge and cultural identity, particularly in the context of development initiatives implemented in underdeveloped nations. According to FAO (2005), Chandra (2004), Servaes (2002), and others, the participatory method recognizes from the outset the significance of local communities' cultural identity, democratization, and involvement at

all levels. Consequently, participatory communication is a mutual understanding and shared meaning between individuals; unlike persuasion, which is media-centered, it takes a human-centered approach (Chandra, 2004). The participative method takes into account indigenous knowledge and people's demands in a comprehensive way. Enhancing the relationship between extension workers and the community and recognizing, valuing, and using farmers' traditional knowledge are critical to the success of development initiatives (FAO 2003). A greater degree of public involvement in the communication system is provided by the participatory communication model, which involves the public in the management, planning, and production processes of communication systems (Servaes, 2002).

Participatory communication models include, among other things, the importance of local communities' cultural identities and needs, the promotion of indigenous knowledge, the development of a sense of ownership, the application of the appropriate mindset to development projects, and the provision of an appropriate decision-making process for development (FAO, 2005; Chandra, 2004; Servaes, 2002). According to Paolo, "empowered participation" allows "relevant stakeholders to take part throughout the whole cycle of the development initiative and have an equal influence on the decision-making process" (2008:52). According to the participative paradigm, communication is therefore more than just information transfer. Rather, it is a process of generating and fostering comprehension as the cornerstone of growth. Participatory communication has been suggested by numerous academics for various development activities, particularly in the agricultural sector, owing to its inclusiveness (Kaur, 2022; Getahun, 2020; Kurtzo et al., 2016; FAO, 2005; Chandra, 2004; Servaes, 2002).

2.5.5.The Multiplicity approach

One characteristic of vigorous/vibrant development communication is participation in multiplicity theory; communicators share ideas and exchange knowledge through two-way communication (Sylvester, 2016). According to multiplicity theory, open communication and a high degree of engagement are essential (Ilu & Olawale 2014; Tufte & Mefalopulos 2009). It emphasizes grassroots communication, starting with the requirements of the recipients (Finaly, 2008). The emphasis is on structural modifications

resulting from the bottom-up development communication strategy (Ilu & Olawale 2014). The fundamental idea here is that development communication should ultimately empower self-reliance as it is an essential process that encompasses basic necessities (Ilu & Olawale 2014). Development is supported by cultural identity and multidimensionality (Servaes, 2002). Every stage of development would require each community to take part in the communication process (Melkote & Steeves, 2015). With this method, the community can bring forward issues, engage in heated discussion, and come to a consensus (Servaes, 2002).

Giving the community a chance to exchange indigenous knowledge is another important component of the multiplicity approach. Indigenous knowledge is distinct and easily customized to the requirements and conditions of the local community (FAO, 2003). Indigenous knowledge empowers the community, offers valuable input, and fosters local understanding and information systems (FAO, 2003). The steps required in this theory are diagnosis, planning, interventions, and assessment; all of these steps are carried out using the participatory development communication model (Sylvester, 2016). The multiplicity approach talks about the necessity of concept convergence. Scholars acknowledged the need for a more thorough understanding of development communication notwithstanding the multiplicity of origins. It seems that there is some consensus on the best ways to use communication to advance social and economic development when we look at the trends in fields like nutrition, health, agriculture, and the environment, as well as the strategies employed by key sponsors and stakeholders. Professionals have come to the realization that in order to raise the standard of living in underdeveloped nations, a variety of tactics are required. There is a growing consensus that multiple procedures are appropriate in different situations to address different challenges and goals, rather than advocating for particular theories and methodologies despite obvious limitations. For example, Flay and Burton (1990) state that a lot of the current thinking is that effective interventions integrate media channels and interpersonal contact in the case of media use. It is proposed that the key to a successful intervention is the fusion of interpersonal and media channels. The key takeaway from these essential interactions is that academics within each paradigm have persisted in highlighting the significance of the strategy they have suggested. However, they also acknowledged some

of the fallacies in their methods at the same time. It's crucial to consider what Inagaki (2007:5) says in relation to this. According to him, there have been significant changes to "models and theories of development communication," but these changes "did not follow a simple, unilinear evolution," and new theories "were characterized by parallel development and convergence of divergent approaches" rather than supplanting outdated ones. Therefore, to solve the current issues, a more inclusive and collaborative strategy is required. Therefore, it has been suggested that communication be two-way (horizontal) in addition to vertical (top-down). During project design and execution, media and interpersonal communication should be integrated; media should be decentralized and available to communities; and technology and know-how should be tailored to the sociocultural contexts in which communities exist. It was also suggested that communities should be given the authority to take charge of their own development and be self-sufficient, and that development ought to be planned as a long-term as well as short-term social transformation (Flay and Burton, 1990).

2.6.**Agricultural Production in Ethiopia**

Ethiopia's persistent food insecurity is one of the factors motivating it to increase agricultural productivity. Ethiopia has developed methods and development initiatives to achieve its food self-sufficiency objectives. The administration of the agriculture sector suggests holistic socioeconomic development as a means of addressing the nation's challenges. The government and a number of organizations are working together to accomplish shared objectives in the agriculture sector. Even though the outcomes don't entirely meet the needs of the country, these diverse efforts have helped bring about changes in a number of sectors (Mekonnen et al., 2016). The government is also placing a strong emphasis on extension communication to help increase agricultural output (Alemu, 2017).

Ethiopia is still moving slowly in the direction of independence. Schneider & Anderson (2010) state that Ethiopia's agricultural output has consistently fallen well short of both the average yields in East Africa and the world. Furthermore, as reported by Matouš et al. (2013), the country continues to rely on food help. Since the 1950s, a lot of extension initiatives have been put in place to keep agricultural output and productivity stable, but

as Gebremedhin and Swinton pointed out in Mekonnen et al. (2016), they haven't exactly been effective. A carefully thought-out communication intervention would help farming operations become a reality (Servaes, 2002). Unfortunately, Matou et al. (2013) have found that poor communication strategies are the main reason Ethiopian farmers are not implementing new methods, which leads to reduced cereal yields.

2.7.**Practices of Agricultural Extension in Ethiopia**

Using communication theories and techniques to increase agricultural output is known as agricultural extension (Oakley & Garforth, 1985). It is commonly known that employing efficient communication techniques enhances agricultural output (NAEP, 2001). In addition to using individual extension communication techniques, extension agents can also use group methods. Common approaches for group extension include field trips, field discussions, demonstrations, and tours (Oakley & Garforth, 1985). The best approaches can be chosen and implemented based on a number of variables. The best extension methods/approaches depend on the kind of message, the context, the specific aims, the client's capacity, and their level of understanding. In any case, the majority of academics think that the participatory model of communication is the most suitable one for enhancing crop productivity and subsequently satisfying Ethiopia's rapidly expanding population's need for food (AESE, 2017; Sylvester, 2016; Tsedeke, 2006).

Numerous scholars have described and reinterpreted communication from various angles. Fiske (2004) is one scholar who presents two viewpoints on communication. According to him, there are two types of communication: meaning exchange production and message conveyance. Using either category can help us comprehend the idea more clearly. The precision and efficacy of a message are crucial elements to take into account before sending it. It touches on the sender's perspective and the communication path, but it doesn't address the importance of two-way communication. According to this theory, communication primarily consists of senders and recipients encoding and decoding messages.

It is also evident that many less developed nations have serious concerns about the sustainability of agricultural output. several scholars have conducted several

investigations on agriculture, resulting in the development of cutting-edge instruments, seed types, fertilizers, irrigation plans, methods for conserving soil and water, etc. (Tenkir & et al., 2006; Gezahegn, & et al., 2006). While all are necessary, users cannot access any of them. The availability of these new helpful advancements to users may be hampered by a number of factors. The degree to which communities were empowered to engage in development activities was one of the issues raised by academics. Providing the farming community with complete services is the primary objective of Ethiopia's agricultural extension program (AESE, 2017).

Despite its vast capacity for irrigation and energy supplies, human power or working population, and rich agricultural land, Ethiopia's agricultural productivity is inadequate. Food aid is given to the nation annually (Matouš et al., 2013). One aspect that sets Ethiopian agriculture apart is its low productivity (Mekonnen et al., 2016). Ethiopia has long employed agricultural extension initiatives to increase agricultural production by providing agricultural inputs, new research findings, professional technical assistance, and so on.

Thus, in order for development activities to be successful, it is imperative that appropriate communication strategies be implemented when providing extension services (Moemeka, 1994). Empirical research indicates that the implementation of development initiatives can be facilitated by a well-crafted and organized communication model (Servaes, 2002). It has been confirmed, therefore, that the absence of a successful communication plan is the main barrier preventing Ethiopian farmers from using new techniques (Matouš et al., 2013). The presence of mutual understanding between communicators over a certain topic or issue can be used to determine the success of communication. A measure of agricultural communication efficacy is the farmers' perspectives on the subjects of their interactions with DAs. The adoption of innovations by farmers can provide insight into the efficacy of communication. The degree to which farmers adopt new technologies can tell us something about the effectiveness of communication.

One reason for the low yield of cereals is poor communication. With careful planning and thoughtful creation of communication strategies, an extension agent can create a shared knowledge of the rural population's realities when it comes to carrying out agricultural

activities. The participative approach is the most workable plan for obtaining sufficient food production to support Ethiopia's quickly growing population, claims Tsedeke (2006). Therefore, the main goal of intervention in the agricultural sector is to increase farmer production through the use of a participatory strategy. The use of improved seed varieties and the use of fertilizers are essential components of the purpose of extension communication in Ethiopia, according to Tenkir et al. (2006) and Gezahegn et al. (2006). Food production, however, is still considerably below the rate of the nation's rapid population expansion. Lower crop output would result from a less successful extension communication approach since it would not allow farmers to fully engage. Actually, centralized, top-down approaches to development communication that exclude local community involvement have not produced sustainable rural development (FAO, 2003).

Adoption of new practices by Ethiopian farmers is hampered mostly by a lack of a proper communication strategy. It is a factor in the low productivity of grains (Gerba, 2018; Matouš et al., 2013). As being confirmed by several researchers, top-down communication strategy hindered the Ethiopian agricultural system's acceptance of innovations and ideas (Tegene et al., 2023; Matouš, & et al., 2013; Tadesse, 2010; Belay, 2003). The same is true: there is insufficient communication between researchers and farmers to effectively introduce new technology and discoveries (Sewnet et al., 2016; Kelemework & Kassa, 2006). One of the factors cited in the strategy is the inadequate attention paid to farmers' needs and priorities when creating research agendas and developing extension packages (EATA, 2018; AESE, 2017).

The medium itself is the second most important concept about the extension. Agricultural extension is implemented via channels of communication. Knowledge and extension services can be shared in person, through groups, and through the media (print, radio, TV, and internet). The most quick and effective way to introduce innovation to a group of potential adopters is through the creation of awareness through the mass media, which may help reach many individuals with the same information at once (Rogers, 2003). The mass media, which includes radio, television, movies, newspapers, booklets, brochures, posters, and the Internet, may spread new ideas to farmers more quickly and are crucial for many interventions (Chandra, 2004).

Increased information accessibility through media use in agriculture could encourage knowledge exchange (Kaur, 2022). In poor nations, agricultural extension could go more quickly with the right use of mass media (Mgbakor et al., 2013). Khan et al. (2020) assert that the media plays a pivotal role in stimulating farmers' curiosity about cutting-edge concepts and techniques. In connection with media, ICTs make it easier to create, manage, store, retrieve, and share pertinent knowledge, information, and data—some of which may have already undergone processing and adaptation (Ajani, 2014). Since there are physical distances and limited means of transportation for farmers and researchers to travel, the Ethiopian agricultural system depends heavily on the mass media, particularly ICTs, to provide agricultural extension services. However, there is a lackluster use of ICTs and mass media for agricultural communication (Dereje & Ejiro, 2015). In Ethiopia, encouraging sustainable livelihoods and lowering rural poverty depend on producing new agricultural knowledge and information and making it accessible to smallholder farmers (Dereje & Ejiro, 2015).

Smallholder farmers and other practitioners can quickly access knowledge and information in the Ethiopian agricultural system when it is appropriately documented and managed (EATA, 2018). In connection with this reality, it has been reported that there is inadequate use of technology and restricted access to enhanced agricultural technologies, knowledge, and information (EATA, 2018). ICTs are spreading quickly and have the potential to help farmers obtain information, but their sustainability is under threat, particularly in rural areas where poverty is more common. According to Ajani (2014) and May et al. (2007), some variables include accessibility combined with affordability, ease of use, cost, sociability, and availability of pertinent and localized content in appropriate language. According to FAO (2006), as reported in Ajani, radio, television, and newspapers are the main sources of information in sub-Saharan Africa. Mobile phone technologies have spread quickly in the recent past. Nonetheless, there is a severe lack of ICT literacy among farmers in the subregion. Furthermore, rural communities have weak Internet connectivity (Ajani, 2014). Numerous reasons contribute to the present extension system's weakness. The foundations are the restricted use of ICTs and communication mediums, as well as the poor coordination and linkage among participants in research and extension systems (EATA, 2018).

2.8.**Agricultural Communication and the Role of Extension Agents**

Farmers receive knowledge through a process known as agricultural communication. To guide and assist this process, an extension agent maintains close contact with farmers and their families while working at the program and project level (or, in Ethiopia, the kebele level) (Oakley & Garforth, 1985). Agricultural communication encompasses all communication levels, while interpersonal communication has gotten a lot more attention than other communication types. This concept essentially relates to specialists in agricultural extension. Extension agents play a key role in raising awareness of issues in rural communities, gaining knowledge and understanding of issues, organizing farmers' preexisting knowledge, obtaining specialized knowledge about particular issues, acting on potential alternatives, carrying out their decisions, and enhancing their ability to make decisions (Oakley & Garforth, 1985). According to Norton (2020) and Mefalopulos (2008), agricultural communication is an intervention that employs communication as a tool to bring about change.

Development agents are one of the many ways that governmental and non-governmental organizations connect with rural areas. The people in charge of this activity go by a number of titles, such as development agents, extension workers, and agents. In their day-to-day lives, extension professionals can help farmers make decisions and take action. They are skilled experts who have access to up-to-date knowledge and training. Extension agents are proficient speakers. Their main duty is to put effective communication plans into action. This might foster an open atmosphere where people talk about various farming methods and share ideas. As a result, communication agents are strongly advised to use a participative communication strategy (FAO, 2005; Chandra, 2004; Servaes, 2002).

The goal of extension services, according to NAEP (2001), is to educate extension clients so they can become more technologically and organizationally proficient and use resources more effectively. If so, extension clients can benefit greatly from that in terms of production. Therefore, working with rural people to improve their livelihoods is what extension service entails. The practice of transferring information to farm families through a variety of channels is known as rural extension. This technique involves direct

interaction with farmers and their families and is typically led and assisted by a development agent (Oakley & Garforth, 1985).

Knowledge of the environment and the farming system, technical guidance and information, drive and self-assurance, initiative and bravery are all included in agricultural communication (Kaur, 2022; AESE, 2017; Oakley & Garforth, 1985). Agricultural communication's primary characteristic is that it encourages two-way communication. Extension agents share ideas and knowledge with farmers, and vice versa. Agricultural communication is a conversational process that seeks to help farmers find solutions to their problems and ultimately raise their standard of living, according to Getahun (2020) and Oakley & Garforth (1985). Communication channels are used to carry it out. Interpersonal contacts, group communication, demonstration, training, folk media, mainstream media, and ICT are all used to spread information and extension services.

As observed by Matou et al. (2013), the Ethiopian extension system has been identified as a top-down structure while utilizing a participatory technique that would yield outcomes. The Ethiopian expansion policy was followed, assigning three development agents to every kebele. Each specializes in something specific, usually in natural resources, animals, or crops. A Farmer Training Center (FTC) is another facility located in every kebele (AESE, 2017). FTC was constructed with the intention of offering both training and demonstration. On the other hand, the great majority of the FTC is not functioning properly. Many are inadequately developed and lack the necessary instruments (AESE, 2017).

Development agents (DAs), who are stationed in each kebele—the nation's lowest administrative level—are primarily responsible for carrying out the communication process in the Ethiopian agricultural system (AESE, 2017). DAs are essential for informing farmers about new developments and technologies (AESE, 2017); convincing people to embrace new ideas requires an interpersonal channel (Rogers, 2003). ATVETs trained and graduated at least three DAs in three distinct disciplines, and they were assigned to function as the service provider and communicator for a remote community. The rural community receives agricultural information, training, demonstration, and

related skills from FTC. The Ethiopian agricultural extension system is primarily dependent on farmers' technical consultants (FTCs) and trained development agents to provide farmers with extension help, according to the Ministry of Agriculture's policy (AESE, 2017). It is anticipated that FTC will serve as a point of entry for effective and efficient extension services and communication.

Moreover, FTCs will function as hubs for knowledge and information sharing as well as centers for advocating best practices (AESE, 2017). Their dossier, however, confirms the FTC's subpar performance (however, their document attests that FTC performs poorly). The primary cause is farmers' insufficient participation in FTC administration. Furthermore, one of the other reasons listed in the plan is the lack of attention paid to farmers' needs and goals when developing research agendas and extension packages (AESE, 2017). Farmers view FTCs as government agencies rather than their own because of a lack of understanding, confusion about the main benefit of FTCs, and the use of FTCs for non-extension activities. Many FTCs have stayed inactive as a result of these factors (AESE, 2017).

Figure 1 FTC, Lebu Koromo kebele, Hawassa Zuria Woreda

In rural communities, especially in Third World nations, house-to-house visits are one of the most popular modes of communication (AESE, 2017; Oakley & Garforth, 1985). Extension agents have the option to use both individual and group extension communication techniques. Different target communities, procedures, objectives, and development strategies will all be present (Nyakuni et al., 2001). In Ethiopian agricultural communication, interpersonal and group communications are essential (Gebreyesus, 2014; Tadesse, 2010). They enable farmers to actively engage in the process as well as receive personalized assistance from researchers and development agents in person.

Experts operating at the woreda level are instantly placed as development agents' supervisors by Ethiopia's bureaucratic framework. Either top to bottom (from woreda experts to DAs) or bottom to up (from DAs to woreda experts) is how information is communicated. Ethiopia mostly has a top-down information flow hierarchy (Ayalew &

Abebe, 2017; Godana, 2014). Because they are more intact from their regular interactions with farmers in the field, Woreda's experts play a role in facilitating the extension service (ATA, 2017). In the past, farmers at the bottom of the communication chain were notably disregarded (Godana, 2014; Fraser & Restrepo-Estrada 1998), despite the introduction of a number of initiatives by the Ethiopian Ministry of Agriculture (ATA, 2017). This sizable portion of Ethiopians—85% of the total—rely heavily on agriculture for their livelihood. Insufficient agricultural production is produced to feed the world continuously (Schneider & Anderson, 2010; Mekonnen et al., 2016). Although their involvement in the Ethiopian agricultural extension system has been restricted to obtaining knowledge and innovations, rural communities are the primary stakeholders (Van den Ban & Hawkins, 1996; Ayalew & Abebe, 2017; Davis & et al., 2010).

2.9.**Channels of Communication in Agricultural Extension**

Agricultural extension is the process of providing information to farm families through a variety of means, as described by Oakley & Garforth (1985). Extension professionals frequently talk with farmers about topics that are pertinent to their daily lives. There needs to be a good route for communication open. In rural areas, for example, one of the most common forms of communication is the home-to-home visit. A deeper comprehension of the problems among the communicators would result from interpersonal communication. In order to reach a rural community and spark immediate interest in farming advances, mass media are also essential (Oakley & Garforth, 1985). But unlike extension agents, the mass media is not able to effectively communicate messages or job activities.

Opinion leaders and the two-step-flow communication model are ideas that support development initiatives related to agriculture and other fields. Mass media is the most efficient and quick means to spread information about new developments in this field. Interpersonal channels, on the other hand, have a greater ability to influence someone to accept innovations (Rogers, 2003). DAs can use the opinion leader strategy in interpersonal networks to disseminate innovations to wider communities. It is anticipated that opinion leaders will use their social connections to sway other farmers (Rogers 2003). Mekonnen et al. (2016) shown that social networks have the potential to enable

knowledge externalities, which are the results of interactions between members of the network and have an impact on individual behavior. People update their ideas because their behavior, goals, and expectations are affected not only by their own experience but also by the experiences of others in their network, according to Ray (2006), as stated in Mekonnen & et al. (2016). In this regard, Matouš, & et al. (2013) noted in their study that people with a wealth of connections and information sources tend to be less aware of the agenda of extensionists. They pointed out that Ethiopia has not properly used opinion leader targeting (Matouš, & et al., 2013). The similar conclusion was drawn from research by Mekonnen et al. (2016), who claimed that social networks play a significant role in Ethiopian agriculture's adoption of agricultural innovations and enhancement of farm productivity.

2.10.**Medium of Language in Agricultural Communication**

One of the most crucial aspects of agricultural communication is language. Language is a tool that helps achieve the intended result; for the rural population to understand the topic easily and meaningfully, it must be plain and concise (Betty, 2013). The goal of communication with the farming community is to come to a shared understanding of matters pertaining to their way of life. The appropriate use of language by DAs and experts is a primary problem in development efforts within the farming community. Speaking with rural residents in their own tongue fosters good, engaging interactions and facilitates easier community understanding of problems (FAO, 2007).

Additionally, individuals feel more at ease when concerns pertaining to their daily activities are discussed in terms they can comprehend. When members of the community converse in their native tongue, it would be easier to establish trust (Betty, 2013). Numerous academics witness that there has been improvement in Ethiopia in using the local language as a medium in various communication channels and instruments (Gebreyesus, 2014). The simplicity of terms used in communication with the rural community is the other language-related problem. It is best to avoid using jargon when speaking; if not, the explanation must make sure the community understands the subject matter completely (Gebreyesus, 2014).

2.11. **Use of ICT in the Ethiopian Agricultural Extension System**

ICTs, or information and communication technologies, are increasingly used to assist with agricultural extension programs. ICTs in agriculture may improve access to information that promotes or facilitates knowledge sharing. It is simpler to create, manage, store, retrieve, and distribute any relevant data, knowledge, and information that may have been amended and processed in the past when ICTs are used (Ajani, 2014). According to Kenny, who was quoted in May et al. (2007), ICT can potentially lower poverty and enhance livelihoods by giving users access to timely knowledge, lower transaction costs, and the right skills to boost production. FAO lists five ICT-related functions: community development, research and education, small and medium enterprise development, media networks, and technical and economic development for agricultural producers (Ajani, 2014). ICT applications in this field include actions for effective resource management, including animal movement laws, as well as relevant knowledge that might be supplied to farmers on how to utilize chemicals, fertilizers, herbicides, and pesticides (Ajani 2014).

ICT would be useful and efficient in extension service, according to Derso & Ejiro (2015), in a situation where extension agents find it difficult to establish direct contact with farmers and researchers because of the physical distances involved and the lack of transportation required for their mobility. In this specific ICT era, their study demonstrated the value of communication for development; they pointed out that, in order to provide effective and efficient service delivery, research organizations and extension services must be suitably supported by ICTs. Farmers require fundamental information on market prices, weather forecasts, storage and transportation alternatives, livestock and crop illnesses, and general agricultural guidance when it comes to ICT, according to the Forum for Agricultural Research in Africa (FARA). According to Dereje and Ejiro (2015), the information can be sent via SMS, phone, web site, and call center.

A vital tool for sharing agricultural knowledge has been the Internet (Dereje & Ejiro, 2015). They claimed that giving the farming community access to relevant information improves output and raises profits. According to them, in order to promote sustainable livelihoods and reduce rural poverty in Ethiopia, it is crucial to generate novel

agricultural knowledge and information and make it available to smallholder farmers there (Dereje & Ejiro, 2015). The Internet has a lot of advantages, but how it is used in Ethiopia, how it is packaged and presented, who can access it, and other relevant factors are important factors that show how ICT is currently used for agriculture in Ethiopia. According to AESE (2017), knowledge and information may be efficiently disseminated to smallholder farmers and other practitioners when it is organized appropriately. ICT can help reduce food insecurity and boost crop productivity if it is applied properly. In order to create, gather, store, and provide specialized services for every farming community, AESE claims that effective agricultural knowledge and information management necessitates robust institutions, facilities, infrastructure, and qualified people resources (2017). It has been reported that there is low technology use and restricted access to enhance agricultural knowledge, information, and technologies, which has an impact on the efficacy of ICT-based extension services (EATA, 2018; AESE, 2017). In addition, the sustainability of ICTs is in jeopardy, especially in rural areas where poverty is more prevalent, despite their rapid acceptance and potential to facilitate farmers' access to information. Those criteria include cost, sociability, accessibility and affordability, convenience of use, and the availability of relevant and localized material in the right language (Ajani, 2014; May et al., 2007).

In sub-Saharan Africa, radio, television, and newspapers are the main sources of information (Ajani, 2014). Mobile phone technologies have spread quickly in the recent past. Nonetheless, there is a severe lack of ICT literacy among farmers in the subregion. Furthermore, rural communities have weak Internet connectivity (Ajani, 2014). Numerous reasons contribute to the present extension system's weakness. Among the pillars are the restricted use of ICTs and communication media, as well as the poor coordination and linkage amongst the actors in the research and extension system (AESE, 2017).

2.12.**The Challenge of Extension Practices in Ethiopia**

Ethiopia has been implementing participatory extension approaches to improve the lives of rural communities for a long time. Tsedeke (2006) claims that the participatory approach has been viewed as a way to ensure an adequate supply of food to satisfy the

demands of the world's fastest-growing population. Programs for agricultural extension are usually connected to ideas that boost farmers' output. The main objectives of extension communication in Ethiopia include the use of fertilizers and improved seed varieties (Tenkir & et al., 2006; Gezahegn et al., 2006). It has been confirmed that the primary obstacle to Ethiopian farmers adopting new methods is typically believed to be a lack of an appropriate communication strategy. The Ethiopian extension system's top-down structure is the reason behind this (Matouš et al., 2013). Furthermore, non-extension services have taken up a large portion of extension agents' routine activities (Gebreyesus, 2014). In addition to frequent droughts, depleting natural resources, exorbitant input costs, and an unorganized market structure, low agricultural productivity was caused by a lack of technological opportunities (Asmelash et al., 2022; Belay, 2003).

Current empirical research in underdeveloped countries, according to Kassa and Alemu (2017), has shown weak links between research and extension because of actors' limited understanding of crucial new technologies and information flow issues. Ethiopia's research and agricultural extension system is typified by a fragmented and underdeveloped foundation for innovation. As a result, research findings wind up in research center files rather than reaching farmers. Rather, research and extension must take place within interconnected, overlapping, and dynamic processes (Tilaye & Daniel, 2016). Wasihun (2022) asserts that a strong link between agricultural research and extension institutions is needed to mitigate Ethiopian agriculture's low production. Ethiopian extension implementation has to be more reliable and high-quality, and system operators need to coordinate and build links with one another (EATA, 2017). To increase the vibrant and dynamic contacts between extension service providers and researchers, it is imperative to create and maintain long-lasting and influential platforms that facilitate more crucial collaboration, information exchange, and feedback mechanisms (EATA, 2017).

DAs are crucial in giving farmers access to agricultural services, expertise, and data. This project is hard and takes a lot of motivation even on its own (EATE, 2017). Another problem facing Ethiopia's extension system is increased turnover due to a decrease in the incentive for developing agents. The requirement for extension agents to operate in

demanding situations and be removed from an urban lifestyle is one factor that contributes (Yalemzewd, 2020). DAs are compelled to go great distances on foot every time due to a lack of transit infrastructure (Yalemzewd, 2020). DAs also require better pay, greater educational opportunities, and more basic office space. These factors have an effect on their motivation to work toward and assist smallholder farmers in building better futures (Yalemzewd, 2020).

The issues surrounding the difficulties of agricultural extension in Ethiopia are mostly related to the availability and accessibility of media, especially the Internet. It is not frequently used because of its limited accessibility, low literacy rates, and low competence levels (EATE, 2017). Ethiopia's ICT is not widely accessible and is not well adapted to improve agricultural knowledge, information, and technology, according to EATE (2017), May et al. (2007), and Ajani (2014). The insufficient digital communication infrastructure based on ICT and the media makes it difficult to improve the administration and accessibility of agricultural knowledge and information (EATA, 2017). Ethiopian agricultural extension workers must have access to more current and relevant information in order to advise smallholder farmers and producers more effectively (Birke et al., 2016). Obtaining current and pertinent information from the Ethiopian Extension Service is a challenge for extension workers working in rural Ethiopia (Birke et al., 2016). Furthermore, Attending agricultural programs and utilizing the media to spread agricultural issues are poor (Gulte, 2021).

2.13.Conceptual Framework

When speaking with farmers, agriculture and development experts need to address certain analytical techniques and theoretical underpinnings for their applicability concerns. The subject of this study is approached using the following ideas.

2.13.1.Participatory communication

According to Tufte and Mefalopulos (2009), scholars generally recommend the interactive communication strategy as the most suitable. One acknowledgement of participatory communication in development efforts is that it looks at a variety of issues and places a focus on people (Melkote & Steeves, 2015). Moreover, its inclusive

character renders it suitable and permissible for numerous developmental endeavors, especially in developing nations (Awa, 1996). In light of this, the Ethiopian Agricultural Extension Strategy makes clear that true engagement in discourse and conversation is the primary means of communication in the agricultural sector. Moreover, the images mandate that MoAs, agricultural experts operating at all levels of agricultural offices, and DAs operating at the kebele level rigorously follow a participatory communication method (AESE, 2017).

Using a participatory approach could contribute to higher agricultural yields. A true participation-based approach to communication would enable the communicators to reach a consensus or shared understanding. In actuality, not all farmers may agree to accept all suggestions and information made by DAs consistently in their interactions with them (Rogers, 2003). Conversely, the communicators feel more at ease when they address matters of concern using the participatory approach. Information sharing and horizontal contact are essential components of communication for development (Tufte & Mefalopulos, 2009). With a high degree of public participation in the communication process, discussion and discourse are crucial components of the participatory approach, which allows one to perceive a variety of community issues (Servaes, 2002; Paolo, 2003).

2.13.2.Agents' confidence in communicating with farmers

Being confident when speaking is essential. When it comes to agricultural communication, farmers should receive information that is unambiguous and straightforward. DAs must gain confidence in order to speak succinctly with farmers. DAs can interact with farmers effectively and communicate with clarity when they are confident. One of the critical elements of development communication is the capacity to share information successfully. Information is mostly exchanged within and between rural communities through agricultural communication. DAs are important communication components that frequently deal with farmers in the Ethiopian environment. When DAs connect with farmers, their main duty is to use communication as a tool to bring about change. As a result, communication's function is to assist farmers in gaining knowledge and understanding of the issues. According to NAEP (2001), DAs should prioritize giving farmers relevant information, helping them understand how

resources are used, and implementing technical advancements. Stronger and more courageous to seek out answers to issues, communicators with confidence in their abilities are (Azmandian, 2010). DAs in the agricultural community, in particular, must have confidence in their ability to overcome both ideal and real-world obstacles in their workplace.

2.13.3.Information-seeking behavior of agents

Since the information we share is constantly changing, information-seeking behavior is unstoppable (Padmvati, 2018). When it comes to matters of agricultural communication, in particular, DAs should be very information-seeking. It is critical to understand how DAs seek out novel concepts, scientific discoveries, and solutions to issues. DAs must possess the most recent information and expertise in order to interact with farmers. Nobody can become knowledgeable without working for it; even non-professional actors, like development actors, require a certain degree of proficiency to communicate and share everyday information with their peers. Information-seeking behavior becomes crucial in this context when communication is linked to professionalism, as it is with DAs, as the information they get may influence how they interact with farmers. Therefore, DAs must continuously seek out current information and upgrade their knowledge status in order to build communication confidence. Information sources should be readily available and accessible by stakeholders.

2.13.4.Availability of training and experience sharing

DAs' knowledge and abilities are enhanced by experience exchange and on-the-job training. As time goes on, DAs must upgrade their degree of knowledge. DAs would notice changes and advances in their profession if training and experience sharing on their subject matter were available. Furthermore, DAS ought to receive on-the-job training on efficient communication techniques and how to deliver agricultural services. In order to improve DAs' current level of expertise, providing training and experience exchange for agricultural production is definitely important (AESE, 2017). Because knowledge is advancing so quickly, agricultural practices change depending on the location. It is strongly advised to click on the DAs' mindsets to see the distinctions and advancements that exist on the other side of agricultural capabilities. Thus, ongoing,

relevant, and beneficial training as well as experience-sharing sessions at different levels are necessary for agricultural professionals, especially DAs (AESE, 2017). It is therefore very important to pay attention to the sharing of experiences and the provision of training.

2.13.5.Communication methods in the extension system

Conversations can be continued through several means. Mass media or one-on-one group communication could be used for it (AEST, 2017). Through interpersonal or one-to-one communication, whether in person or over other means like the phone, DA visits certain farms. Farmers can learn and share information through in-group activities such as field visits, farmers' days, demonstrations, and experience-sharing tours (Oakley & Garforth, 1985). Through in-group activities like field trips, farmers' days, talks, and tours that share experiences, farmers can acquire knowledge and impart it to others (Oakley & Garforth, 1985). Mass media, particularly the Internet, can be utilized as a communication tool in extension communication systems to disseminate important information to the farming community. Mass media are vital because of their ability to concurrently disseminate information to a sizable segment of society. As a vehicle for communication, the mass media helps increase public awareness of new ideas, which in turn piques interest in agricultural innovations (Oakley & Garforth, 1985). Choosing a communication method might be influenced by various factors. Based on the situation, goals, message type, social education level, etc., the best communication strategies are selected (Nyakuni et al., 2001). Every location and situation has a different communication strategy that depends on the environment, the message being communicated, and the communication's goal. In agricultural communication, communication strategies are essential for disseminating information and providing the community with agricultural services. Farmers and DAs usually interact with one another in person or in groups through physical contact.

2.13.6.Agents' relationship with farmers

One's perception of oneself is either favorable or negative. Though negative personalities can lead them to act or think haphazardly, positive personalities are more inclined to act

and think confidently. A person's communication style and ability to connect with others may be influenced by how they view themselves. One of the things that affects interpersonal communication is one's perception of oneself. A person's perception of themselves has an impact on the relationships they have with other people (Sampthirao, 2016). The same holds true for DAs' self-perceptions; they need to work on developing a good self-image and exude confidence when speaking as effectively as possible with the farming community.

2.13.7.Research linkage

DAs offer technical concerns, supply inputs to improve agricultural productivity, and disseminate information and innovations created by agricultural research centers or institutions. In keeping with this idea, research organizations ought to incorporate farmers and DAs in their studies. When stakeholders are involved, research efforts can be linked to the fundamental requirements of farmers or the most pressing issues affecting agriculture. The relationship between research centers and DAs is weak, and the participation of experts and DAs in farm offices in research initiatives is not up to pace. The relationship between researchers and DAs is shaky, despite the research effort's immense significance (AESE, 2017)..

2.13.8.Agents workload

Being a development agent involves more labor and continuous follow-up, particularly when the goal is to supply farmers with agricultural activities, training, and education (AESE, 2017). It is difficult to accomplish communication and operations pertaining to agriculture. It's a drawn-out process with a defined conclusion; DAs keep sharing knowledge and experience until a significant segment of the farming community is able to understand them and choose whether or not to embrace and utilize them. Nevertheless, DAs keep in frequent contact with farmers to apprise them of developments in the agricultural industry. DAs are faced with a tonne of duties, responsibilities, and tasks. They must make frequent visits to every farmer. DAs need to understand the problems and challenges that farmers confront on a regular basis (AESE, 2017). DAs are expected

to approach farmers appropriately and engage with them in an inclusive manner at the same time.

2.13.9.Access to mass media

Mass media accessibility is necessary to provide critical information to both the general public and targeted social groups. Compared to other media, radio is a more useful medium for disseminating information in rural areas, especially in less developed countries like Ethiopia. Furthermore, listening to the radio does not require literacy. The usage of radio in development communication is growing. Documentary programming can serve as a means of educating the community (Mefalopulos and Kamlongera, 2004). Even if the infrastructure needed for its expansion is costly and does not reach the majority of rural populations, television has several advantages in agricultural communication (FAO, 1984). Mass media can be used for training and awareness-raising initiatives in addition to information distribution (Mefalopulos & Kamlongera, 2004). For instance, audio-visual instruction and demonstration can be provided.

Printed materials are useful in this sense since they provide a detailed explanation of topics. During training, printed materials can be used to show the instructions and steps in precise detail. Agricultural specialists and researchers may rapidly and easily create brochures and pamphlets, which can be used to inform literate farmers and DAs about new information and knowledge. They are easily adjustable and managed to provide exact and important facts. Public messages on agriculture can also be aggressively and successfully conveyed by billboards and posters (Mefalopulos & Kamlongera, 2004). The availability of the Internet and its use are also another essential issues concerning the accessibility of main media. It holds great promise for improving the communication of agriculture and associated concerns. However, due to low requisite talents, low literacy rates, and difficulty of access, it is not being properly utilized. The agricultural community benefits greatly from the accessibility and availability of mass media. Rapid access to large audiences; more accurate and clear delivery of the same agricultural message in a variety of formats; potential for community mobilization; and repeated raising of awareness and development of newly developed viewpoints (Leeuwis and van den Ban, 2004).

2.14.Empirical Studies on Agricultural Extension and Communication

Numerous contexts and perspectives have been used in studies on communication in agriculture. Some focus on how farmers and agricultural agents interact and how their activities impact the efficiency of extension. Some concentrate on productivity and its obstacles. Others focus on the role of agents, job satisfaction, incentives, professionalism, accessibility, mass media use, availability of multiple communication channels, etc.

Gerba (2018) has conducted research on the governance, involvement, and evolution of agricultural extension with a particular focus on the Ethiopian system. This research looks at knowledge generation, applications, agricultural extension, and governance routes using the evolutionary governance theory. His research examines the prospects and difficulties the Ethiopian agricultural extension system encounters. In addition to highlighting the gaps in the agricultural extension system, the study looked into how farmers were informed about new developments in terms of knowledge and technology diffusion. It has been determined that a number of both internal and external constraints limited the government's efforts. The lack of funding and manpower has an impact on the state's approach to rural development initiatives. Being involved in the community is not authentic. The top-down state administration system is how farmer groups are formed. Additionally, his research demonstrated that extension agents are busy with a variety of duties when they provide extension services. Development agents play a role in governance and rural development; the community's perception of DAs was tarnished by their involvement in a number of activities.

With an emphasis on female farmers and young people living in rural areas, another study (Petros et al., 2017) examined the challenges faced by extension services when trying to promote agricultural technologies to farmers. The research examined the steps stakeholders took to improve agricultural production, including whether or not they did so in an environmentally responsible way. It also examined the efforts made within the agricultural extension system with regard to agricultural production. According to the report, institutional agricultural extension services have a solid foundation for the transmission and dissemination of technology since they are only getting started.

However, tackling cross-cutting concerns like gender and the environment presented technological and technical obstacles. The limitations with regard to professionalism were also discovered by this investigation, which revealed that extension agents do not have the necessary training. It has been determined that the farming community was not adequately served by the farmer training facility (FTC). They clarified that many obstacles hinder the current FTCs' ability to effectively disseminate, generate, and transmit to farmers the essential knowledge, skills, and technology. These FTCs are designed to act as hubs of innovation in the studied areas.

In addition, there was little input available, which hindered the extension service. Among the obstacles affecting agriculture were technological responsiveness and timely information. The survey also revealed that stakeholders did not fully participate, and that the extension system was not developed and put into place with the requirements of the farming community in mind. According to the research, smallholder farmers' long-term experiences and current agricultural technology are not climate change-sensitive or environmentally benign. It also discovered a low level of dedication, ineffective technical knowledge, and a high turnover rate among extension workers. The lack of enticing incentives and cultural, economic, and geographic variables meant that women and youth were not given priority by the extension service.

Getahun (2020) conducted a study that examined the potential and obstacles associated with information and communication technology in the context of spreading agricultural knowledge in Ethiopia. It emphasized the value of reaching out to smallholder farmers via ICT-based communication as opposed to relying on expensive agricultural extension personnel systems. It promoted the significance of extending ICTs to provide farmers with a plethora of opportunities to generate, distribute, store, process, interpret, and preserve agricultural knowledge and information. The study found that while ICT availability is expanding in many other sectors, some of the main issues influencing ICT use in rural areas are inadequate ICT-related infrastructure, low ICT literacy, language barriers, and a lack of government initiatives.

A different topic covered by Kassa & Alemu (2017) highlighted difficulties and possibilities for intervention in the connections between agricultural research and

extension. The historical development of Ethiopia's efforts to strengthen the connections between agricultural research and extension was presented by this study. The study revealed that although research-extension linkage has gradually improved recently, there are still a number of obstacles to overcome in terms of development and policy for the desired agricultural transformation. The study came to the conclusion that there has historically been little connection between Ethiopia's agricultural extension and research sectors. The limitations and potentials of different farming systems were not effectively appreciated by research or extension as being essential to identifying worthwhile technologies. The problem has been made worse, according to researchers, by the fact that agricultural research and extension have been carried out by two different entities with little communication or cooperation. They came to the conclusion that the effectiveness of research systems is often assessed based on the recognition it obtains within the scientific community and that research priorities are not in line with the views of farmers or extension workers they interact with.

The other research was conducted by Mossie and Meseret (2015), who focused on strategies for shifting from the existing subsistence orientation to a production system that is oriented toward the market. The market's challenges and the delivery of other services, like rural water supply, are the primary topics of the evaluation. The goal of this article is to demonstrate how extension services are used in relation to overall rural development.

Derso & Ejiro (2015) carried out another related research that examined recently developed agricultural knowledge systems and demonstrated the critical role that ICT plays in Ethiopia's agricultural extension system. The contribution of information and communication technology to Ethiopia's agricultural extension system was the subject of this paper. They noted in their research that there has only been a recent push to include information and communication technologies into the delivery of agricultural extension services. Government organizations have spearheaded the introduction and popularization of information and communication technology systems in agricultural extension service delivery. They came to the conclusion that information and communication technology was ideal for transforming Ethiopia's agricultural industry.

In 2022, Workineh et al. did a study that analyzed the primary challenges encountered in agricultural extension communication, with a focus on agricultural research organizations. The study is based on the diffusion of innovation and participatory communication theoretical frameworks. They listed stakeholder engagement and communication channels as issues that necessitate the creation of a system that permits stakeholders to collaborate among themselves, among other difficulties. The examination of the main results of the study revealed six themes. These themes encompass inadequate information dissemination or communication breakdowns as well as minimal stakeholder involvement—a concept known as "futile participation." Their study validates the necessity for more stakeholder involvement and information sharing.

Teshome et al. (2015) carried out a study to evaluate commonly used extension approaches, strategies, and media as well as to ascertain the challenges development agents have when delivering agricultural innovations to farmers. The study finds that the main obstacles to successful communication with farmers are the development agents' lack of experience with combining media, techniques, and methods of combined extension. Furthermore, the study indicates that one of the primary barriers to engaging with farmers is a lack of infrastructure. The findings of their study suggest that development agents have faced difficulties due to discontent with their jobs, a lack of desire to serve the community effectively, and inadequate connections and communication between farmers, researchers, and development agents. Additionally, they suggested that in order to enhance development agents' skills, dispositions, and knowledge for teaching farmers how to use technology, they should undergo on-the-job training.

Msuya et al. (2017) conducted research to assess the difficulties faced by extension workers in Africa. Their investigation revealed a number of shortcomings that contributed to extension agents' job discontent and hindered them from completing their assigned jobs. These consist of poor pay, limited opportunities for training and additional education, minimal incentives relating to the employment, and low opportunities for advancement. Other constraints included inadequate funding for extension, a lack of cooperation from other government ministries, ineffective strategies such as pluralistic

and demand-driven strategies, ignorance of changes to these strategies, and little to no training on the application of new strategies. The researchers' conclusion that the extension issues in each of the nine countries they examined were comparable was one of their most significant findings. They even speculated that this would happen all over the continent. Other issues raised by the report were the lack of extension training, the incapacity to address increasingly complicated issues related to agricultural and rural development, and the dearth of training in development and communication. The findings of this study suggested that the structure and functionality of extension systems in Africa, as well as extension education and training at the university and college levels, should be reevaluated. The researchers suggest reviewing the extended training curricula at African institutions and establishing extended Africa as a professional body to look into the needs of extension workers on a professional level.

The analysis by Davis et al. (2010) not only assesses the benefits and drawbacks of the public extension system, but also makes recommendations for the best fixes and chances to expand it. To reach its broad results, the study incorporated interviews, in-depth fieldwork in a number of Ethiopian locations, and a survey of the literature on Ethiopian extension. The ATVET, field-level extension, and extension institutional contexts were assessed for their respective merits and demerits. Additionally, the researchers considered the broader supportive environment in which extension operates. It has been found that Woreda (district) and regional offices are manned, and the field-level extension service is well-established, with an adequate number of FTCs and trained development agents (DAs) in the field. Along with highlighting these advantageous features of the field-level extension system, the researchers also identified a number of issues that need to be resolved. One major challenge continues to be the absence of operating funds and fundamental infrastructure at the FTC and woreda levels. For the majority of FTCs and kebeles to perform routine extension tasks on the demonstration farm, they require operating tools and supplies. Constraints in the ATVET-based education that DAs received were also noted by the study. Among the obstacles include DAs' incapacity to acquire practical knowledge, particularly regarding their internships at the woreda level, their restricted access to Ethiopia's more extensive educational and research networks, and a general deficiency of resources to effectively train DAs in the requisite skill set. In

the end, the researchers advise doing the following: supporting FTCs for farmer effect and sustainability; farmer-driven orientation at all extension levels; woreda and kebele-level focus on farmer needs; and strengthening DAs' capacities and mindsets in addition to their systemic links.

2.15.Participatory Communication as a Theoretical Framework

According to Melkote and Steeves (2015), participatory communication (PC) is people-centered, embraces a variety of issues, traces community needs, involves the community, fosters self-reliance, encourages dialogue, provides time and space for both communicators to engage, and results in mutual understanding. PC encourages communication at the grassroots level and works to democratize the issues that society debates and ranks in order of importance (Finaly, 2008). "A high level of public involvement in a communication system" is what defines it (Servaes, 2002: 85). Real connection and inclusive communication are necessary to inspire farmers and carry out agricultural strategies (Chandra, 2004).

Development agents (DAs) and experts find that participatory communication is useful when identifying problems and planning programs (Kaur, 2022). It is feasible to disseminate new social messages to large audiences and enhance the flow of ideas across all segments of society by increasing people's involvement in decision-making and legitimacy (Zikargae et al., 2022; Sylvester, 2016). DAs and agricultural experts can demonstrate participation theory, a feature of vibrant development communication, by acknowledging existing knowledge, helping to incorporate indigenous knowledge into projects, and empowering the local community through authentic participation (Sylvester, 2016; Mefalopulos, 2008; Van den Ban & Hawkins, 1996). Free and open discussion is vital, as is a high degree of involvement (Sylvester, 2016; Ilu & Olawale, 2014; Tufte & Mefalopulos, 2009). Participatory theory states that two-way communication is how communicators share ideas and exchange knowledge. It places a strong emphasis on grassroots communication, beginning with the recipients' demands (Finaly, 2008). The structural alterations brought about by the bottom-up development communication technique are highlighted by Ilu and Olawale (2014). The main thesis is that, in order to satisfy basic needs and ultimately foster self-reliance, communication for development is

an essential activity (Ilu & Olawale, 2014). Every community would need to be included at every step of the communication process (Melkote & Steeves, 2015). With the help of this tactic, the community can raise issues, encourage active dialogue, and come to a decision (Servaes, 2002).

The participatory approach values the importance of interpersonal communication channels in the development decision-making process. Participatory communication stimulates farmers, empowers the community, encourages a sense of ownership, and increases decision-making ability (Servaes, 2008; Chandra, 2004). Due to its inclusiveness nature, many scholars have proposed a participatory approach for many development activities, including agriculture, in Third World societies. Thus, the participatory approach, which involves the community at the grass root level, fosters two-way communications and horizontal dialogue, encourages higher interactions between development agents, farmers, and experts, emphasizes people's needs, inculcates Indigenous knowledge, develops a sense of ownership, bring right attitude in development activities, provide proper decision process for development (Servaes, 2008; Chandra 2004). Therefore, according to Moemeka (1994), it is vital to start development activities based on the pressing problem the community wants to address; if the priority is not given based on genuine participation, the communication intervention will ultimately become ineffective. The extension communication approach that fosters participatory communication is becoming practical and essential (Farm Africa, 2007).

2.16. Diffusion of Innovation as a Theoretical Framework

Innovation diffusion is intended to introduce people to new ideas and technologies and benefit them from the invention. An innovation could be an idea, practice, or object perceived as new by an individual or other unit of adoption. The implication is that rural communities' way of life will change as new ideas or technological innovations are brought to them. The individual's reaction will determine the perceived newness of an idea or object (Rogers, 2003).

Diffusion of innovations is a process in which one individual communicates a new idea to one or several others. An in

An Interdisciplinary Introductory Approach. The Alger Press Limited: Oshawa. In this theoretical framework, the optimistic view is that people grasp the intervention or adopt new behavior over time through some steps; as Rogers has put it, awareness, knowledge and interest, decision, trial, and adoption/rejection are steps. (Rogers, 2003). What was emphasized here is the significance of communication channels. Notably, mass media channels are usually considered the most rapid and efficient means of informing an audience of potential adopters about the existence of innovation – awareness creation. In addition to mass media, the interpersonal channel has gained considerable recognition in persuading individuals to accept new ideas because individuals exchange information face-to-face (Rogers, 2003). Communication between individuals/groups, such as opinion leaders and the masses, would become crucial in affecting audiences' opinions (Rogers, 2003). The two-step flow model was believed to be effective in agricultural development projects. Field workers have utilized the opinion leader strategy in rural areas because the interpersonal network is believed to be important in disseminating innovations in rural societies (Chandra, 2003. In this process, the development agent must arrange a learning experience leading people from one stage to the next (Oakley & Garforth 1985).

CHAPTER THREE

RESEARCH METHODOLOGY

3.1.Introduction

The methodological strategy the researcher employed to carry out this investigation is presented in this chapter. It provides an explanation of the research design, sample strategies, data collection instruments, methodology, and suitable data processing approaches. The data collection instruments and associated concerns have been thoroughly discussed and elucidated. Surveying variables and scales have been demonstrated. It also includes a succinct synopsis of the pilot study.

3.2. Overview of the Study Area

Ethiopia's Sidama area is situated in its southern and southwest regions. It is bounded to the north, north-east, south, and south-east by Oromiya. In the west and south, the territory borders the South Ethiopia territory as well. It is located between 38^0 20'—$39^0$20' East Longitude and $6^0$14'--$7^0$18' North Latitude. The Sidama region spans around 6539 square kilometers. The Sidama region comprises six town administrations, thirty woredas, and three zones (Sidama burea of Agriculture, 2022, unpublished).

The entire population of the region is estimated to be 5,012,527 based on data from the 2023 (2015 E.C.) House and Population Census (CSA, 2023). The Sidama region has an annual population growth rate of 2.9%. In the Sidama region, the average population density in 2018/19 (2011–2012) was 690.5 people per km^2. It is among Ethiopia's most heavily populated regions. Boricha is the woreda with the highest population density, with 1216 people per km^2, while Loka-Abaya has the lowest density, with 134 people per km^2. The family size in town administration have four members, while those in woredas have five (Sidama burea of Agriculture, 2022, unpublished).

When it comes to woreda size, Loka-Abaya has the highest total area (873 km^2), while Chirone has the least (67 km2). The Sidama region is a portion of the Rift Valley of East Africa. The western lowlands, encompassing part of Lake Abaya and Lake Hawassa, are situated on the bottom of the Rift Valley. The Great East African Rift Valley's lowland

terrain defines the western portion of the region. The Sidama region's elevation ranges from 1000 meters above sea level to 3368 meters above the highest peak. The Sidama region's various landforms, including mountains, plateaus, plains, gorges, and water bodies, are a result of these altitude changes (Sidama burea of Agriculture, 2022, unpublished).

The highest point in the Garamba Mountains, which is 3368 meters above sea level, is the lowest point at 1190 meters in the Loka-Abaya and Borcha woredas, near the Bilate River. The region's majority is somewhat lower, with 46.34% of its total area between 1500 and 2000 m.a.s.l. The remaining 20.57% and 20.43% are covered with altitudes ranging from 2001-2500 and 2501 – 3000 m.a.s.l., respectively, while the high land only shares a lower fraction, which is 0.6 and ranging from 3001-3500 m.a.s.l. The Sidama region is classified as "wet moist woina dega" and "wet moist dega," with 45.4% and 27.7% of total, respectively. Dry woina dega (14.5%), dry kola (8.6%), and wet moist kola (3.8%) are the next most common types in the region (Sidama burea of Agriculture, 2022, unpublished).

The Sidama region's main economic sector is agriculture (Negussie & Mesele, 2006). Farmers that produce crops and raise animals are involved in agricultural production. Conventional farming is widely used. Coffee and 'enset' are the main sources of income for farmers, both personally and commercially. Cereals are farmed throughout the region. Fruits and vegetables are also produced in a number of woredas. Even if there aren't as many grazing grounds as there once were, the quantity of animals is still rather large. Sidama people herd cattle for social and commercial purposes.

Enset is the primary staple crop grown there. According to Lemessa (2002), the principal crops are haricot beans, barley, teff, wheat, and maize. These areas are also well-known for producing valuable crops, including as fruits, coffee, khat, and other crops. Regarding agroecology, there are similarities between the two chosen woredas. They have hilly topographies with a moderate amount of vegetation. The land-use system of home gardens and agroforestry are characteristic of the area (Negussie & Mesele, 2006).

Despite years of repeated interventions in these areas, agricultural production has not changed significantly (Lemessa, 2002). These regions are also renowned for having a dense population. Additionally, the community has an ongoing safety-net mechanism in place to help with the annual food gap; in many situations, the community experiences a food deficit for around half of the year((Lemessa, 2002; Sidama burea of Agriculture, unpublished).

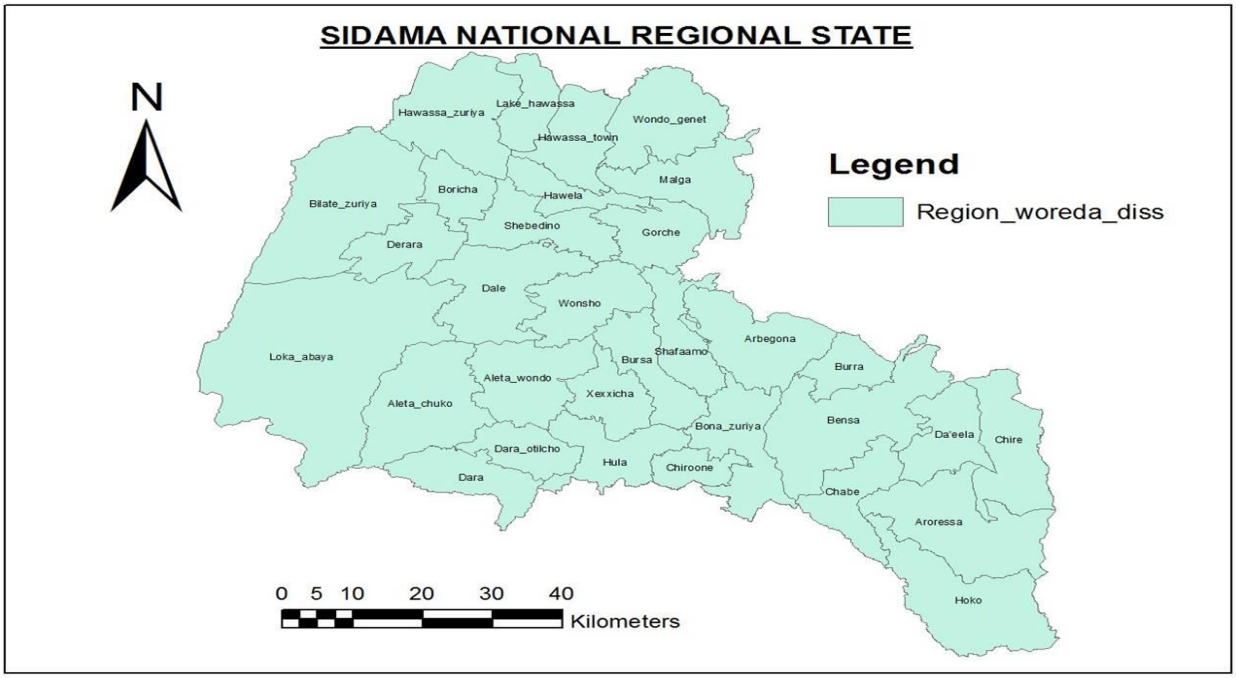

Figure 2 Sidama Regional State

Source: Sidama Regional Bureau of Agriculture

In this study, two woredas, Hawassa zuria and Dara woredas, were selected from the region using a cluster random sampling technique.

Hawasa Zuria woreda is situated on the road to Moyale, the Ethiopian-Kenyan border, 290 kilometers south of Addis Ababa. Two urban and 23 rural kebeles are included in the woreda. The town known as Dore is home to the woreda administration's seat. Hawssa Zuria is made up of lowlands (81.7%) and midlands (18.5%) in terms of agro-ecology (Hawasa Zuria agricultural office, 2020, unpublished). The woreda's system of land use is agroforestry. An average home consists of five people, and each household owns

approximately 0.4 hectares of land. This woreda is classified as one of the woredas that grows food crops because of its ecological conditions.

Another location is Dara woreda, which is 350 kilometers south of Addis Ababa along the Ethiopia-Kenya border road that leads to Moyale. There are four urban and twenty rural kebeles in the woreda. The town of Kebado has the woreda administration's headquarters. In terms of agroecology, Dara is made up of lowlands (20%), midlands (65%), and highlands (15%) Agriculture Office of Dara Woreda, 2020, unpublished. A mixed farming style is often used in the woreda. The typical family size of a household is five people, and their land holding is approximately 0.35 hectares. Dara woreda is classified as a coffee-growing and food crop-producing area based on ecology condition, area productivity, and appropriateness.

3.3.**Research Approach**

The philosophical assumption behind deploying the mixed approach is strengthening the overall study. This study was conducted utilizing a mixed-method approach in terms of methodology. From the pragmatism philodophical view, deploying a mixed approach would help enrich the data and enable the researcher to look deeper into and understand the research theme (Creswell, 2014). Using a combination of approaches enhances the study and aids in the researcher's understanding of the subject (Creswell, 2014). In reporting the findings, deploying both approaches has become more applicable nowadays than depending on a single approach because more details of the issue can be obtained, and the theme of the research work can be understood much better (Creswell, 2014). The qualitative research approach is well renowned for its ability to provide light on the realities of the context. On the other hand, quantitative research conducts a thorough analysis of a problem in order to determine its objective nature (Deacon et al., 1999). Therefore, the researcher can overcome the limitations of employing only one of the two by combining the two methods. By triangulating the results, a mixed-methods approach will further strengthen the research (Vanderstoep & Johnston, 2009).

Exploratory sequential design was used as the research method for this study. It is one of several types of mixed-method approaches. Convergent parallel, explanatory, and

exploratory are the three fundamental typologies of the mixed method, as Creswell (2014) mentioned. In a convergent parallel mixed strategy, data would be collected through both quantitative and qualitative approaches. Separate data analyses would be conducted to determine whether the results supported or refuted one another (Creswell, 2014). The assumption behind the convergent parallel mixed technique is that the information provided by the data from both qualitative and quantitative approaches will be of distinct sorts (Creswell, 2014). Sequential explanatory design starts by understanding and explaining quantitative outcomes first, then moving on to qualitative ones. The sequential explanatory design builds on the outcomes of the initial quantitative results and tends to rely more on quantitatively obtained and analyzed data. In exploratory sequential design, the flow will reverse, and priority will be given to the qualitative aspect of the study (Creswell, 2014). The purpose of using qualitative data first is to discuss the subject with participants at the places. A second phase, in which data are gathered from many people, will subsequently aid the researcher in expanding their understanding (Creswell, 2008). According to Creswell (2008), this approach aims to support the understanding of qualitative findings using quantitative results and data.

Conducting research using plural methodology lessens the limitations that result from a single-method research-based approach. As stated by Creswell (2014), mixed-method approaches collect data using both qualitative (open-ended) and quantitative (closed-ended) methods to respond to research objectives. Hence, it will help the researcher generalize the findings more broadly. By its nature, the mixed approach allows the researcher to view events and the social world through the eyes of the people they study, which is in-depth, as qualitative advocators argue (Bryman, 2004). At the same time, a mixed approach allows the researcher to come up with a voluminous reflection of the overall population, as quantitative promoters propose (Creswell, 2014). Therefore, this study gathered data using a combination of approaches, including in-depth interviews, focus groups, and household surveys.

Informed by the above research recommendations, this study enhanced the informativeness of the data gathered by using mixed approach dominantly utilizing the qualitative approach.

3.3.**Sample Size and Sampling Technique**

Sidama area separated from SNNPR and was founded lately. It was reconstituted as a regional state with 30 woredas in the countryside and 7 local administrations. The region was deliberately chosen with consideration for the variety of agricultural products produced there. The place was chosen since it is one of the exploited areas that could aid in understanding the study's issue. The Sidama region is sufficiently large to gather the data required for this study's theme. Additionally, the location is easily accessible for the researcher, facilitating the efficient use of scarce resources.

Hawassa Zuria and Dara were the two weredas that were chosen via the cluster random sampling method. Using a random sample technique, one woreda from the food crop-growing woredas and another from the coffee-growing and crop-producing areas were chosen. Dara has twenty kebeles, while Hawassa Zuria woreda has twenty-three. Data sources included journalists, farmers, experts, and development agents operating in the specified area.

3.4.**Data Gathering Instruments**

Data collection instruments need to be carefully and suitably planned. The selection of data gathering tools was contingent upon the objectives of the investigation. To gather comprehensive data, a hybrid strategy combining qualitative and quantitative forms was employed. Thus, the methods for gathering data were surveys, focus group discussions, and in-depth interviews.

3.4.1.Focus group discussion (FGD)

FGD is an unstructured, topic-specific group discussion led by the researcher (Robson, 2002). FGD helps researchers understand why individuals feel the way they do (Bryman, 2004; Deacon et al., 1999), and it allows participants to debate on the topic they are knowledgeable about (Henn & et al., 2006). Because FGD is interactive, participants'

information can be navigated in-depth (Henn et al., 2006). The best results from FGD come from people talking to one another about problems in their daily lives (Macnaghten & Myers, 2004).

FGD enables participants to submit a case based on how they see the issue they deal with on a daily basis (Henn & et al., 2006). As a result, focus groups are increasingly being used in communication and cultural studies as a qualitative research tool (Deacon & et al., 1999).

Initially, six kebeles from two woredas would participate in the focus group discussion (FGD); three kebeles from each woreda were chosen at random. From the six kebeles that were identified, farmers and development agents were chosen for the focus groups. Then, using the snowball sampling method, farmers were selected. Using this method, I was able to recruit people of various ages, genders, and socioeconomic backgrounds. I was able to recruit people from a variety of demographics using this strategy. Six focus group conversations were conducted with farmers, one focus group discussion from each kebele, in isolation. Nine people participated in one focus group discussion; Robson (2005) recommended eight to twelve people in a single FGD.

Furthermore, two focus groups with development agents were held. There are three development agents in every kebele. The selection process involved each of the six designated kebeles' development agents. Consequently, those six chosen kebeles would contain eighteen development agents. In this instance, the census approach was used to gather data, and the study included all 18 development agents (split into two groups). Consequently, a total of eight focus group sessions were held.

Table 1 Participants in Focus Group Discussion

No	Name	Where from	Position/title	Number of participants
1	FGD1	Farmers from Dara Woreda Aleme Koricha Kebele	Farmers	9
2	FGD2	Farmers from Dara Woreda Bongode Kebele	Farmers	9

3	FGD3	Farmers from Dara Woreda Gelo Wacho Kebele	Farmers	9
4	FGD4	Farmers Hawassa Zuria Woreda Odu Wetate Kebele	Farmers	9
5	FGD5	Farmers from Hawassa Zuria Woreda Lebu Koromo Kebele	Farmers	9
6	FGD6	Farmers from Hawassa Zuria Woreda Galo Arkesa Kebele	Farmers	9
7	FGD7	Development agents from three kebeles of Dara Woreda	Development Agents	9
8	FGD8	Development agents from three kebeles of Hawassa Zuria Woreda	Development Agents	9

N.B. FGD implies focus group discussion.

3.4.2.In-depth interview (II)

Another standard tool that qualitative researchers employ often is the in-depth interview. Rich and extremely illuminating material can be obtained through interviews (Robson, 2002). Respondents can create retrospective and prospective accounts or versions of their past and future acts, experiences, feelings, and thoughts since II gives them the freedom to share what they know about the subject (Macnaghten & Myers, 2004). Regarding the overall subject matter, the interviewees are free to say anything they want. Moreover, researchers could discover information from an in-depth interview that they might not discover from focus group discussions (FGDs) (Macnaghten & Myers, 2004:16). In an in-depth interview, researchers typically use an interview guide with semi-structured and unstructured questions, with the goal of getting the interviewee to respond (Flick 2010).

Farmers, agricultural experts, and journalists from three media outlets producing agricultural programs were chosen for in-depth interviews (II).

Through purposful sampling, four agricultural specialists from two woredas were selected for the interview. They were chosen because they directly addressed the problems of the study. There is one agronomist and one extension communication specialist per woreda. Thus, II included four agriculture experts from two woredas.

Three kebeles were drawn at random from each woreda to choose the farmers. From each kebele, two farmers were chosen. The farmers were chosen in this case using the snowball method. That's why II contained twelve farmers. The age, sex, and socoeconomic position of the selected farmers differ.

Furthermore, a purposive sample technique was used to choose two senior agricultural experts from the regional office. One specializes in agricultural productivity, and the other is an authority on extension communication. Both responders had long careers, and their expertise strongly connected to the main research issues.

The interview featured four journalists from three distinct media outlets. These media were chosen especially because they provide agricultural content that is available in the region. Bensa FM station was the first, broadcasting in Sidamu Afu and Amharic. One was South Radio and Television Agency, which broadcast an Amharic-language program named "Geberenachen" about agriculture. The third is The Ethiopian Broadcast Corporation, which ran the agricultural radio program "Awdegeter" and the television program "Massa" on agriculture. Each interviewee was a long-serving program editor who was carefully chosen. As a result, twenty-two in-depth interviews with individuals were conducted. To encourage respondents' adaptability and promote an easy flow of information, semi-structured and open-ended questions were used (Vanderstoep & Johnston, 2009).

Table 2 In-Depth Interview Participants

Name	Where from	Position/title
I 1	Sidama Region Agricultural Bureau	Extension Communication Expert
I 2	Sidama Region Agricultural Bureau	Crop Production Expert
I 3	Dara Woreda Agricultural Office	Extension Communication Expert
I 4	Dara Woreda Agricultural Office	Agronomist
I 5	Hawassa Zuria Woreda Agricultural Office	Extension Communication Expert
I 6	Hawassa Zuria Woreda Agricultural Office	Crop Production Expert

I 7	Dara Woreda Aleme Koricha Kebele	Farmer
I 8	Dara Woreda Aleme Koricha Kebele	Farmer
I 9	Dara Woreda Bongode Kebele	Farmer
I 10	Dara Woreda Bongode Kebele	Farmer
I 11	Dara Woreda Gelo Wacho Kebele	Farmer
I 12	Dara Woreda Gelo Wacho Kebele	Farmer
I 13	Hawassa Zuria Woreda Odu Wetate Kebele	Farmer
I 14	Hawassa Zuria Woreda Odu Wetate Kebele	Farmer
I 15	Hawassa Zuria Woreda Lebo Koromo Kebele	Farmer
I 16	Hawassa Zuria Woreda Lebo Koromo Kebele	Farmer
I 17	Hawassa Zuria Woreda Galo Arkesa Kebele	Farmer
I 18	Hawassa Zuria Woreda Galo Arkesa Kebele	Farmer
I 19	Bensa FM radio 91.6	Journalist
I 20	South Radio and Television Agency	Journalist
I 21	Ethiopian Broadcast Corporation "Massa" television program	Journalist
I 22	Ethiopian Broadcast Corporation "Awdegeter" radio program	Journalist

N.B. "I" implies Interviewee.

3.4.3.Questionnaire

In this study, a survey was employed to gather quantitative data in addition to focus groups and in-depth interviews. A household survey gives a researcher important information about the problems from participants. Creswell (Creswell, 2014) states that a uniform format containing a broad range of data should be used to generate the questionnaire.

Because of their daily involvement and first-hand understanding of the issue, development agents were selected for the survey (EATA, 2018). Dara and Hawassa Zuria woredas were selected using the cluster random sampling technique. Using a random sample procedure, one woreda from woredas that produced food crops was picked, and

another from woredas that produced both food crops and coffee was chosen in the same manner. Dara woreda has twenty kebeles, compared to twenty-three in Hawassa Zuria.

In the survey study, all kebeles are taken into account as a whole population. The development agents who work at each of the chosen kebeles are the ones who answer the questionnaire. 43 kebeles, or all of the development agents employed by these two woredas, completed the survey. Three development agents (DAs) from three disciplines (plant science, natural resource management, and animal science) were assigned to each of the two woredas of the kebele administrations. Nine of the 129 surveys that were distributed were rejected because they were not complete.

3.5.**The Survey Form**

A set of five-point Likert scale items and a construct were taken from Yohhannes's (2014) research. The themes and qualities have undergone a minor alteration by the researcher. Subsequently, thirteen primary themes/constructs were selected for piloting, taking into account the research questions. Following the pilot study, confined items and three major themes were eliminated because their Cronbach's alpha score was below.7. The questionnaire includes an overview, a disclaimer, demographic information, guidelines, a primary topic or construct in each item, and measurement scales. The survey form has a clear statement of the research's goal. Honest answers and cooperation were asked for. Major themes and items to be scored on a five-point Likert scale are included in the survey form. Additionally, the researcher's address was included on the survey form in case participants wanted to get in touch with him with any more questions.

3.5.1.Variables, research questions, scales and number of items

The following table lists concepts and characteristics that were part of the survey that were connected to the study topics. The items used to evaluate each key theme in relation to the study question are displayed in the table. There are also offered scales for measuring objects.

Table 3 Variables, Research Questions, Measurement Scales, and Items

No	Variables	Research Questions	Scale	Number of Items

1	-Utilization of Participatory Communication (UPC) -Research Linkage (RL) -The workload of Agents (WL) -Training and Experience Sharing (TESH)	-To what extent are the communication approaches in place appropriate and inclusive in light of the participatory communication approach? - How agricultural and technological advancements is communicated to end users?	Five-point Likert scale	-Eleven items -Five items -Five items -Five items -Six items
2	-Confidence in Communicating with Farmers (CCF) -Information Seeking Behavior (ISB) -Self-image in Communication and Relationship with Farmers (SICRF)	What is the level of confidence DAs have in communicating with farmers?	Five-point Likert scale	-six items -six items -Ten items
3	Communication Methods (CM)	What are the major communication methods used in communicating agricultural issues?	Five-point Likert scale	-Six items
5	Access to Mass Media (AMM)	What are the major media that are accessible to DAs in the area?	Five-point Likert scale	Eight items

3.5.2.Reliability test

Initially, two academicians and researchers were given the constructs and objects ready for surveying so they could carefully examine the scales' content. After going over the survey, they commented on any ambiguous or confusing questions. They discussed the usefulness of language clarity in measuring the construct. Ultimately, following a discussion, they concluded that the completed survey form was clear and pertinent to the components that needed to be measured. In order to look for any impending problems that might affect the respondents, the survey questionnaire was also translated into

Amharic and sent to an agricultural expert who has worked in Dara woreda Agricultural office. A few adjustments were made in response to his comments, mostly to increase the language's intelligibility. This process helped to secure better face validity of the scales prepared.

This section includes a table that displays the results of the questionnaire items' reliability test. Rating scales can feature a variety of choices that the responder can select from to indicate how much they agree or disagree with an item (Daniel, 2004). For this research, the rating scale of the study ranges from strongly agree=5, agree=4, undecided=3, disagree=2, and strongly disagree=1. The table below depicts the reliability test values of all the ten constructs of the study.

Table 4 Result of Reliability Test

No	Construct/major themes	Number of items	Cronbach alpha
1	Utilization of participatory communication	11	.734
2	Confidence in communicating with farmers	6	.831
3	Information seeking behavior	5	.810
4	Training and experience sharing	6	.764
5	Communication method	6	.758
6	Self-image in communication and relationship with farmers	10	.720
7	Research linkage	5	.758
8	The Workload of Agents	5	.717
9	Perceived Effectiveness of communication	5	.720
10	Access to mass media	8	.841

Every item in the aforementioned table has enough internal consistency, as indicated by a Cronbach alpha coefficient larger than.7, and some have perfect internal consistency, as indicated by a Cronbach alpha coefficient better than.8.

In addition, the Inter-Item Correlation Matrix was analyzed to verify if every variable showed positive values. The items assess the same underlying attributes if every value is

positive (Andy, 2009). The item-total statistics meticulously examine the corrected item and total correlation values; no improper scoring with a negative value was detected.

3.6.**Data Collection Procedure**

The responses received from the FGDS and IIs were documented. Furthermore, notes were taken. During the data collection process, the researcher watched every response and paid close attention to what participants were saying. The data were recorded. There was open conversation for the responders. Participants were not abruptly stopped when they strayed from the study's focus. Rather, they were given time to speak before being instructed to revisit the subject by giving them feedback and reminding them to concentrate on it in a way that didn't diminish the participants' willingness to participate and their bravery in having a conversation (Brown & Danaher 2019). The collected data was then transcribed, translated into English, and analyzed using the theme coding technique, which involved grouping comparable concepts and replies (Bryman, 2004). The data was presented narratively, and interpretations and conclusions were drawn from the findings of focus group discussions and in-depth interviews.

DAs were given instructions on how to fill out the questionnaire prior to the survey being conducted. They were asked to honestly answer each question after thoroughly reading it. They were informed that their answers would have a substantial impact on the research findings if they gave the questions careful thought and answered truthfully. With assistance from two agriculture experts from the agricultural offices in Hawassa Zuria and Dara Woreda, the researcher disseminated and collected the surveys. For additional analysis, the coded and recorded data from the questionnaire were entered into SPSS. . An interpretation was developed based on the mean value derived from the data. Furthermore, a correlation analysis was conducted.

> *N.B. FGDs represent focus group discussion participants, and IIs represent in-depth interview participants.FGD1–FGD6 represent farmer participants, while FGD7 and FGD8 represent development agent participants. I1–I6 represents expert participants, I7–I18 represents farmer participants, and I19-I22 represents journalist participants.*

3.7.**Ethical Considerations**

First, a recommendation letter from the School of Journalism and Communication at Addis Ababa University was received. The letter was then delivered by the researcher to the Office of Agriculture in the chosen woredas as well as the Sidama Regional Bureau of Agriculture. A formal letter authorizing the collection of data from the chosen woredas has been granted by the Sidama Regional Bureau of Agriculture. Prior to conducting focus groups and in-depth interviews, I had extensive discussions with respondents and got everyone's informed consent. Participants readily consented when asked for permission to utilize audio files. Every subject was persuaded to give their voluntary consent to participate in the study. The research's goal was clarified for the purpose of surveying. The significance of their sincere responses was communicated to the respondents. They were assured that the data they submitted would be kept private and utilized exclusively for this study. Their names won't appear in any publications resulting from this investigation, and no written reports will contain any references that could be connected to the survey. Before they completed the questionnaire, they were asked to confirm their willingness. At last, the researcher obtained informed verbal consent from each individual.

3.8.**Pilot Study**

Data were collected for the pilot project using focus groups, surveys, and in-depth interviews. A pilot research looks into the viability of potential main study components and makes a substantial contribution to conducting a major study more effectively. A pilot study would aid in determining the proper sample size for the larger-scale research project. Additionally, it enhances a number of study design components (Janghorban et al., 2013). A sizable and representative sample of respondents must be included in the pilot study. According to Cohen & et al. (2007), 50–100 respondents are considered representative. By employing the cluster random sampling technique, Dara Otilicho and Aleta Chuko woredas were selected for the pilot study. For the pilot study, sixty questionnaires were delivered. A proportionate selection of twenty kebeles was made from two woredas in order to collect the sixty DAs needed to finish the study. Each

kebele had three DAs, one with training in plant science, another in natural resource management, and a third in animal husbandry, representing three different professions.

Dara Otilicho woreda has fifteen kebeles, while Chuko woreda has twenty-four. Using a random sample technique, eight kebeles from the Dara Otilicho woreda were selected proportionately. In a similar manner, twelve Chuko woreda kebeles were selected at random. Using the census method, all DAs from the chosen kebeles were included in the research. The researcher collaborated with an agriculture specialist from Chuko Woreda's agricultural office to distribute and collect the questionnaires. Out of the fifty-six returned surveys, five were deemed incomplete and eliminated from the analysis because of their consistent responses. It was found that three respondents provided several responses for a single issue on the surveys, while two respondents carelessly skipped between topics.

In addition to questionnaires, FGDs and IIs were used in the pilot project to gather data. While IIs were conducted in Dara Otilicho woreda, FGDs were conducted in Aleta Chuko woreda. The woreda for the IIs and FGDs was selected by random sampling.

Using the stratified sample technique, three kebeles from Aleta Chuko woreda were chosen to hold focus groups with DAs and farmers. One FGD was held with DAs located in the three chosen kebeles, and three FGDs were held with farmers. The farmers selected for FGDs were chosen using the snowball method. Using the census approach, all of the DAs employed in the designated kebeles were selected and participated in the focus group discussion. There were nine participants with DAs and eight to nine farmers (two groups had nine farmers and one group had eight).

Similar to this, three kebeles from the Dara Otilicho woreda were first selected for the purpose of conducting farmer interviews using the stratified sample methodology; one farmer from each kebele was selected using the snowball method. For the purpose of an interview, one specialist in agricultural extension communication from each of the two woredas was selected.

The pilot study yielded fewer insights. The checklist, items, contents, languages, and other elements of the tools were improved and changed in light of the information gathered from the surveys, FGDs, and IIs. After reliability tests were carried out,

methodological issues were taken into account and instrument modifications were made in light of the findings. During and after the pilot study, difficulties that could endanger the study were identified, issues pertaining to respondents were carefully examined, and research questions were revised (Dawson, 2009).

All major themes and variables were thoroughly investigated, and the survey form's Cronbach alpha coefficient was used to evaluate the internal consistency. It was found that the internal consistency of four key themes was less than 0.70 with a Cronbach alpha coefficient. The item-total statistics and the inter-item correlation matrix were looked at. Using Cronbach's Alpha if Item Deleted in Item-Total Statistics in SPSS, the item measuring "information-seeking behavior" was added to the analysis section. However, three of the item's four major themes, whose internal consistency value had a Cronbach alpha coefficient of less than.70, were left out of the analysis section. In order to determine whether every factor was positive, the Inter-Item Correlation Matrix was also examined. If every value is positive, then it is acceptable that the items are evaluating the same underlying qualities. The corrected-item total correlation values were closely scrutinized in the item-total statistics. It was not possible to find any incorrect scoring with a negative number in the Item-Total Statistics.

I learned via the qualitative data gathering and analysis processes that the checklist requires some modifications. Based on the qualitative data, it was necessary to add new questions to the checklist or change the items that were already there for the study job because farmers, DAs, and experts had different responses and points of view for similar inquiries. I made improvements to the checklist based on what I learned during the pilot research. Specifically, I added questions to the checklist meant for DAs and specialists.

CHAPTER FOUR

DATA PRESENTATION AND ANALYSIS

4.1. **Introduction**

This chapter is divided into two sections. Thematic grouping of the qualitative data and analysis of the data were presented in the first section. Responses were given using direct quotes and paraphrases, which were then followed by interpretation and analysis.

In the second section, an analysis and the results of a quantitative investigation are presented. The initial section commences with an overview of the respondents' sociodemographic characteristics. It also presents the key themes in the context of the data's conclusions. An explanation has been provided, and efforts have been made to corroborate or contrast findings with existing research.

4.2. **Results from the Qualitative Study**

Ethiopia's economy is reliant on the farming sector. Agriculture provides a living for almost 85% of the inhabitants (Alemu, 2017). In light of this, the government launched a variety of initiatives and programs to raise the standard of living in rural areas (Zikargae et al., 2022). The government has worked hard to establish partnerships with both government agencies and nongovernmental groups (NGOs). However, due to a subpar (poor) farming system and low agricultural production, Ethiopia has not yet achieved self-feeding (Mekonnen et al., 2016). Depletion of natural resources, inadequate use of direct inputs, agriculture's dependency on rainfall, and limited adoption of innovative methods and technologies all contribute to lower productivity (Zikargae et al., 2022). Agricultural extension programs employ communication as a tactic to bring about change (Gerba, 2018).

According to Nakamuri et al. (2001), the interventions concentrate on a wide range of target processes and outcomes. Extension work that has been carefully planned should be used to transfer and exchange practical knowledge, primarily in dyadic or small-group settings. The reason for this is because agricultural extension seeks to assist farmers, resolve issues, and reduce poverty, all of which promote community involvement in the

process of development (Nyakuni et al., 2001). In order to effectively engage with the agricultural community, it is imperative to gather and arrange information and provide cutting-edge farming methods that are tailored to the local conditions. Agricultural information currently needs to be enhanced within the body of existing knowledge in addition to being promoted and effectively conveyed (Jones & Garforth, 1998).

The development initiatives that lessen the issues facing the community ought to be shared. In a community's life, sustainability of development is a crucial issue that matters, especially for the most marginalized members. An essential component of maintaining progress is communicating in a way that takes societal differences into account. In order to debate how to act sustainably, members of a group that has convened to deliberate about community transformation must agree on a communication method (Flint, 2013).

When it comes to emerging/developing nations like Ethiopia, every effort must be made to free the populace from the grip of poverty. To comprehend how to improve one's life and manage the entire process, development communication interventions must be clear and effective (FAO, 2006). By employing participatory communication (PC) techniques, the relationship between development agents (DAs) and farmers may be strengthened. Thus, it is critical to observe the extent to which DAs apply a participative approach. Inspiring farmers and implementing agricultural plans require sincere connection and inclusive communication (Chandra, 2004). Finding out what the rural community's top priorities are is a constant goal of communication in agricultural activities. A systematic and well-designed communication approach can help achieve development plans (Servaes, 2002; Moemeka, 1994). However, Ethiopian farmers embrace innovations slowly as a result of the ineffectiveness of communication efforts, which lowers cereal yield (Matouš et al., 2013).

4.2.1. Participatory communication (pc) as a trend in agricultural activities

The PC approach's all-encompassing nature makes it one of the most well-known strategies for community mobilization. PC is seen as a tool to assist the community in altering their perspective and taking action to improve life, according to Servaes (2002). It is commended that the participatory paradigm grants equal rights and a voice to all parties involved. This is because participation is unrestricted and the conversation

promotes an exchange of viewpoints from all parties. Experts created a communication plan based on the sociocultural makeup of the communities and the realities of every aspect of life (Melkote & Steeves, 2015; Tacchi & Lennie, 2014).

The majority of Ethiopian farmers depend on tiny farms and an antiquated (old-style) farming method to make a living (Negussie & Mesele, 2006). It takes more than just introductions and information exchanges to mobilize a community to increase agricultural production. These farmers mostly subsist on a little amount of annual agricultural production and own fragmented land (Matouš et al., 2013). An important element in agriculture's success is the farming community. DAs and agricultural specialists should arrange a discourse session in order to bring about change. The participatory approach in this instance aims to create a forum for public participation in the management and planning of the communication system, in addition to the production process (Servaes, 2002); it gives a higher level of community involvement at the grass-roots level (FAO, 2005).

PC has a huge edge, as was already mentioned. All focus group discussions and in-depth interviews, however, attested to the fact that DAs and specialists communicate more top-down. A response provided by I1 from regional offices clearly indicates the actual practical routine:

> As a newly emerged region of Sidama, we are communicating with woredas directly because there is no Zonal administration level. Information goes down to the woreda first, and by keeping its line, it goes down to the kebele and then to farmers; in the same manner, the reports come back from the kebele to the woreda and then finally to the region. Source: Interview data- Sidama region, Jan 2023

Reports are the only means of communication between the woreda offices and the regional bureau. Information also flows between offices at the federal and regional levels in the same way. Farmer participation in agricultural development initiatives should be active throughout the process. Planning, carrying out, and evaluating projects all depend heavily on the collaboration between farmers and development agencies (Farm Africa,

2002). The success of a development project is increased when farmers are informed about it from the start and gladly participate According to Flint (2013), the target community should be the driving force behind creating, completing, and implementing plans before implementing appropriate strategies. Farmers will gain a sense of ownership since they believe they own the project (Flint, 2013). When farmers concur that the activities they participate in are beneficial in meeting their requirements, their attention is drawn to development initiatives. Through communication during the planning process, farmers can determine and rank their needs. Farmers would increasingly need to prepare an annual plan based on their agreements and needs, more so than anyone else (Waisbord, 2014; Flint, 2013). Farmers who are aware of their responsibilities will take the necessary risks and carry them out. This procedure appears to be simple, but it is not. A plan is essential because it delineates (outlines) the necessary procedures to achieve the end goal of increasing community involvement (Flint, 2013).

DAs only talk to farmers about annual plans. Nonetheless, they often create the annual plan on behalf of the entire kebele. According to the feedback from every FGDs, DAs typically create an annual plan without fully consulting farmers; instead, they talk about it with model farmers and a few other farmers who are easily accessible. Every year, DAs have the option to add new activities to the annual schedule based on suggestions from woreda specialists. Furthermore, DAs may alter the annual program in the midst of the year without consulting farmers or coming to a consensus. The exclusive modification of agricultural operations by DAs can be seen as proof of the widespread practice of agricultural activity planning without farmer permission. This is despite the fact that the farmers are the crucial stakeholders in the entire process.

The PC strategy makes use of suitable communication channels and strategies to enhance public participation in development initiatives, as stated in the FAO statement from 2006. This document makes a strong case for how appropriate involvement/participation fosters understanding, connectedness, commitment, and ultimately collaboration. The PC technique is useful, but its application hasn't yet clicked yet. The response from I7 makes it quite evident that experts and DAs are not making the best use of the methodology. She states as follows:

> In many cases, we usually comply to do what we are told. DAs tell us the number of activities we need to accomplish in our plan at 1"Hiwas" and 2' Kebele" levels … Sometimes, they also bring seed varieties we do not want. The timing is another problem; fertilizers and seeds do not reach our kebele on time. Source: Interview data - Dara Woreda, Aleme Koricha Kebele July 2022

The excerpt above demonstrates pseudo-participation in a clear manner. Since inclusivity is by its very nature mutually agreeable, all stakeholders must be involved. There isn't any real participation in the research area. The timing of fertilizer and seed distribution is one of the difficulties farmers encounter. Furthermore, farmers are occasionally compelled to use seed varieties they do not want to use; this clearly implies a top-down strategy. This kind of communication, which follows a giving-and-receiving order, departs from the core idea of PC.

The unquestionable inclusion of the community throughout the entire process, including problem identification, prioritization, planning, execution, monitoring, and evaluation, is the strength of participatory communication for development. But as the data from the IIs and FGDs demonstrate, there isn't a communication style that is that inclusive. The answers from local specialists (I1 and I2) also point to an issue with the kind of seed kinds supplied to farmers and when they are supplied. Here's what I2 says:

> Sometimes, we would be forced to distribute seed varieties that farmers do not need. Farmers were given other types of maize seed unfamiliar to their environment last year". Source: Interview data- Sidama region Jan 2023

In a similar vein, I1 outlines the general procedure for obtaining seed kinds and fertilizer. Finding out how much fertilizer and seed kinds the area requires is the first step. Next, the Department of Agricultural Input Administration at the regional bureau receives a report on the entire need from the Crop and Extension Communication Department. The department of Agricultural Input Administration makes their request known to the federal organization.

[1] Hiwas is a form of group of households in Kebele
[2] Kebele is the smallest administration level in Ethiopian administrative system

Nowadays, the process of providing seed and fertilizer has changed. As explained by I2, some woredas were forced to receive beyond their demand for several years. In the past, the credit system made fertilizer and seeds available to all farmers. Today, there is no such trend; farmers are required to buy with cash on hand. There is no loan service.

There aren't many seed kinds available, particularly ones that fit their surroundings. Fertilizer is available to farmers as far as they can afford it, however the cost is steadily rising, which is concerning. Farmers had difficulties in 2022 because certain types of maize that were suited for lowland or semi-arid regions were not easily accessible. The yearly scarcity of the necessary seed variety is one factor that unsettles farmers. The shortcoming here is that development agents are unable to accurately inform farmers about the availability or lack of these seed varieties. As usual, farmers prepare their land in the hopes of receiving seed, but nobody can be certain. When farmers do not get the seed variety they need, as I1 noted, experts urge farmers to use the land for other seeds like soybean and sweet potato. These problems emanate from the visible lack of participatory discussion with farmers on what kind and amount of inputs the farmers require in each of the sessions.

The purpose of communication is to help achieve a particular goal through mutual understanding. This notion holds great significance and is widely relevant in the field of agriculture. Development agents, who are representatives and key players in the organization, have been handling the crucial daily communication between farmers and agricultural organizations. According to NAEP (2001), development agents' job is to advise extension customers on how to maximize the resources at their disposal by expanding their technological and organizational skill sets, which will ultimately allow them to maximize production. Working with rural residents to enhance their standard of living is the process at hand (Oakley & Garforth, 1985).

According to Oakley and Garforth (1985), agricultural communication encompasses knowledge and abilities regarding the environment and farming system, as well as communication skills, technical advice and information, motivation and self-confidence, initiative, and courage. Agricultural communication's primary characteristic is that it encourages two-way communication. Extension agents share ideas and knowledge with

farmers, and vice versa. According to Oakley and Garforth (1985), agricultural communication is a dialogue process designed to assist farmers in resolving issues and enhancing their standard of living. Its application is carried out via communication channels. Mass media, information, communication technologies, in-person and group interactions, field trips, field demonstrations, experience sharing, training, and folk media are all used to spread knowledge and extension services. A participative strategy ensures community mobilization in any mode of communication (FAO, 2005).

DAs believe and understand that proper communication intervention would help sustain agricultural production (FGD8). Although their role as a bridge between farmers and agricultural offices is incontestable, they lack a solid commitment to continuously assist farmers through PC strategies.

Properly designed communication intervention is vital in informing the community about new technologies and encouraging farmers to adopt innovations (I6). This respondent said,

> All farmers may not accept new technologies immediately as they are told about them; however, if they are communicated properly and repeatedly, they will think about it and adopt it. Source: Interview data - Hawassa Zuria Woreda, Nov 2022

The response from FGD7 also substantiates the above fact. As noted by scholars, DAs, agricultural experts, and other stakeholders need to give proper attention to communication (Moemeka, 1994). From FGD1, one participant noted, “We are, in many cases, ready to accomplish what experts told us, as far as our problems do not inhibit us.” Source: own data - Dara Woreda, Aleme Koricha Kebele, Aug 2022

Yet the problems they listed are endless; all participants confirmed that farmers are always there to accomplish what they are told and what they think helps improve their lives. The other participant in FGD2 said, "We do not say no when DAs come to discuss with us.”

All respondents disclosed that farmers, DAs, and experts understand that deploying a proper setting for discussion with farmers is crucial. It seems redundant to raise the importance of PC again and again. Nonetheless, it is still important to discuss the issue

incessantly as far as communication malfunction affects intervention and development. Agricultural communication is not an easy procedure. It has many wings that need to be carefully executed. In this regard, the response from focus group discussions and in-depth interviews attests to the poor utilization of proper communication methods. In this study, I1 and I2 repeatedly noted that the duration of interaction and communication farmers have with DAs is usually less. Participatory communication needs time and effort between communicators; it is not a giving-and-receiving task. DAs do not discuss farming with farmers repeatedly and exhaustively. Continuous dialogue makes farmers feel something about new technologies or ideas they are told. "No community conversation session is available on agricultural issues," a participant in FGD8 noted.

4.2.2. Communication strategies used in facilitating agricultural extension

Effective PC methods that are targeted, organized, and directed would open the door to productive agricultural endeavors. To help accomplish the goal, experts in an agrarian nation like Ethiopia need to use effective communication tactics. Clear and effective communication is necessary to convey the knowledge that closes the gap and helps the objective be accomplished (Negussie & Mesele, 2006). However, the results obtained from FGD8 show that DAs have no communication strategy. The routine task is meeting with farmers regularly during fertilizer and seed distribution time. As participants in FGD7 and FGD8 discussed, there is no well-articulated plan for communication strategies – "year in year out, we do the same," says one of the participants in FGD8. Most participants from all FGD7 and FGD8 confirmed that agricultural activities are similar. As confirmed by most experts in in-depth interviews, the regional bureau does not have a written plan and written communication policy which indicates clear communication strategies.

The community is given information and assisted in making better decisions through planned strategy and action (Waisbord, 2014). Working with rural communities necessitates communication strategies that are well thought out and then adjusted based on the evolving situation. For this reason, a communication expert named Rogers classified the adoption rate in a rural area into five categories. He explains that five factors affect adoption rates: "the innovations itself, adopters, communication channels,

time, and a social system" (Ismail, 2006, pp. 14-16). Adoption rates are also influenced by hierarchy. In his talk, Ismail (2006) discussed the importance of communication in deciding how quickly new ideas or products are adopted by the community. The other important part is the social system; the rural community's social system varies from urban communities. Ethiopian rural communities have their peculiar social system. Therefore, how we communicate and intervene in various development programs in rural communities needs to be appropriately set. It is still debatable how development agents create and implement communication strategies in relation to these points. Respondents almost universally acknowledged that DAs lack communication methods in focus group talks.

A respondent in I1 says the failure was observed during seed and fertilizer distribution time:

> There was a vegetable production project last year. The plan was to let female farmers participate in vegetable production through irrigation. DAs distributed the the seed variety to the community that came from the host organization. Then, the agriculture office selected female farmers and distributed seeds without checking how these seeds were productive. Later, two problems occurred. The first was that the vegetation did not produce as high as promised. Second, the irrigation system did not work well. Finally, farmers felt their efforts were meaningless because of the failure of the intervention. Source: Interview data- Sidama region Jan 2023

Prior to seed distribution, an environmental compatibility test had to be conducted, and the results had to be made transparent. Experts and DAs anticipated a high level of production from the project, but the outcome was the contrary. This indicates that DAs lack communication skills, especially when introducing new technologies. In this regard, I3 said that in most cases, DAs inform the community about new projects incidentally. She also certified that there isn't any consistent communication with the farming community. When academics place a strong emphasis on communication, they highlight how useful it can be for development initiatives. To elaborate, Servaes (2002) has pointed out that communicators need to be aware of the potential of communication and take the social environment in which it occurs very seriously.

4.2.3. Involvement of farmers in the preparation of the annual plan

Response indicated that farmers have been found to keep a notebook in which they record their annual plans as directed by the experts. Individual farmers prepare the yearly plan based on their capacity. The collective of all farmers' plans would become the plan that represents the entire kebele. A notebook is to help farmers know their achievements and status in the process. The first setback to using a notebook is that not all farmers are literate. Besides, not all development agents can contact farmers and check their notebooks. Therefore, the idea of utilizing a notebook is good, but the community members were not using it effectively. In this regard, I9 says that after putting his plan in the notebook, he will never look at it again. As participants noted in FGD1, DAs are somewhat indifferent when reminding farmers to accomplish their plans as written in their notebooks. From the preparation process of the annual plan, it is clear that the communication approach seems participatory in the first instance; however, later, it is not; practically, it is a pseudo-participatory approach. I9 substantiates this condition as follows:

> Usually, DAs inform us to prepare our plan in the notebook through group leaders; then they call all of us for a meeting to discuss our plan based on the plan from woreda. First, we plan according to our capacity. During the meeting, DAs will notify us that our plan is insufficient and we need to add more. In most cases, we cannot say no; we must add more activities to our previous plans, even if it is beyond our capacity. We do not say no when they add something new or additional activities. We listen to them quietly and return to our home; we know no one can force us to put it into practice. Source: Interview data - Dara Woreda, Bongode Kebele, July 2022

I2, on his part, explains the planning trend like this:

> Regarding planning, we usually build more on the activities achieved in the previous year. We might add 5 or 10 percent; there is one common thought we follow; however, we remind DAs that no land has to be bare and uncultivated. Source: Interview data - Sidama region, Jan 2023

During the wet season, woreda experts may submit forest seedlings without consulting with DAs or farmers. The project's objectives are to restore the area's deteriorated land and increase its plant cover. Nevertheless, a vital component of the endeavor is overlooked: the suitability of the seedlings for the region and the requirements of the farmers. Before adding new elements to a certain website, professionals should examine certain technical concerns (There are technical issues that experts should first test before introducing new things to a given site). These seedlings need to fit in with the current environment and not have any negative effects on the land's fertility or anything similar. Before, during, and after the planning stage, DAs and the farming community must engage in inclusive interaction and communication (Farm Africa, 2002).

Furthermore, understanding what farmers require is critical. When farmers are introduced to new things, they usually evaluate them from their point of view. They will never use it if they do not feel they would benefit. What they do is, as participant 8 says, *"plant the seedlings and later destroy them."* True participation helps to properly prepare a plan and develop the right attitude in development projects (Servaes, 2002).

In the PC model, DAs must be clear with their farmers. During FGDs with farmers, many participants said DAs do not have a culture to involve the community in the details of agricultural activities. Most participants in FGDs confirmed a lack of active communication and interaction. They say that sometimes, some topical tasks and activities may be enforced upon the kebele abruptly; in that case, DAs directly channel the tasks to the community.

The culture of implementing the PC approach in the agricultural sector is expected to be utilized during DAs' and farmers' interactions. In addition, it should also be seen clearly among other stakeholders, such as DAs and woreda agricultural experts. Agricultural experts at the woreda level have direct contact with development agents who work at the kebele level. The dialogue between these two personnel is expected to be participatory and interactive.

The nature of participation requires a lengthy process compared to top-down communication. In PC, there is always a dialogue between communicators. On the other

hand, the top-down approach involves less conversation and interaction. In this regard, a response from focus group discussions indicated that features of the top-down approach are mostly in place.

The other reflection on the absence of the PC approach is that the limited interaction between DAs and woreda experts. DAs usually prepare a monthly report and send it to the woreda. If woreda experts want to discuss issues or deliver information anytime, they do it by telephone. There is no conversation session for dialogue. In many cases, the face-to-face interaction between woreda experts and DAs is limited, as confirmed by the response from focus group discussions held with development agents.

Concerning the interaction between DAs and woreda experts, I4 has a different view. According to his explanation, although it is impossible to conclude that the communication between DAs and woreda experts is genuinely participatory, it does not mean that it is entirely top-down. As he indicated, sometimes seasonal activities are executed. Most of the time, these activities come from regional bureaus. In that case, woreda experts redistribute the job activities to different kebeles. In the process, the woreda expert considers the potential area in which to handle the new activities. In doing so, DAs might not be given equal status in the conversation, or their concerns may not be included. Therefore, the crucial aspects of the participatory approach might not be considered.

Woreda and regional experts interact mainly through weekly and monthly reports rather than person-to-person. They receive weekly reports via telegram and email (I2). As for the less interaction between woreda and regional experts, the same is true with the frequency of contact between regional experts and DAs, and it is significantly limited. I1 describes the existing trend of communication between DAs and regional experts as follows:

> We get contacted with woreda and DAs mainly during three different seasons: during "belg," "meher," and "mesno." Comparatively, we meet with woreda experts better during "belg" time than in the other two seasons. Due to certain limitations, such as logistics, we cannot move to kebele to see DAs quite

> frequently. During an emergency, we may visit the area together with woreda experts. Woreda experts are expected to meet and communicate with DAs often and regularly. However, as of my understanding, woreda experts and DAs lack frequent physical contact; they mainly exchange weekly and monthly reports. The paper kind of communication prevails much more than person-to-person contact. Source: Interview data - Sidama region, Jan 2023

Without frequent and regular contact between experts, it is difficult to determine the nature of communication approach utilized. However, in agricultural offices, experts tend to follow the existing top-down trend of communication rather than the inclusive nature of communication.

The above responses from the participants indicate that the PC approach is poor. Farmers are not included in the preparation of annual plan genuinely. DAs are not genuinely contacting and communicating through a participatory approach; experts are not truly doing their work based on the PC approach.

4.2.4 Training, experience sharing, and field visits as tools of communication

Using a variety of communication channels is one established strategy for reaching out to the agricultural community (Oakley & Garforth, 1985; Nyakuni et al., 2001; Tenkir et al., 2004; Gezahegn et al., 2006; Zikargae et al., 2022). First and first, agricultural development projects must raise awareness. The farming communities have amassed a wealth of knowledge and experience over many years, but as Rogers (2003) pointed out, embracing innovation and new technology may not be as simple as it first appears. The farming community occasionally wishes to examine both the advantages and disadvantages of initiatives. In order to awaken and positively influence the community, field trips, training, and experience sharing will become essential. According to the facts, there is a lack of coordination among stakeholders when using field trips and experience sharing as communication techniques (Zikargae et al., 2022).

Farmers can visit or can have access to mechanized and expansive farming lands, research facilities, demonstration locations, and the farms of model farmers. Taking farmers to the nearby farmlands of model farmers is the simplest approach to get them to

learn from others. Model farmers can serve as one of the most effective means of motivating non-model farmers, as they possess greater agricultural experience than the broader farming community. Thus, field visits and experience-sharing sessions would be the DAs' duty in this communication method (Oakley & Garforth, 1985). One benefit of organizing experience-sharing sessions and touring the farms of model farmers is that it doesn't require large financial outlays or complex planning. Let's say farmers are given access to this type of session where they can interact with and observe others. They will seize opportunities, practical difficulties, and knowledge. They get bravery from what they witness and experience; at the end, they assess their situation and gain knowledge on how to become better and more successful farmers. According to Moemeka (1994), it is more important to give the rural people adequate access to the communication infrastructure. Development depends on interactive communication channels and links at different community levels (UNESCO, 1975).

The results obtained from FGD 7 and 8 indicate the utilization of model farmers as a communication channel would raise awareness among the wider farming community. However, as confirmed by I11, the experience-sharing sessions were insufficient. The respondent said, “sometimes we were told to visit model farmers’ farms.” Such visits are done with very limited attendance. As respondents revealed in FGD3, the number of members of the community who get an opportunity to share their experiences with model farmers is minimal. I6 also substantiates the above response by saying, “We are not doing well in facilitating field visits and experience-sharing activities for different reasons.” Source: own data - Hawassa Zuria Woreda, Nov 2022

I15 stated that he has never taken part in an experience-sharing session or field visit. Even though there are numerous obstacles, it would not be a prudent decision to forgo using this communication channel (Not utilizing this communication channel would not be a wise decision, though many impeding factors exist). Communicating agricultural messages to farmers and addressing general issues pertaining to their everyday life constitute a substantial portion of experience sharing and learning from model farmers (Oakley & Garforth, 1985).

Concerning the training, respondents who participated in the FGDs and interviews did not deny the presence of training delivered by DAs in Farmers' Training Centers (FTCs); the concerns were related to the irregularities of such trainings. Participants assert that "DAs arrange training in the Farmers' Training Center, but less frequently" (FGD1).

Participants in FGD7 revealed that very few farmers usually come to the training; model farmers have better attendance than non-model farmers. Most farmers are not interested in attending the training. "The farming community needs some kind of incentives to participate in the training," one participant said in FGD7. On the other hand, I17 remarked that DAs do not call all farmers to participate in the training; they rather frequently contact model farmers. The above two responses obtained from I17 and FGD7 confirm the lack of substantial efficiency in facilitating training for farmers.

Other than attending the training programs provided by DAs, farmers have no other way to learn about new developments and innovations. Universities, research facilities, and researchers have not established consistent lines of communication with rural communities. Other than the government office of agriculture, no other agricultural-related agency builds demonstration sites. Not every woreda kebele has a designated area for demonstrations alone. The training at the demonstration site does not use a variety of delivery techniques, including hands-on training, printed materials, field trips and experience sharing, training aids like audiovisuals, etc. They don't contribute (because they lack input). Most of the instruction is delivered verbally, albeit occasionally with demonstration. The language used in the presentation is a plus; it's admirable that DAs primarily speak in the local tongue using Sidama language/affu.

4.2.5. Frequency of contact among the key players

Regular communication across stakeholders is essential in PC (Leeuwis & Van den Ban, 2004). They are able to interact and share information more regularly, learn about current events in their community, make quick decisions about matters of concern, and help them understand the overall situation more. Their relationship is neither regular or scheduled, as evidenced by the answers provided by the experts in the in-depth interviews and the DAs in the focus group talks. There is less in-person interaction between DAs and

specialists. These professionals have a variety of ways to communicate with one other in a circumstance like this.

Every DA and woreda specialist has a smartphone with mobile data access to the internet. But respondents to the FGDs 7 and 8 stated that their primary use of phones is for making calls. Participants in FGD7 and FGD8 indicated in their comments that there is a lackluster use of technology for discussing agricultural concerns and for learning and sharing information. PC can be served technologically; human presence is not required at all times. But the contact trend, which depends on actual presence, absorbs the communicators' minds and prevents them from utilizing alternative routes of communication.

Experts and farmers engage in far less engagement than DAs and farmers do. Experts in woreda do not visit farmers on a regular basis. During the growing season, they usually move to farming areas, and natural disasters like droughts happen as a result of insufficient rainfall. In this regard, I3 brought up the fact that specialists frequently operate from their offices and do occasionally, though not frequently, move from kebele to kebele. There are restrictions and constraints from a logistical standpoint, she said. But as I3 and I4 made clear, woreda experts are always more accessible than regional experts, and they have more interactions with farmers.

There should be more communication between local (regional) specialists and farmers. Both I1 and 2 made it extremely evident that they relocate to Kebele during emergencies, such as a disease epidemic or drought. The main responsibility in this case would be to evaluate the consequences and alert the highest ranking government agencies so that they can take whatever action is required to provide farmers with emergency assistance. Phone calls and monthly reports are the main ways that the regional and woreda experts communicate with each other. I1-6 confirmed that the main barrier to going kebele to kebele on a regular and frequent basis is logistical in nature. If logistics and financial constraints were not an issue, regional experts stated they would like to visit each kebele on a regular basis to see the work of the DAs and obtain a general grasp of the challenges faced by farmers.

4.2.6. Challenges in reaching out to the farming community

The responses from FGDs and IIs indicate that there are a variety of ways to look at the challenges, including from the standpoint of resources, logistics, government interest, and professionalism. The data indicates that these challenges negatively impact the ability to properly communicate with the rural community.

4.2.6.1. Agricultural inputs

The necessity of resources for Ethiopia's agriculture industry must be considered from a survival standpoint. It is common knowledge that our farmers adapted their farming practices to the wet season by monitoring the weather. For our farmers, rain is vital. Farmers have a number of responsibilities before the rain arrives, including clearing the land and getting agricultural inputs on time. They begin sowing the seed when it begins to rain. For example, it will be very troublesome if the farmers are denied access to fertilizer and seeds. In relation to this common action, I13 brought up the fact that farmers occasionally go without seeds and fertilizer when they really need them.

> This is a big challenge for the office; we sometimes are unable to avail inputs on time, but this problem is not happening every time. Source: Interview data - Dara Woreda Agricultural Office, Nov 2022

I1 pointed out that the regional government is responsible for timely distributing seeds and fertilizer. Farmers frequently struggle with a lack of the seed varieties they most need. I1 provided the following explanation:

> For instance, farmers who live in hot climates require a maize variety called pioneer, but finding it is difficult. The variety is expensive. Even wealthy farmers are unable to obtain these seed varieties because of high demand. Along with maize, our farmers had a shortage of wheat seed varieties. The availability of highly productive seed types is insufficient. Source: Interview data - Sidama region, Jan 2023

It is apparent from the remark made by I1 that there was a persistent challenge. Seeds are not easily accessible. In terms of the provision of seed varieties, there are key players in

addition to the regional bureau and the agricultural offices of Woreda. Requesting seed variants is a vital step in streamlining the procedure. It usually takes some time for the seed to be ordered and delivered.

The ordering and delivery of the seed generally follow a lengthy process. The procedure between stakeholders on the demand and request for seed varieties is slow, as I2 stated. Information is exchanged between Woreda and Kebele more quickly than between regional bureau and federal offices. He explained the issue as follows:

> We communicate with federal authorities as quickly as we can, but their reaction time is insufficient. Based on seasonal work, we report our requirement for seed and fertilizer centers as early as possible. Every year, we perform the same thing. In general, we get slow responses. Source: Interview data - Sidama region, Jan 2023

Farmers are unable to access the specifics of research findings, according to I2. For example, before distributing seeds to farmers, no reputable research institutions examine the compatibility and utility of the seed for the region. Farmers Training Centres (FTCs) are unable to complete all aspects of research outputs at this time. Their land parcel is sparse and disorganized. [3]FTCs are not equipped with the necessary materials, and some are ruined entirely.

I1 claims that not every kebele in the Sidama region has constructed FTC. Out of 540 rural kebeles, about 400 have FTCs. These FTCs are deemed to be of the lowest quality and do not properly provide services. According to I1, the state of these FTCs is that "generally speaking, we cannot say that we have FTCs with good quality and status." There should be at least one FTC in each woreda that is well-established and furnished with the required inputs, not just in every kebele. There are 30 woredas in the area, but only a few, like Melga, have one better FTC.

Demonstrating farmers to new seed varieties is one of the goals of FTC's establishment. The main goal is to teach farmers how to plant, develop, and employ all required processes in FTC. Farmers learn about the seed's suitability and usefulness in their

[3] Farmers Training Centers

particular location. Farmers are presumed to become more willing to adopt seed variations when they observe the productivity of the seed in FTC. After watching and taking part in FTC events, farmers acquire knowledge about and implement new seed varieties and other innovations. Unfortunately, the study's findings indicate that the FTCs were underequipped and under-functioning. It would be more reliable to state that nearly all FTCs are ill-established, with most not being in service.

4.2.6.2. Accessibility of research findings

It's not always easy to get research findings out to the farming community. Participants in focus groups and interviews confirmed that end users do not have sufficient access to research findings. As I1 noted, research facilities currently have to work with farmers. Despite Ethiopia's abundance of research institutes, many farmers still have trouble getting the products. Farmers frequently do not receive the results of research and are not able to benefit from it. There could be numerous reasons for this, but I1 and I2 mentioned that no dedicated organization effectively links farmers and research findings. In his description of the situation, I2 said:

> Research findings do not regularly reach farmers. Numerous researchers have conducted important studies, but their results do not appear in our extension system. Practically speaking, we are unable to link with research centers and effectively communicate the findings to farmers. For instance, last time we heard about post-harvesting devices, however, we were unable to make them available to our farmers. There is no hub where agricultural offices, academic institutions, and research institutions may exchange discoveries. Source: Interview data - Sidama region, Jan 2023

It was confirmed by I2 that no research centre was created in the Sidama region. He asserted no significant research center works closely with them. On occasion, woredas were contacted directly by research centers.

Accessibility of study findings is also a challenge due to the extent of farmers' engagement. According to I3, farmers should participate in research projects at a higher rate. For farmers to be more broadly involved in scientific pursuits, research institutes must be established in several woredas. It would thus be possible to let farmers observe and take part in research programs. Researchers would find it simpler to investigate farmers' issues and carry out potentially ecologically beneficial research as a result. I2 claims that no research groups properly kept in touch with farmers or made themselves available to them.

4.2.6.3. Professionalism: training and experience sharing for development agents

Skills and knowledge might vary or constantly change. Professionals need to keep informed or acquire current information continually. An in-depth conversation with experts revealed that it is essential to hold training and experience-sharing sessions for DAs. The main cause, according to I1, was that "DAs are not sufficiently experienced to support farmers; DAs who graduated from ATVET Colleges lack sufficient knowledge." He contrasted their expertise with that of the then-DAs who had completed diploma studies at Agricultural Colleges. That program was out of date.

I2 further said the following:

> DAs who graduated at levels III and IV lack sufficient and in-depth understanding of agriculture, which is the general position of DAs in terms of their readiness for knowledge and expertise. Farmers, especially model farmers, are more knowledgeable than DAs. DAs are surpassed by the practical knowledge possessed by model farmers. I do not believe ATVET Colleges effectively carry out the Ministry of Agriculture's mandate. They don't produce knowledgeable workers for the agricultural industry (I2). Source: Interview data - Sidama region, Jan 2023

This quotation is more than a simple generalization. It is among the most significant obstacles DAs face when trying to support local farmers. DAs receive on-the-job training, although not often, as the respondents in FGD7 disclosed. They also attested to the fact

that they have the chance to take part in experience exchange. They claimed that experience exchange and training took place at sporadic periods, although the frequency is uneven. According to responders in the FGD8, the training's material is useful and contextual. The training days allotted to the material, however, are insufficient. Despite the irregular training and experience sharing, the trainers' teaching strategies and the topic matter they focus on are often applicable and beneficial.

As previously highlighted, the professional capacity of DAs in their required roles poses a problem to the Ethiopian agricultural sector. Participant 2 remarked that DAs with ATVET College degrees lacked professional competencies.

4.2.6.4. The ever-increasing price of agricultural inputs

Farmers never have easy access to fertilizer or the required seed varieties. Ethiopian farmers have undoubtedly faced these persistent issues in recent years, as has become widely known. Farmers are forced to pay a high price every year and travel from place to place to get fertilizer and seed varieties. Participants in FGD7 observed that farmers have anxiety every year during the plowing season due to rising agricultural input costs, especially those of fertilizer. Regarding the price increase for fertilizer, I6 stated that it is unmanageable and outside of their control. I10 noted that as long as the cost of agricultural inputs continues to rise, the output they receive after harvesting will never turn a profit. According to Kibrom et al. (2024), this affected the yield and profitability of smallholder agricultural systems. A participant in FGD 8 mentioned that, in most cases, farmers could never retain excess agricultural yield or production. In this context, I4 stated, "I wonder how a farmer can be expected to lead a better life given the continued rise in fertilizer prices." Kibrom et al. (2024) claim that farmers are compelled to use less fertilizer, which affects crop growth and reduces yields.

Farmers are discouraged by the rising cost of inputs. I16 said that the price of agricultural inputs is high, which frustrates him. I5 also stated, "In our situation, farmers pay between 5000 and 6000 birr for fertilizer per quintal.”

4.2.6.5. Traditional farming system

For many years, Ethiopians have been involved in agriculture. The primary agricultural instruments used in Ethiopia are hand tools and oxen; labor is the source of energy used to cultivate the land rather than machines. Farmers still use an ox-driven plowing or farming technology to produce, primarily for their own consumption. Furthermore, the majority of farmers now hold less divided acreage than they did in the past. The amount of land has not changed, despite the population's continuous growth. In addition, the amount of land per family has declined over time as a result of cultural customs in which fathers gift farms to their sons.

Agriculture is beset by problems. I2 asserts that the farming method is traditional. Using hand tools and oxen, farmers plow fields. For farmers, land fragmentation is a reality. If there had been big fields, farmers could have plowed, planted, and harvested using machinery. Even large farmers could not afford to finance the use of machines for farming-related tasks (I1). The majority of farmers in the region tend their land using oxen and manual tools (FGD1–8).

4.2.6.6. Inaccurate reports of yields to authorities

Identification and planning of problems are the first steps in agricultural activity. The post-harvest season will provide farmers with an understanding of the outcomes of their efforts. The production may be lower or higher, even though they typically aim for more each season. Their success story needs to be presented honestly and candidly. The government's report on the quantity of agricultural production on particular crops is one issue that is evident here.

The community in PC is entitled to know the truth. In a top-down communication system, the government receives skewed information regarding the amount of agricultural produce, based on misleading reports from the woredas. In this instance, the rural community has more knowledge. One of the regional office respondents describes the circumstances as follows:

> First, let me go over the reports we hear often. For instance, press reports on the output of particular crops are sometimes inflated. Farmers may have harvested 20

quintals of a specific cereal per hectare as opposed to the reported 50. On the ground, many farmers are underprivileged and receive low yields; nonetheless, the report indicates that farmers have earned great yields. Everything is distorted by the report. We had to feed ourselves adequately, as we understand from the official government media. Source: Interview data - Sidama region, Jan 2023

Gaining the public's support is the government's explicit goal. It's possible for people to think that government initiatives are to blame for the rise in agricultural output (People may believe that agricultural production has increased due to the government's efforts). That fact, though, is unavoidable. Ethiopian farmers and other people need to be informed. It is important to let farmers know that much more has to be done to make their lives better. Farmers do not even contribute to the report; they are not the information source.

4.2.6.7. Rresponsibility of stakeholders to agricultural activities

Every action requires accountability and responsibility. Farmers, DAs, and experts are responsible for ensuring that their contributions to agricultural activities are successful or unsuccessful. The absence of accountability and responsibility among the parties led to carelessness. According to the data acquired through IIs and FGDs, no real obligations out there to force farmers to exert their maximum efforts. A participant in FGD7 describes his opinion that "farmers might leave their farmland bare without cultivation. They are unenforceable." The power of DAs and specialists in providing their professional services is implicit in his phrase. Farmers are completely free to do or not do anything. Experts and DAs are only allowed to provide their subject-specific knowledge. Farmers' choice of whether to accept or reject the information marked the end of the contact between them and the DAs.

In this regard, a participant from FGD8 contrasted the current state of agriculture to that of the Derg era, noting that under the Derg regime, professionals had the power to compel farmers to carry out their duties effectively. For instance, a farmer will be penalized if he does not remove weeds from coffee seedlings back in the day. Farmers are expected to follow and comply with the rules. Even if most participants in FGD7 and FGD8 did not appreciate the communication strategy used during the Derg era, they

expressed their gratitude for the power given to experts and DAs. DAs and experts think that giving experts some degree of decision-making authority may help to encourage reluctant farmers to take responsibility for their actions. Associating authority with knowledge would offer agricultural professionals the right to be heard while providing the rural community with professional guidance. It is assumed that agricultural professionals require decision-making skills according to their level of professionalism.

Considering the participants' comments, one could conceptualize professionalism and a "power-granted communication approach." Associating authority with knowledge would allow agricultural experts to be taken seriously when providing advice. This strategy might be used to influence some farmers who are currently resistant. Agricultural experts require decision-making skills and professionalism.

4.2.6.8. Language preference for communicating agricultural knowledge

Having a proper conversation with the community has several advantages. It is helpful to have a clear understanding of the issue. Appropriate language includes things like word choice, clarity, engagement, using the local language, and other elements. According to Communication for Professionals (2017:1), using polite language "makes communication more effective since it prevents misunderstanding and conflicts". One of the main concerns is engaging the community in communication for growth. It's critical to communicate effectively first. During a conversation, polite and direct language must be utilized. When introducing new terms in conversation, DAs and experts should exercise caution and make sure they are properly defined to ensure that the community is aware of their meaning. DAs must to be quite knowledgeable about the topic matter.

One of the essential components of achieving mutual understanding in communication is assertiveness. Farmers must clearly comprehend the things being discussed, and language should not contain words with unclear meanings because this hinders mutual comprehension.

Positively, DAs and specialists speak Sidama while interacting with farmers, as evidenced by the data from FGDs and II. Furthermore, they communicate in Amharic. It takes vernacular language to clarify matters and facilitate communication. Speaking in

their own tongue is important, as all of the farmers who took part in the interview emphasized. Regarding this, FGD 7 and 8 participants disclosed that when DAs communicate with farmers, they constantly attempt to simplify and make the conversation more understandable. They verified that DAs typically interact politely and respectfully with the farming community. They also refrain from using jargon. Farmers who took part in the Focus Group Discussions (FGD) also attested to their satisfaction with the DAs' general communication style and tone. Participating farmers in the FGD expressed satisfaction with the overall standard of communication and the way DAs deal with them. Building strong relationships with communicators is usually facilitated by using the mother tongue.

4.2.7. Nature of dialogue with farmers about problems

The absence of rain was a serious issue for farmers in six woredas in the Sidama region last year, noted I1. The Regional Bureau of Agriculture assembled a regional team to investigate the matter. They noted the harm, and the government soon gave farmers new seeds as a compromise. The bureau distributed soybeans and other seeds that mature in three months. According to I1, insects destroy significant areas of land every year, along with a lack of rain, which influences the livelihoods of many farmers. Experts referred to it as "medebegna temech." "Medebegna temech" is an Amharic expression that can be translated as "bug that occurs frequently or annually." Some farmers think that pests are a result of God's wrath as a form of punishment. Others believe it will go away on its own.

Experts frequently travel to the area during a catastrophe and notify the authorities of the issue. Similarly, when problems arise, such as a lack of rain, disease, pests, and other things, the community typically expects a response from governmental and agricultural offices. I1 described his observation in this regard as follows:

> I notice in the community that they are losing courage as a result of the persistent issues. Farmers who had a lack of rain last year saw no gains. Eleven woredas are now having the same issue. They gave up. They associate their issue with a divine punishment rather than seeking a resolution. Source: Interview data - Sidama region, Jan 2023

The residents' constant accusation of God's vengeance for their problems is something that needs to be discussed. It is necessary to have a conversation session before we can offer farmers hope. Through dialogue, farmers may find a different angle on the problem and be more motivated to find a solution. It might be suggested, for instance, that farmers who have access to a riverfront use an irrigation system to get their water. Rather than always depending on the government for support, there are other approaches to help farmers overcome their challenges.

Farmers are usually discouraged to see their farms grow barren after pouring everything into them. To successfully navigate this challenging situation, farmers require guidance, support, and direction from DAs and agricultural specialists. Instead of waiting for help, DAs should arrange a community forum where farmers may address the problem and find possible solutions.

A possible solution must be investigated by DAs and specialists from multiple angles, such as the community and research facilities. Rather than just reporting the harm to the government, DAs and experts should expand their networks, establish relationships with other stakeholders, and engage in open communication with them. Speaking with all pertinent parties is the greatest way to drastically reduce the problem's impact, or at the very least, to help mitigate the harm. The natives believe that God mostly delivers rain and that they would escape punishment if they follow his instructions. The community needs to be informed logically and reasonably, regardless of how the concerns are seen and thought to exist.

In conclusion, the responses from all FGDs and IIs demonstrated that there was no other forum for discussion and communication during emergencies. Reporting the issues to higher authority was only a task under the circumstances. By holding a conversation session with the community, all agricultural issues and problems can be addressed through the participatory method of communication; but, as FGD7 and 8 demonstrate, no successful attempt was made.

4.2.8. Prospective of communication in current trends of agriculture

In agriculture, communication is essential because it gives farmers access to information and gives them the tools they need to improve their farming significantly (Kaur, 2022; Sylvester, 2017). Nonetheless, the primary obstacle to implementing new techniques in the Ethiopian agricultural sector is the failure of communication intervention, as demonstrated by Matouš et al. (2013). Productivity is lowered by this circumstance (Ayalew & Abebe, 2017).

It is said that the current generation undervalues agricultural endeavors. According to a result from Focus Group Discussions 7 and 8, a large number of the present generation does not choose to pursue a career in farming. Young people attempt to make money in ways other than through active participation in agriculture. I2 attests that parents do not pressure their daughters and boys to pursue similar careers. The younger generation works in labor or runs small companies, such as selling goods from makeshift kiosks in front of their homes. Participants in Focus Group Discussions 7 and 8 reported that practically all of their parents' farms is overrun with weeds and under attack from pests, and that some working class people choose not to assist their parents.

These extremely small enterprises do not make big profits, but they are also not good enough to meet the daily need, as participants in the FGD2 described. Technical issues have caused a drop in agricultural production, yet the majority of family members have entered into extremely unsatisfying and unsustainable businesses. It's one of the issues facing the farming sector right now. The main concern of young people is how to make quick money without jeopardizing their parents' farmland (Youths mostly care about how to earn immediate income with a compromising effect on their parents' farmland). Parents place a strong emphasis on allowing their children to earn a living through sources other than agriculture, such riding motorcycles, selling consumer goods, working daily jobs in a neighboring town, etc.

"Youths' hearts do not embrace agriculture as a livelihood; they do not need to be a farmer," I1 said. What matters here is not about choosing to be a farmer or not; what is essential here is what makes life better. If the young generation gets a better life with activities other than farming, no one can force them to stick to farming activities. But

since their lives are not improving when they engage in non-agricultural pursuits, it is your responsibility as a communicator to bring this up and have a conversation about it with the farming community and other relevant organizations. Numerous academics have noted that communication is essential because it enables communicators to perceive and comprehend issues properly and assess them from their points of benefit (Acunzo et al., 2016). Therefore, DAs and experts should properly address the question of how the youths in the area might live better lives by actively participating in agriculture as opposed to spending time in small, unsustainable companies. The farming community should also get a chance to talk about how to manage small enterprises and agricultural operations concurrently without compromising the former. According to interviewee responses, DAs and agricultural specialists do not appropriately address these concerns with the farming community. The community will become aware of the issue and be able to consider it through discourse. To have an open discussion about societal issues, farming communities need inclusive communication approaches (Acunzo et al., 2016; Sylvester, 2016; Tacchi & Lennie, 2014; Tufte & Mefalopulos, 2009; Mefalopulos, 2008).

FGD 7 and 8 participants revealed that DAs believe that participatory communication is essential to accomplish agricultural activities. However, practically, they do not comply. Instead, they mostly use a top-down communication approach. I1 described the situation as follows:

> We cannot say the way we communicate is not inclusive entirely. Nonetheless, we mostly comply with the ones from the top officials and forward them down. In my experience, there is little space to incorporate ideas from the bottom. Source: Interview data - Sidama region, Jan 2023

Any activity coming from the top must be executed, even in the middle of the working year. It is not easy for the experts not to obey. Bureaucratically, as elaborated by I3, there is strict conformity to the interests of the higher officials. I2; put his point of view as follows:

> We feel that anything that comes from the top is good and valuable; that is why we give more attention to the idea that comes from the top. We indifferently lose our attention to reality at the grassroots level. We do not examine exhaustively and carefully the situations on the ground). Source: Interview data - Sidama region, Jan 2023

A further important question that is not carefully investigated by specialists is what increases farmer productivity. Administrative and DA visits to farms are typically made for objectives unrelated to agriculture. Farmers are more likely to meet and hear about politics; throughout the planting, weeding, and harvesting seasons, it is not unusual to see farmers repeatedly asked for political meetings. The government is very concerned about agriculture, but as I4 pointed out, political problems receive more attention and space. His remark on the current trend read:

> I can conclude that practically, we tend to follow a top-down communication approach. When administrators call farmers for a meeting, farmers come on time. However, as usual, farmers are not keen to talk with us when we reach out." Source: Interview data - Dara Woreda, Nov 2022

In this regard, the prospect of agricultural communication needs to be revisited. How to proceed in the future should be an assignment for DAs and experts. They need to become more alert and use a defined communication approach to help the agricultural community be more productive.

About the fate of agricultural communication, I1 noted the following:

> We do not advance our agricultural system as suggested by professionals; political decisions are common in our agricultural extension system. For example, we plant trees and construct terraces to rehabilitate degraded lands and keep our land covered by vegetation as long as possible. Nevertheless, we do not see great changes. The main cause of our failure is that we do not do it properly. Moreover, we do not evaluate our level of achievement. No one is responsible for the failure. Our agricultural system has no auditing arrangement; farmers are not enquired about their failure, DAs and experts are not questioned for their failure,

> administrators take no responsibility on their part, and no one examines the pitfall and puts someone in charge of it. Anything wrong happens in the agriculture sector, and no one is accountable. Somebody comes today, and they leave tomorrow. In my view, agricultural experts, administrators, and farmers must be evaluated and questioned based on their level of achievement. We should take responsibility. We are here to help farmers achieve a certain level of improvement in their life; we should work hard to attain that goal. Source: Interview data - Sidama region, Jan 2023

I2 put the overall scenario of the current incident in the agricultural community as follows:

> Nowadays, youths are not helping their parents; they do not want to be farmers. Fathers engage in agricultural activities alone; their sons do not help them. Traditionally, youths, particularly males, do help their fathers. I fear these young generations will lose practical knowledge of agriculture in the future. Many youths flee to towns and cities; hundreds travel to Addis Ababa daily. They do not want to pursue agriculture-based lives. We cannot force them to stay in agriculture. Source: Interview data - Sidama region, Jan 2023

The elder generation makes up the majority of the workforce in the agriculture industry, not the younger one. In order to achieve high productivity, the younger generation, the productive labor, and those with fresh vitality must return to agriculture; they will transform it. Labor is needed for our agricultural operations, which include planting, weeding, harvesting, building water reservoirs, and irrigation. As long as they continue to labor in the agricultural sector, youths in Ethiopia's agricultural system are unquestionably the productive forces of the future.

4.2.9. DAs-farmers' interaction

A concern in farming operations is the relationship between farmers and development agents. The relationship in practice always dictates the path that the conversation takes. Good communication fosters optimism and a shared motivation in reaching their objective (FAO, 2006). They can easily understand each other regarding the issues they

are dealing with because they have good communication skills. Thus, communication between DAs and farmers is essential (Asmelash et al., 2022). When DAs approach any farmer, without exception, they ought to do it with the same poise and bravery. But the respondents' responses yielded very different results. DAs do not approach all farmers (both model and non-model farmers) frequently and interact with the same temper and courage as they do with model farmers. I10 said DAs visit model farmers more regularly; they focus on farmers who do better. Regarding field visits and experience sharing, DAs typically choose model farmers. DAs who participated in FGD 7 and 8 pointed out that they frequently contact model farmers. The reason is that model farmers are keen to do what they have been told and are hard workers; they say it is easy for them to deal with model farmers. A respondent in I3 said, "Model farmers are cooperative, easily adopters, and positive in responding to new ideas". A participant in FGD 7 said, "most of the time, non-model farmers do not accept our advice." Due to this reason, DAs usually prefer to visit model farmers' farmland than non-model farmers.

The communication between DAs and model farmers is much better in many aspects than between DAs and non-model farmers. I8 said DAs frequently visit her farmland and house because she is a model farmer. She said, "DAs frequently visit me. They advised me to plant vegetables in my home garden last year. I did as they told me." On the contrary, I10 said she did not receive improved vegetable seeds last year. The replies from each responder demonstrate that different farmers have different connections with DAs. A communication strategy that excludes some farmers would not produce the desired outcome of increased agricultural output. A communication strategy that supports model farmers would eventually overlook the larger farming community—that is, non-model farmers. Sincere community involvement is crucial for fostering the proper mindset in development initiatives (Servaes, 2002). The exclusive character of communication between DAs and farmers does not end here; woreda experts also engage in it.

The accomplishments of model farmers are used to gauge the success of agricultural endeavors. DAs and woreda specialists accompany guests to the best model farmer's farmland when higher authorities and guests from regional and federal government

offices view farmers' actual state on the ground, according to responses from participants in FGD7 and FGD8. Visiting is typically used to evaluate the overall performance of farmers, specialists, and DAs. The comments from senior officials, however, do not accurately reflect the achievements of the entire community. The bulk of the community, who are non-model farmers, are left out.

4.2.10. DA's engagement in serving non-extension activities and its consequences

When one thinks of the responsibilities and actions of development agents, they typically see them working hand in hand with farmers to increase agricultural output on a daily basis (EATE, 2017; Oakley & Garforth, 1985). Development agents in Ethiopia are specialists with three years of training in one of three primary fields: natural resource management, animal husbandry, or crop production. Each kebele's farming community is served by three DAs who have received training in three different fields (EATE, 2017). Using their professional knowledge and abilities—which they have acquired via their college education, on-the-job training, and life experience—their main duty is to assist farmers. Other than farming, these three development agents are not allowed to do any other kind of work.

It might not make sense to prevent DAs from engaging in activities outside of agriculture as members of the community. Working with and assisting farmers in a variety of activities won't be a problem for DAs as long as their involvement in non-agricultural activities doesn't interfere with their duties. Consequently, their assistance could foster increased closeness and communication. On the contrary, DAs' primary responsibility could be affected if DAs engage more in non-agricultural activities. As participants confirmed in FGD7 and 8, DAs engaged highly in last Election. In some kebeles, DAs are the primary coordinators and presenters of the topics and issues in the 2021 national election. The main topic was to initiate the community to register for the election. They were also required to explain and convince the community to support a peaceful government transition. In addition, as a participant in FGD 1 and 2 revealed, DAs usually participate in non-farm activities like health issues and other politically motivated topics. DAs should move from one farmland to another regularly and frequently to communicate with farmers about agriculture (Oakley & Garforth 1985). This task by itself is a

laborious and energy-consuming kind of work. Adding further activities beyond their professional career would affect the extension service they deliver.

4.2.11. Working environment and its impeding effect on communicating and delivering agricultural activities

DAs are supposed to serve rural communities by staying with them. One of the challenges here will be the availability of infrastructure like houses to accommodate them. There is almost no transportation during the rainy season, and the topographic natures are hilly, demanding DAs go up and down on their feet to meet farmers. DAs ought to go many kilometers each day to visit farmlands. The job requires more energy. In this regard, FGD 7 and 8 participants said that DAS couldn't contact each farmer regularly and repeatedly. Instead, they prefer getting farmers in a group or meeting. A participant in FGDW 8 said,

> In my kebele, there are 840 households; the question is how I can visit each farmer's land all the time. Therefore, I only visit nearby and model farmers most of the time. Source: FGDs data - Hawassa Zuria Woreda, Oct 2022

The challenge can be categorized into two perspectives. The first is from the geographical point of view; in this case, DAs cannot move from one farmland to another every day due to geographical barriers, as noted by I2. The second one is the number of DAs deployed in a given 'kebele'; three DAs might not be enough to serve all the dwellers of a given 'kebele.' Due to these factors, DAs prefer to contact farmers selectively, as noted by 15. Reaching nearby and model farmers only denies the right of other farmers to be communicated with and get benefits from the extension service.

The other issue is the interest in working as a development agent. DAs are not interested and happy in their profession. Turnover of the personnel in the agricultural offices is typical. DAs frequently leave the sector, as told by participants in FGD 8. Several factors have contributed to the instability of DAs. Working in rural areas is hard compared to urban style of life. DAs are not satisfied with the salary and incentives they get. Working as a DA in a rural area is challenging, as described by I6. DAs stay and work as DAs for some years; in the meantime, they join nearby universities to get a college degree other

than in agriculture. As a result, respondents in all FGDs confirmed that frequent contact and continuous communication between DAs and farmers are less.

4.2.11.1. The interest of DAs in serving farmers

Employees frequently do need to be engaged in the tasks and obligations assigned by their company. Even though every organization has a different working environment, having and acting in good faith helps the organization achieve its objectives. Examining Ethiopian state agricultural offices reveals unique characteristics that set them apart from other establishments. A high motivation is necessary to work as a development agent in Ethiopian agricultural offices. Experts and development agents act as a liaison between farmers and offices (EATE, 2017). They are essential organizations for providing farmers with agricultural knowledge, information, and services.

Interest, as a concept, is a big concept. The workers' motive or interest in their duty usually affects their success. One issue in the DAs-farmers relationship is the frequency of contact in-between. To have good communication, DAs should visit farmers repeatedly, which should be done with interest. However, as respondents confirmed from FGD 2 and 3, DAs are not visiting farmers frequently. One of the reasons participants gave during FGD 7 and 8 is that DAs have little interest in regularly contacting farmers by traveling from home to home. According to their rationale, visiting each farmer's site daily or weekly is tedious and energy-consuming. Instead, DAs prefer to meet farmers at the group's 'got/hiwas[4]' or 'kebele' level. Without continuous contact, the communication between farmers and DAs is intermittent.

DAs do not wish to serve as development agents for a long time because, as the latest phenomenon shows, they are less interested in the role. There's a lot of/high churn/turnover. I, 2, and 4 attested to the fact that a large number of DAs have recently changed careers. The lack of motivation to work as DAs is caused by a variety of causes. Yalemzewd (2020) listed a few of the contributing elements. According to Yalemzewd (2020:5) explanation, "DAs are detached from urban lifestyle and forced to work under

[4] Got/hiwas refers to a sub division under kebele

harsh environment." He noted that DAs work with a lack of infrastructure, such as transportation, and hence travel long distances on foot every time.

Moreover, DAs are working with a lack of basic office facilities and fewer educational opportunities. The pitfalls mentioned here and other factors, as Yalemzewd (2020:5) noted, "left them with little incentive to aspire and work towards a better future through changing the livelihood of the smallholder farmers." In FGD 7 and 8, what participants raised aligned with what Yalemzewd noted in his paper. DAs are not very interested in staying long working as DAs; they either want to change their profession or look for other alternatives to get rid of the laborious farming sector.

4.2.11.2 Presence of incentives for DAs

The relationship between incentives and proper accomplishment of duties and tasks might not be easy to define. In this research work, DAs were asked about the impeding factors in communicating with farmers properly. According to the responses obtained from FGD 7 and 8, one of the reasons is that DAs are not satisfied with their work. Almost all activities require DAs to travel physically on foot from one place to another. They do not have a motorcycle or other means of transporting services. The topography of all kebeles is hilly, and moving by foot from one farmer's household to the other is tedious and energy-consuming.

Moreover, farmers may not quickly show a change in their lives, and the success DAs anticipated from their efforts would become unsatisfactory. The salary is meager. There is no additional incentive other than salary. The above facts, which development agents raised during FGDs, lessened their interest. A participant in FGD 7 said, "working as a development agent is one of the most laborious tasks, as I think we deserve better salaries and additional incentives." The other respondent in FGD 8 said that due to a lack of incentives, DAs lost interest in eagerly accomplishing their duties and activities on time and as required. As issued by some respondents in FGD 7, some DAs visit, communicate, and deliver their service to model farmers. DAs want the easiest way to work with farmers; the nearest farmers are usually contacted. When higher officials visit, DAs take them to the model farmer's farmland only, which deceives the overall success of the farming community. Due to this, higher officials feel that agricultural activities are better

in the area. An elderly participant in FGD 8 said, "you know, this time is all about paperwork; we report to Woreda; they do the same as I assume."

The interest to keep working as DAs is dwindling; there are indications, as revealed by I3,

> In my experience, I have seen many DAs change their profession and enter another field of work. Still, many DAs take courses in the weekend program from the nearest university to change their profession and later quit their work. Source: Interview data - Dara Woreda, Nov 2022

The above expression clearly shows that DAs are not interested in their job. The factors they mentioned are not something that can be neglected.

The first major task of DAs is to get timely and appropriate contact with farmers and discuss agriculture in detail with them. In the process, DAs' courage to work helps to communicate well and interact with farmers. However, as DAs are less interested in their profession for various reasons mentioned above, they are not in a good working temperament, which undoubtedly affects the possibility of regular contact and proper communication.

4.2.11.3. Professional integrity of DAs and experts as communicators

Crop production is the main focus of the Ethiopian agricultural extension system. Increasing crop productivity and being able to feed the population adequately is the ultimate goal of all efforts (AESE, 2017). Whenever farmers and development agents were asked what they knew about the word *"extension,"* they quickly associated it with *"crop development."* I12 describes what extension means: "improved seed and fertilizer." I14 replied the same. I9 said "extension" means "using seed and fertilizer for better production." During the rainy season, DAs and experts contact farmers more frequently than at any time in the working year. Participants in FGD7 said the routine undertaken every year makes the community understand *"extension"* as "*fertilizer and seed."* Repetitive talk on seed and fertilizer among DAs and farmers limits the understanding of roles and purposes of "agricultural extension" to the concept of "seed and fertilizer" only.

The wide idea of agricultural extension encompasses several activities related to rural development such as crop cultivation, animal husbandry, and natural resource management. Enhancing one facet of agricultural endeavors positively influences the advancement of another. Rehabilitating degraded land, for instance, would lead to higher production. In the end, the degraded land will support vegetable growth if it recovers. As such, DAs' interactions with farmers as extension agents need to be thorough and include a wide range of topics relevant to the rural community.

The other issue about communication in extension is its temporariness. The response from all FGDs and IIs revealed a high frequency of DAs-farmers' contact during the plowing season. As I18 said, the frequency of communication is shallow and irregular before and after the cultivating season. In agricultural development activities, the interaction and overt discussion between farmers and DAs should begin early; that includes identifying issues or concerns before planning, planning, executing, evaluating, and engaging in follow-up actions continuously. According to I2, a high frequency of contact with farmers during cultivation time is typical; however, soon after this season, their contact will decline. Similarly, the physical connection between DAs and woreda experts will decrease. The communication between DAs and woreda experts will be carried out mainly through monthly reports; thus, the above responses tell that communication between DAs, farmers, and woreda experts is limited and primarily undertaken based on circumstances. Regular contact and communication with farmers are therefore less; and is limited to the working year's cultivation season, mainly the rainy season.

4.2.12. Challenges of utilizing a participatory communication approach

The fact that communicators take an equal part in the communication process is an indisputable benefit of the participatory communication method (Acunzo et al., 2016). In the end, the goal of participatory communication is to help communicators come to a shared understanding about the problem they are facing (Servaes 2002). People can accept or reject what they hear from the other side in a two-way communication approach that is democratic according to the participative school of thinking (Chandra, 2004).

Nonetheless, if one communicator incorrectly exercises it, their interaction and

communication will not be successful. In this regard, the response obtained from FGD 7 revealed that sometimes, the communication between farmers and DAs becomes poor and unsatisfactory because some farmers ignore DAs' advice and do whatever they want to do on their farmland unresponsively. One participant expressed the situation as follows:

> Last year, we advised some farmers to replace eucalyptus seedlings and trees with vegetables and crops. Almost all farmers agreed to do as we told them in the discussion. Later, when we visited farmers' land, many did not comply; rather, they covered the land with eucalyptus trees. When we met and discussed with them again, they told us it is their right to do whatever they want on their land. Source: FGD data - Dara Woreda, Oct 2022

The other participant in FGD 8 said, "some farmers refuse our advice entirely, and when we remind them repeatedly, they usually tell us it is their right and democracy to decide on their land." Indeed, there is no room to force the community to do as they are expected. One of the shortcomings of participatory communication is that it gives full rights to community members to either agree or disagree with what is suggested by experts.

The notion of participatory communication anticipates that with discussion and ongoing dialogue, the community would eventually come to grasp issues and start taking part in activities (Mefalopulos, 2008). One FGD 8 participant made a comparison between the current phenomenon and the Derg regime. He appreciated the power given to DAs in the previous regime. There was a coffee development program primarily led by the "Coffee Improvement Program/CIP." The purpose of CIP was to spread productive and stable coffee seed varieties to the coffee-producing areas. One DA might be assigned to more than two kebeles at that time. His responsibility was to mobilize the community to participate in the coffee development program. Every farmer was expected to take responsibility and accomplish as advised by DAs. DAs and other officials evaluated farmers based on the activities they achieved. Anything that deviated from the scientific recommendation would be considered anti-development and anti-government. Therefore, farmers never say no. If a farmer had kept disobeying, he would have been punished.

Another respondent in FGD 8 also said the respect DAs had at that time was not comparable with today. In his expression, he noted, "DA's saying today is not respected at all." I1 and 2 also confirmed the absence of professional power impedes progress; he indicated that DAs and experts have less power. I4 remarked, "farmers give attention to the speech given by political officials."

The result from the discussion with development agents reflects the undesirable scenario resulting from the participatory communication approach. Many of them felt that there was a misconception about "democracy." Some farmers associate "democracy" with a full-fledged path that gives them the untouchable right to do whatever they want and vice versa.

The result is quite the opposite regarding farmers' presence for discussion when called by agricultural experts versus political leaders. The communities do not hesitate to avail themselves whenever a meeting is called for by woreda or kebele administrators. On the contrary, few farmers usually show up when called for training at FTC (Farmer Training Center) or nearby by DAs. In FGD 7 and 8, participants noted that today, farmers listen and obey the sayings of politicians much more than agricultural experts do. I3 also substantiated the above statement: "farmers become reluctant when called for a meeting by experts, although they never miss a single call if it is from the political position of the administrating chair."

4.2.13.Consequence of an aid-based approach on agricultural activities

In Ethiopia, aid-based development programs have been practiced for many years. One of the most popular and continuing programs is the Safety Net Program (SNP). The SNP support functions in two ways. First, the direct support program will include farmers identified as the most impoverished and unable to participate in rural development activities. The selected farmers are physically incapable of participating in community activities; in this category, farmers receive a monthly payment. The support is based on the number of months they face food shortages. The second category comprises farmers who face food gaps for months in a year but can participate in various public works. The beneficiaries are poor, and selected based on their income level. The names of poor farmers selected for the Safety Net Program are presented to the larger community to

ratify whether these selected groups need food aid. Farmers chosen for the Safety Net Program must actively participate in natural resource development activities such as soil and water conservation, afforestation, cut-off drain, terracing, and other similar activities. One of the Safety Net Program aims is to rehabilitate degraded lands and make them fertile and suitable for farming. In addition, beneficiaries would receive loans to buy cattle. The first phase of the program will last for only five years. At the end of five years, beneficiaries are expected to graduate and become independent.

Beneficiaries are evaluated based on specific benchmarks to determine whether they are ready for graduation. The first benchmark is that beneficiaries need to improve their lives by feeding their family the whole year. Furthermore, some criteria include additional assets like cows, oxen, sheep, goats, and hens, starting small-scale businesses, and changing the house from thatched roof type to corrugate. Based on these criteria, evaluators inspect beneficiaries who would stay receiving support from the Safety Net Program for five years. The challenge in this regard is that beneficiaries never tell the truth. They hide their progress and strongly claim they are poor and unable to feed their families. They insist that they should be included in the program for the next five years. They want to get aid every year, and ultimately, they develop dependency. In this regard, the response obtained from all FGDs and IIs revealed that farmers who are beneficiaries of the Safety Net Program want to get aid continuously. I3 said, "Aid-seeking behavior has increased, including those with a better income. Farmers who are getting aid seek to stay in the program unconditionally."

The same response is obtained from I1:

> All farming community seeks to be included in the aid program. Better income generator farmers and kebele administrators are also at the front line to be included in aid programs. Dependency state of mind is widespread. In my opinion, I wish the Safety-net program were designed to help only old and physically impaired people. Farmers expect aid and anticipate something from the government for every problem they face rather than search for the solution. Source: Interview data - Sidama region, Jan 2023

Concerning the aid and the aid related mindset of the rural community, I2 remarked:

> Farmers who stayed for five years and graduated from the Safety-net program reappear next year and reapply to be included in the program again. Farmers seeking to be embraced by the Safety-net or another aid program seem to be an endless drive. Source: Interview data - Sidama region, Jan 2023

The other issue concerning the Safety Net Program is the question of the sustainability of public works. As explained by I1 and 5, farmers do public work activities loosely to keep receiving aid year in and year after. The terrace and the cut-off drains they built do not last long because they make it loose deliberately; the seedlings farmers planted will wilt soon because they do not plant them properly. The reason behind all these pitfalls, as elaborated by I1, is that farmers need to get aid continuously.

The Safety Net program basically aims to help poor farmers get a better life. Payment in this program is not permanent; instead, it is temporal – to fill the food gap beneficiaries face in a given time and help them accumulate wealth/assets. The assumption is to attain a significant level of change in the lives of poor farmers. What is happening in reality, however, is very different; farmers believe that aid will never be stopped, and as a result, they develop dependency. I9 said, "Who does hate receiving aid?" He also mentioned that farmers who have better incomes also need aid.

The other issues raised regarding dependency are the shared narratives about associating anything "bad happens in the community" with the "government's responsibility," as expressed by one participant during FGD 8. He mentioned that farmers, DAs, and other officials feel the government is responsible for feeding the community when they face food shortages or hunger. In emergencies, the government may be required to intervene; however, in the long term, all responsible bodies must play their shared roles. For all problems, people expect remedies from the government. In this regard, farmers should know that they are the ones who would solve their pressing problem. They must discuss and have a dialogue to evaluate their status. They must discuss issues of aid and how long they should stay receiving support. In relation to this situation, as confirmed by I1 and I6,

DAs and experts did not provide a conversation session that targeted the undesired effect of aid-oriented development programs.

If the human brain is in its comfort zone leading life by receiving aid, that might hide the potential for hard work and change. In this regard, the expression obtained from a participant in FGD 8 reads: "farmers who receive aid once wait for aid always." The other participant, in FGD 7, expressed his view as follows:

> Farmers are losing their hope. They feel they do not have the potential to overcome their problem. They push themselves to the status of neediness. Only a few farmers are hard workers. Because the number of farmers whose lives have changed is less, the overall result of extension work is unsatisfactory. Generally, aid makes farmers feel dependent, and in turn, farmers keep expecting aid." Source: FGD data - Dara Woreda, Oct 2022

Expecting aid unconsciously fosters dependency, as participants FGDs 7 and 8 noted.

4.2.14. Access to mass media for delivering agricultural information

When I talk about this topic, I am talking about the availability of agricultural mass media in the area and how the community uses them to disseminate agricultural information. Whether or not farming communities have a culture of viewing agricultural television, listening to agricultural radio, reading about agriculture in print media, and researching agricultural concerns online is referred to as their use of mass media. Key elements of the show include its language, clarity, timing, and the relevance of the topics or content it airs to the community's farming trend.

Results from IIs and FGDs revealed that most farmers have access to radio. In addition, they feel that radio has a significant impact in making them aware of various things in agriculture and other fields compared to other media. Most respondents in FGD 1-6 confirmed that they listened to different radio programs but did not remember a radio program they knew focused only on agriculture. They revealed that they heard about agriculture issues accidentally but were unsure about the presence or absence of radio programs that regularly transmit about agriculture. Because they did not know the

existence of agricultural radio programs, it did not make sense to ask respondents about content convenience, timing, the language utilized, clarity, and related issues. I9 has the following:

> The utilization of mass media is less; we listen to radio programs through mobile phones. Nonetheless, the number of people who listen to radio programs is few. I do not know a farmer who has a television in his house. Concerning the medium of language, I heard a radio program transmitted using Sidama and Amharic language even though I do not know the details of the program). Source: Interview data - Dara Woreda, Bongode Kebele, July 2022

The response obtained from FGDs and IIs depicted that the utilization of mass media is poor. In general, it is possible to express that the importance of mass media in delivering agricultural information to the larger community was not given due emphasis. Results from FGD 7 and 8 also showed that DAs and agricultural experts did not significantly consider mass media in disseminating agriculture information to the broader community. In FGDs 7 and 8, most respondents indicated that they were unaware of community radio stations broadcasting agricultural programs in Sidama. They even began to ask each other, and later, one participant told us that a program called "geberenake" ("Agriculture") is transmitted every Wednesday. Nevertheless, they did not know the details of the program, how long it has been on the air, and what issues have been emphasized. This typical case portrays low mass media utilization for communicating agricultural issues.

According to I19, agricultural program has been transmitted from Bensa FM 91.9 since 2009. It is called 'Tini Geberini Kitaweto' ("Ready for Agriculture") and is transmitted in Sidama language every Thursday and Saturday for 15 to 20 minutes at noon. I19 noted that *'Tini Geberini Kitaweti'* reached out to most of Sidama region and limited neighboring areas. The program is not transmitted regularly, and its content is not well-organized. According to I19, the station did not conduct audience research about the program's significance, the convenient timing, and other related issues of the farming community. I3, I4, I5, and I6 said they didn't know that Bensa FM 91.9 had been transmitting an agricultural program. I3 said: "I did not pay attention to radio programs."

South Radio and Television Agency (SRTA) has hosted another one-hour agricultural program broadcast on television and radio twice a week. The name of the program is called "Yearso Ader Mender" (farmers' village"). The broadcasting medium is Amharic. The program has three parts. The first is agricultural news. The second portion of the program is a presentation of an experienced farmer who has scored the best performance in any field of agriculture. The third part of the program is a conversation with farmers; in this part, a journalist places a platform to talk about agriculture with farmers familiar with the subject of discussion. In the second and third parts, the journalist allows farmers to explain and describe the subject matter they are dealing with. The program invites researchers and experts to deliver their knowledge and expertise on the matter.

Though the agricultural programs aired in SRTA for many years, the station did not conduct audience analysis. I20 confirmed that she didn't know to what extent farmers across the region listened to the program. Regarding the scope of the media, SRTA reaches out to the whole parts of the Sidama region. However, with the issue of audience, all farmers who participated in FGD and II said that they did not know the presence of "Yearso Ader Mender" agricultural program aired by SRTA. Meanwhile, I3 and I4 confirmed that they knew the presence of "Yearso Ader Mender" but did not listen to the program. They mentioned that they did not have a habit of attending to agricultural programs transmitted through mass media. One participant in FGD2 confirmed that he sometimes listened to the radio program aired by SRTA. He also noted that even DAs did not listen to agricultural programs and also did not encourage farmers to listen to agricultural radio programs.

In research conducted on the agricultural program named "Awedegeter," ("About rural community"), it has been confirmed that in Ethiopia, a "significant number of agricultural extension workers do not listen to the radio program regularly" (Gulte, 2021:60).

"Awedegeter" is a long-lived Amharic agricultural program transmitted on the then-radio Ethiopia (Anley, 2011), now EBC (Ethiopian Broadcasting Corporation). "Awedegeter" means "providing information related to agriculture or any agricultural issues pertinent to the rural community within rural setting or context" (Anley, 2011:41). "Awedegeter" is broadcasted weekly on Wednesday from 9:10 to 10:00 PM and again reaired Saturday at

6:10 to 7:00 AM. It is a 50-minute program with three major segments. The first segment of the program is related to agricultural technologies. The other program component is called "Senekal" – oral literature indigenous to the rural community. The third segment of the program focused on the social aspect, which is quite peculiar to the community; in this category, the content relies on norms, cultures, family planning, weddings, and so on. As I21 explained, the target audiences of "Awedegeter" are farmers, agricultural experts, DAs, researchers, and other interested bodies.

As I21 noted, radio's potential for disseminating agricultural programs is not exploited or utilized properly. He believes that government-owned media gives more attention to propagating political issues than rural and farming ones. In reality, the country's overall development is mainly based on agricultural activities – as it involves the vast majority of the population; however, the time allotted to agriculture and rural issues is inadequate. Since most people in Ethiopia reside in rural areas, the media—especially radio—can be considered the best information source. In this regard, agricultural development inevitably needs media involvement to provide the information the rural community needs. The program should be accessible to the community and should have relevant content. Above all, the program has to be known by the community. In this regard, unfortunately, no one from the FGD 1-6 participants confirmed the presence of "Awdegeter" radio program transmitted from EBC.

The other agricultural television program aired by EBC is called "Masa," an Amharic term for "farmland." The program started in April 2017; "Masa" is broadcasted every Saturday at 6:00 PM. The same program is rebroadcasted on Sunday morning and Friday afternoon. Regarding the transmission time, "*Masa*" has aired on three different days at different times. Retransmitting three times a week will allow the audience to attend the program on one of the three days. However, according to I2, the timing of broadcasting on Sunday is not convenient for many farmers. Particularly in Sidama region, farmers go to church on Sunday morning.

The other big challenge in using television is that most farmers do not have TV sets. Moreover, electricity is not accessible in most parts of rural areas. I1 noted that the

presence or the absence of agricultural television programs is not given much attention not only in rural communities but also in their bureau of agriculture at the regional level.

Concerning the medium language, as I22 said, “Masa” agricultural television program is currently transmitted in Amharic. Consequently, the program would not make sense to residents of rural areas who do not know Amharic. Language barriers are an issue in disseminating agricultural information to the target audience.

“Masa” television agricultural program is accessible throughout the country. Moreover, it will be uploaded to the internet after it has been broadcasted from the mainstream; therefore, it will be available on YouTube. However, several farmers do not know how to get it from YouTube.

I22 states that the program's efficacy has not yet been determined. On YouTube, it has a large following, though. He noted that the people who watch "Masa" on YouTube are not farmers. The number of Ethiopian farmers who have viewed a television program on YouTube is significantly lower, so a thorough investigation is not necessary to determine this. There is also evidence in the literature that ICT in Ethiopia is underutilized and unavailable for enhancing agricultural knowledge, information, and technologies (EATE, 2017; May et al., 2007; Ajani, 2014).

According to I22, the editor of the program arranges the production's content every week. The goal of the show informs both the choice of story and the topic's emphasis. Reporters and camera operators will then make their way to the various locations. Information can be obtained from farmers, researchers, specialists in agriculture, and those working in the field. Considering their place in relation to the program's theme, they are all included in the plot. The show is structured in a reality show manner. I22 stated that no study was carried out to determine the efficacy of the program.

Nowadays, the majority of rural villages have access to radio and other forms of media. But radio is one of the few mass media platforms that is used for agriculture. Three viewpoints can be used to analyze media access. The first one has to do with the accessibility of agricultural program transmission. Unlike other shows, agriculture programming is not produced by today's media. The availability of the media is the

second problem; for a variety of reasons, rural communities cannot easily access the media. The usage of media by farmers is the third problem. Any agricultural program that is broadcast needs to have an initial audience. Creating a culture where people watch mass media is crucial.

Regarding media use, responses from FGDs indicated that farmers do not develop attending media in their day-to-day lives. As participants in FGD 7, 8, and I1-6 pointed out, many factors exist in rural communities. The common problem today is the lack of electricity in rural areas. The other issue is related to the price of television, dish, and decoder – these apparatuses are not affordable for most rural communities.

The community's custom of attending media events and educating and motivating farmers to do the same is another factor related to mass media access. Despite the fact that most farmers own radios, as participants in Focus Group Discussions 7 and 8 affirmed, farmers are not urged or advised to listen to agricultural radio programs. Radio has advantages over other media, thus having agricultural programming on the air on a regular basis is beneficial. It is also necessary to encourage farmers to tune in to agricultural radio programs. In addition, farmers must be able to apply for the program (Farmers must also be motivated to listen to agricultural radio programs.) A member in Focus Group Discussions 7 and 8 pointed out that radio is underutilized as a means of disseminating agricultural-related information to rural communities.

A participant in FGD 8 noted,

> We do not encourage farmers to attend mass media in general. If [5]we are asked how many of us know the existence of agricultural radio programs in our surroundings, we do not answer it confidently. Source: FGD data - Hawassa Zuria Woreda, Oct 2022

Another participant in FGD 7 confirmed DAs themselves do not have a culture of attending agricultural radio programs. From all respondents, the utilization of agricultural radio programs is generally poor, and almost the contribution of agricultural production is at the lowest level. Today's new habit in most rural communities is listening to spiritual

[5] 'We' refers to development agents who are participating in the focus group discussion

songs or music through the phone (using memory cards) rather than listening to other radio programs according respondents from FGDs.

Regarding the availability of mass media for agricultural programs, I1 said,

> I do not know agricultural radio programs transmitted in Sidama language. EBC has a television agricultural program called 'masa' transmitted in Amharic, but I do not know the details. Source: Interview data - Sidama region, Jan 2023

The same response was obtained from I2 concerning the existence of Bensa FM radio, and he replied:

> I do not know about Bensa FM 91.9 radio program, and I am not sure whether the station transmits various programs in Sidama language or not. Source: Interview data - Sidama region, Jan 2023

From the interviews I conducted with all regional and woreda experts, I have concluded that the attention given to media was much less. The importance of media in providing pertinent information concerning agriculture has been neglected. Those media-producing agricultural programs did not conduct audience analysis. They drafted story ideas, contacted relevant sources, and produced a story. Their attempt was good; however, they did not know to what extent their program was heard by or watched by the target audience. In FGD 1-6, I understand that farmers' interest in listening to radio programs was less, although radio was much more accessible than television.

In the 21st century, the Internet, in disseminating agricultural information, is believed to be crucial. However, its utilization for agricultural purposes is poor in a less developed country like Ethiopia. I9, I10, and I11 indicated they did not know about the Internet. A response from FGD 7 and 8 confirmed that development agents did not have a culture to use it for agricultural purposes, let alone farmers using the internet. One participant in FGD 7 noted that he sometimes googled to read about diseases and pests that affect crops.

The other big concern about mass media is access to printed media. All respondents confirmed that there is no access to printed media. Concerning posters, as a response

obtained from FGD 7 and 8 indicated, DAs and kebele personnel posted on the wall of kebele's or DAs' offices sometimes, the information they deliver would be any issues related to agriculture or not. The responses obtained from I7-18 asserted that no newspaper, magazines, flyers, or other printed material about agriculture has been seen so far; participants in FGD 1-6 also confirmed the same thing. However, FGD 7 and 8 participants noted that they get written documents during training. Therefore, the significant contribution of print media in enhancing agricultural production is poor.

Agricultural media are not as readily available as necessary to meet the communities' information needs. However, as revealed by I1, there is an automated and voice-recorded information transmission service using a cell phone. The respondent states:

> You can access the information you require about agriculture at any time by dialing 8028, choosing your language and location, and then making your request. Information on seed varieties, irrigation, pre- and post-planting, fertilizer application, crop protection, cultivation, harvesting, and post-harvesting (on cereal, horticulture, oil seed crops, livestock advisory, etc.) are just a few examples of the types of information you might need. Source: Interview data - Sidama region, Jan 2023

Sidama is one of the languages that smallholder farmers can get area-specific information in using the interactive voice response system, or IVR (8028). The Ministry of Agriculture (MoA), the Ethiopian Institute of Agricultural Research (EIAR), and Ethio-Telecom collaborated with the Ethiopian Agricultural Transformation Agency (EATA) to construct the 8028 hotlines (EATA, 2018).

Overall, as the data obtained from the participants show, the utilization of mass media for agricultural production can be rated as very poor.

4.3. **Results from the quantitative data**

This section presents the analysis and findings from quantitative research. The description of the respondents' socio-demographic profiles comes first. Then, the section describes the major themes based on the results obtained from the pertinent data.

4.3.1. Descriptive statistics: demographic profile

Before presenting the findings of the quantitative part of this study, it is essential to look into the nature of the demographic profile of the participants.

Table 5 Demographic Variables

No	Variables		Frequency	Percentage
1	Gender		N: 120	100
		Female	22	18.3
		Male	98	81.7
2	Age		N:120	100
		20-30 years	77	64.2
		31-40 years	25	20.8
		41-50 years	13	10.8
		Above 50	5	4.2
3	Education Level		N:120	100
		Diploma	59	51.7
		Degree	58	48.3
4	Ability to use local language		N:120	100
		Cannot use	1	.85
		Use to some extent	1	.85
		Able to use effectively	118	98.3
5	Marital Status		N:120	100
		Married	92	76.7
		Unmarried	28	23.3
6	Work experience		N:120	100
		0-5 years	46	38.3
		6-10 years	37	30.8
		11-15 years	9	7.5
		Above 15 years	28	23.3
7	Duration of college education		N: 120	100
		3 years	84	70

		4 years	22	18.3
		5 years	14	11.7
8	Area of specialization		N: 120	100
		Plant science	48	40
		Natural resource	35	29.2
		Animal science	27	22.5
		Irrigation	7	5.8
		Rural Development & Agricultural Extension	3	2.5

As shown in the table above, 81.7% of the respondents who filled out the questionnaires were male development agents. On the other hand, the number of female development agents was 18.3% (less than one-fifth of the total respondents). This is the actual proportion of male versus female DAs in the study area. This might give an insight into the ratio of male versus female workers in the agricultural sector, and this particular study shows that number of female DAs is far less than the number of male DAs.

In terms of age, 64.2% of DAs were between 20 and 30. The age between 31 and 40 accounted for 20.8 % of the total respondents. In the third category, the age between 41-50 was 13 %, and above 50 was 4.2 %. The number of young DAs is much bigger than those whose ages are higher than 40 years of age. The presence of younger and more energetic group of DAs in the area is potentially promising.

Concerning the level of education, 51.7% of DAs had a diploma, which is more than half of the total respondents. The rest, 48.3% of the proportion had a bachelor's degree. As clearly stated in Ethiopian agricultural policy, DAs who get training for three years on various knowledge and skills are capable of assisting farmers with regard to their profession. In that regard, it is possible to infer that the region has achieved its whim concerning the level of education that DAs need to possess.

As a tradition, when DAs serve for some years, the Office of Agriculture would allow them to upgrade their educational status. Many DAs are taking courses in various

universities in summer programs; therefore, the figure in the table above is expected to change eventually.

The other vital issue in agricultural communication is the ability of the agents to communicate with the local language. In this regard, 98.31 % of DAs were able to use Sidamma language effectively. Only two DAs fail to properly use this local language, but one of these calims a partial knowledge of the language. Communicating using the local language is important to making the conversation clearer for the community. In this regard, it is possible to note that because almost all DAs can use the local language, there would be limited misunderstanding created due to language.

Concerning marital status, more than three-fourths (76.7 %) of DAs were married; the rest, less than one-fourth (23.3%) of them, were unmarried. The implication is that many of them get married at an early age and live a stable life with a great deal of family responsibilities.

The experience of DAs, as depicted in Table 5 above, 38.3 % of the participants had work experience between 0-5 years. In addition, 30.8 % of respondents have an experience of 6 to 10 years. Work experience between 11 and 15 years accounted for 7.5 %. On the other hand, a considerable amount of participants (23.3%) had more than 15 years of work experience. This shows that the majority of the workforces have experience above 5 years. Still, a significant number of DAs were between 20 to 30 years of age, and they are very much naïve, which calls for continuous follow-up and a need for training inputs.

In Ethiopia, DAs' duration of college is three years; they get trained in Agricultural Technical and Vocational Education Training (ATVET) colleges mainly in three different disciplines. Apart from that, when DAs get an opportunity to upgrade their education level from a diploma to a bachelor's degree, they may stay in college for three to five years. In the table above, 70% of DAs stayed in vocational college for three years. The rest, 18.3% and 11.7% of DAs, stayed in college for four and five years, respectively.

Concerning specialization, the premise of MoA was to deploy three DAs who were trained and graduated from ATVET colleges and had three different professions, such as

plant science, natural resource, and animal science (Berhanu 2009). As the table above clearly shows, the composition of DAs who were trained in plant science, natural resources, and animal science were 48 %, 35%, and 27 %, respectively. While 7% of respondents graduated in Irrigation, the remaining 3 % graduated in Rural Development and Agricultural Extension. The figure shows that the majority of DAs are professional botanists.

4.3.2 .Utilization of participatory communication

A participatory communication method is strongly advised by academics in all facets of development (Tufte & Mefalopulos, 2009). The fact that participatory communication is focused on people and considers a wide range of topics is one reason to use it in development projects (Melkote & Steeves, 2015). Moreover, its inclusive character renders it suitable and permissible for numerous developmental endeavors, especially in developing nations (Awa, 1996). The Ethiopian Agricultural Extension Strategy also made clear that the primary means of agriculture communication should be dialogue and conversation with sincere involvement. Furthermore, the documents clearly stipulate that DAs working at the kebele level, agricultural experts working at various levels of agricultural offices, and [6]MoA must strictly utilize a participatory communication approach. Considering this, respondents were asked about their overall evaluation of the utilization of the participatory communication approach. In the survey, participants' responses revealed that DAs believe that they used a participatory communication approach.

Interpretation of mean values was made using cut-points adopted from Ramli1 et al. (2013): 1 to 2.33 (low), 2.34 to 3.67 (moderate), 3.67 to 5 (high) level of agreement. Inferences and meanings are given based on the mean value.

The aggregate mean result of the major theme (as shown in Table 15, on page 168), 'utilization of participatory communication,' is 3.8, which indicates a considerable level of agreement of respondents with the statements. The value obtained from the mean shows that significant size of DAs feel that they utilize a participatory communication

[6] MoA refers to Ministry of Agriculture

approach in their interaction with farmers. The mean score obtained from each variable, as presented in Table 6, also yields the same result.

Table 6 Utilization of Participatory Communication

Descriptive Statistics						
No.	Variables	N	Minimum	Maximum	Mean	Std. Deviation
1	I believe participatory communication approach would help increase agricultural production.	120	3	5	4.33	.540
2	I utilize a participatory communication approach whenever I communicate with farmers.	120	2	4	3.68	.502
3	Practically, I observed that participatory communication approach helps develop a sense of ownership among farmers	120	3	5	4.22	.638
4	I always discuss agricultural issues with farmers to give priority to their concerns.	120	3	4	3.65	.479
5	All agricultural activities are being done based on consensus and genuine participation.	120	3	4	3.64	.482
6	In drafting the annual plan, farmers participate fully.	120	2	4	3.75	.454
7	Farmers are involved during the problem identification stage.	120	3	5	3.62	.522
8	Farmers usually participate in prioritizing problems to include their needs in the annual plan.	120	3	4	3.67	.473
9	Farmers take responsibility for executing their share of the task based on mutual understanding.	120	2	5	3.63	.564
10	Whenever innovation comes out, farmers are introduced through participatory communication approach.	120	2	4	3.63	.501
11	New plans and activities from higher experts and officials would be executed through dialogue and interactivity.	120	3	4	3.63	.484

	Valid N (listwise)	120				

As seen from Table 6 above, the mean values of all the variables used to measure 'utilization of participatory communication' range from 3.63 to 4.33; some mean values have a moderate agreement with the statement, and some others show stronger level of agreement with the statement. The implication of the responses is that DAs are in favor of participatory communication approach.

As can be seen from Table 6 above, respondents were asked whether they believed that participatory communication would help increase agricultural production. A mean value of 4.33 indicates the presence of a high level of agreement with the statement. The implication is, therefore, the presence of understanding among the respondents that participatory communication is vital to enhance production.

The second item asks respondents if they utilized participatory communication when interacting with farmers. The mean result for the level of agreement is 3.68, which is slightly higher than the moderate level. The implication is that several respondents feel that their interaction with farmers is participatory.

When asked whether they observed a developed sense of ownership among farmers because of the use of participatory communication, the level of agreement was significant (M=4.22). This implies that respondents believe that participatory communication helps farmers feel they own the projects, eliciting active participation.

In response to the statement that inquires whether DAs discuss agricultural issues with farmers to prioritize farmer concerns, a mean value of 3.65 was obtained. The result is not quite strong. The figure nevertheless shows that a sizable portion of respondents say they talk to farmers to consider their concerns when making interventions.

The other item that inquires whether DAs carried out agricultural activities based on consensus and genuine participation with farmers has a mean value of 3.64, which has a moderate agreement level with the statement. The implication is that, thus, DAs

accomplish agricultural activities based not on consensus and not entirely through a participatory communication approach.

In response to the statement that inquires whether DAs draft annual plans together with farmers, the level of the agreement was found to be slightly higher (M=3.75). It implies that the majority of DAs prepare annual plans with farmers through a participatory approach. Even though respondents claimed that the nature of inclusiveness in preparing the annual plan is high, on the other side, the inquiry does not ask respondents to answer if farmers fully participate in drafting and ratifying the annual plan.

When asked whether they identify problems together with farmers through dialogue, the level of agreement was not that high (M=3.62). The implication is that a significant number of DAs do not have a culture of identifying problems together with farmers through discussion. The core point of participation is to help farmers identify problems and, consequently, plan various activities with full community involvement.

The other item inquires respondents about the frequency of Farmers' participation in prioritizing problems to include their needs in the annual plan. The mean result for the level of agreement is 3.67, which is within the moderate level of agreement. By implication, a part of DAs do not usually include farmers' needs in the annual plan by prioritizing problems with farmers through a participatory communication approach.

An item that inquires respondents about the responsibilities farmers take to execute their share of tasks based on mutual understanding has a mean value of 3.63, which is moderate. The implication is that DAs do not usually discuss tasks and activities to make farmers feel responsible.

The statement that inquires about introducing innovations to farmers through a participatory communication approach has a mean value of 3.63. This mean value is not so strong. Even though several respondents claimed that innovation is being introduced through a participatory communication approach, it seems that a significant number of respondents did not say that they used the same pattern.

As put in the table above, for the item that inquires respondents whether they execute new plans and activities coming from higher experts and officials through dialogue and

interactively with farmers, the mean value of 3.63 was scored. This shows a moderate level of agreement from the respondents that entail new plans and activities descending from higher-level officials and experts were not executed through dialogue and interactively.

The results show that DAs feel a participatory communication approach would help increase agricultural production. A proper communication approach based on genuine participation would provide consensus between the communicators and the end users. In actuality, not all farmers may interact with DAs in such a way as to embrace all of the ideas and information that DAs present (Rogers, 2003). On the other hand, fruitful communication is achieved when addressing problems of concern through a participative method of approach. Information sharing and horizontal contact are essential components of communication for development (Tufte & Mefalopulos, 2009). Engaging in dialogue and discussions is crucial to the participative method. They must be carried out with significant public participation; communication allows one to see a variety of community concerns (Servaes, 2002; Paolo, 2003). Respondents to this study were questioned about how often they used the participatory approach in their interactions with farmers, in line with academics' views on the value of this communication strategy. There are various identifying mechanism that helps to inspect the deployment of a participatory approach. As indicated in Table 5, several attributes were provided with scales to see the responses. Result obtained through most of the attributes seems to indicate that DAs relations with farmers were not fully participatory in nature. A significant portion of respondents did not confirm that their communication is entirely participatory communication appracoh.

4.3.3. Confidence in communicating with farmers

Confidence in communication is very crucial. In agricultural communication, information delivered to farmers should be clear and free from ambiguity. DAs need to develop the confidence to communicate with farmers concisely. Confidence allows DAs to communicate clearly and interact with farmers efficiently. The main duty of DAs in their interactions with farmers in Ethiopia is to bring about change by using communication as a tool. DAs would prioritize informing farmers of relevant information and igniting their interest in adopting technological improvements (NAEP, 2001). Communication

confidence increases the boldness of the communicators to seek out answers to issues (Azmandian, 2010). DAs in the agricultural community, in particular, must have confidence in their ability to overcome real-world obstacles in their workplace.

The aggregate mean result of the major theme, ‘confidence in communicating with farmers,’ as shown in Table 15, is 3.7, a little higher than a moderate level of agreement with the statement. The score obtained from the mean can be interpreted as DAs feeling that they have a considerable level of self-confidence in communicating with farmers. To examine the status of DAs about 'confidence in communicating with farmers,' the following 6-point list of attributes was identified.

Table 7 Confidence in Communicating with Farmers

Descriptive Statistics						
No.	Variables	N	Minimum	Maximum	Mean	Std. Deviation
1	I always read on issues to communicate with farmers with complete confidence.	120	2	5	3.67	.653
2	I usually search for new useful innovations before communicating on issues.	120	2	5	3.75	.538
3	I have got ample information to share with farmers in my field of specialization.	120	2	5	3.63	.662
4	I am well equipped with communication skills to exchange information confidently.	120	2	5	3.68	.686
5	Practically, my knowledge of my profession is rich in dealing with farmers	120	2	5	3.58	.644
6	The utilization of multiple methods of communication makes me a good communicator.	120	2	5	3.63	.647
	Valid N (listwise)	120				

Table 7 above shows the mean value of data obtained from a survey study about DAs' confidence in communicating issues with farmers. The mean value of the six attributes ranges from 3.58 to 3.75. The mean values of all attributes lie between three and four, which designates the presence of a moderate level of agreement among respondents with the statements.

The level of agreement for an item that asked respondents whether they always read to communicate confidently is 3.67. Though several respondents claimed that they always read, the mean value obtained from the majority of respondents tells that DAs have moderate levels of reading habits, which may indirectly affect their confidence in communicating with farmers.

When asked whether they usually search for new valuable innovations, a mean value of 3.75 was obtained. The figure is slightly high, indicating that several respondents search for new and valuable innovations. In general, the result obtained from the mean also entails the presence of a significant size of respondents who feel otherwise.

The other item inquires whether respondents have ample information in their field of specialization. The mean score for the level of agreement was 3.63, which is moderate. This implies that DAs were unable to attest to having ample information about their disciplines.

In relation to DAs' expertise and efficiency of communication, they were asked whether they were well equipped with communication skills that could help exchange information confidently. The mean value was 3.68; it is slightly higher than moderate level of agreement with the statement. Therefore, based on the mean value, we can infer that DAs were not that much confident to communicate with farmers about the several issues in agriculture.

In response to the statement that inquires whether DAs' practical knowledge of their profession is rich enough to deal with farmers, the mean value of 3.58 was obtained. The score indicates the presence of a moderate level of agreement. Therefore, the inference would be that not all DAs have confidence in their practical knowledge concerning their

profession and that respondents indicate that they do not feel the practical knowledge they have acquired so far is rich enough.

The last item in this list of inquiries is the one that asked whether using multiple communication methods makes DAs good communicators. The mean result for the level of agreement is 3.63, which is also moderate. This indicates that DAs feel they are not using various communication methods and are not sure that makes them good communicators.

By implication, the mean value obtained from the respondents asserted that DAs do not have strong confidence in communicating with farmers. As explained in the first two paragraphs of this sub-article, confidence in communication is vital in exchanging information clearly and concisely. In this regard, what has been found from the survey is that DAs' confidence level is very much moderate; this is not good for agricultural production because, with moderate confidence, DAs find it difficult to communicate effectively. To what extent DAs are confident enough to deal with farmers about any subject concerning crop production is one of the critical issues that should be scrutinized. This is also highly related to the presence of and access to up-to-date agricultural information and the knowledge that DAs acquired in their expertise and career, besides their confidence. Confidence in communication is not something easy that can be developed overnight. It demands to have sufficient knowledge and expertise.

4.3.4. DAs information seeking behaviour

Since the information we share is constantly changing, information-seeking behavior is unstoppable (Padmvati, 2018). In particular, when the issues are related to agricultural communication, DAs' information-seeking behavior should be high. Identifying how DAs look for new ideas and remedies for problems is crucial. To deal with farmers, DAs need up-to-date information and knowledge; that knowledge cannot be attained without effort. Let alone a development actor, even nonprofessionals must have a certain level of expertise to interact and exchange daily information with their friends. In this regard, when communication is related to professionalism, like in the case of DAs, information-seeking behavior becomes paramount because the knowledge DAs procure could determine how they communicate with farmers. Therefore, to strengthen communication

confidence, DAs need to look for up-to-date information and constantly update their knowledge status.

The aggregate mean result of the major theme '*information*-seeking behavior' (as shown in Table 15) is 3.3. The result signifies a moderate level of agreement among respondents with the statement. Based on the scale obtained from the survey form, the mean value can be interpreted as DAs possessing a moderate level of information-seeking behavior. Hereunder, the table shows the mean value of each attribute of the major theme.

Table 8 Information Seeking Behaviour

Descriptive Statistics						
No.	Variables	N	Minimum	Maximum	Mean	Std. Deviation
1	I interact with researchers and try to get new information regularly.	120	2	5	2.94	.677
2	I am ready to discuss agricultural issues with my colleagues.	120	2	5	3.63	.870
3	I listen to radio programs that focus on agricultural issues.	120	2	4	2.89	.646
4	I attend trainings and workshops on agriculture.	120	2	5	4.00	.635
5	I follow media programs related to agriculture.	120	2	5	2.83	.669
	Valid N (listwise)	120				

Concerning information-seeking behavior, respondents were asked about their regular interaction with researchers and their attempts to get new information. With a mean value of 2.94, the response indicated a moderate level of agreement with the statement. This implies that DAs do not interact with researchers to a high degree and have moderate level of trend in getting new information regularly.

The second attribute that inquires respondents about their readiness to discuss agricultural issues with their colleagues has a mean value of 3.63. The level of agreement is not that strong. One of the ways to get information and knowledge is to discuss it with colleagues. In this regard, the data confirms that not all DAs have a strong tendency to discuss agricultural issues with their colleagues.

In response to the statement that inquires about the habit of DAs listening to agricultural media programs, the mean value read as 2.89. The result indicates a moderate level of agreement between the response obtained and the statement. The implication is simple: DAs had less culture of listening to agricultural programs.

When asked whether they attended training and workshops, the level of agreement was quite significant (M=4.00). This implies that DAs are ready to attend training and workshops whenever available. Participating in the training and workshop would help DAs update their knowledge and skills.

The other item inquires whether respondents attend media programs related to agriculture. The mean value obtained from the responses was 2.83, which is moderate. This indicates that DAs lack a culture of attending agricultural programs. This can be due to a lack of access and not only due to the absence of the willingness to attend.

The mean score of items generally discloses that the information-seeking behaviors of DAs are not quite strong. The implication of the overall mean value reveals that DAs are not in a position to claim that they have strong information-seeking behaviour.

4.3.5.Training and experience sharing

On-job training and experience sharing help increase DAs' knowledge and skills. DAs need to update their level of expertise as time goes on. The availability of training and experience sharing on their subject matter would allow DAs to see changes and developments in their profession. In addition, DAs should also get on-the-job training on how to use communication for effective interaction. The contribution of offering training and experience sharing for DAs in agricultural production is undoubtedly significant. Knowledge is changing so fast; agricultural practice varies from place to place due to different levels of advancement. Making DAs see what is being done differently and

progressively elsewhere is crucial. Therefore, agricultural professionals, particularly DAs, need continuous but contextual and helpful training and experience-sharing sessions. Paying attention to the provision of training and experience sharing is, thus, very crucial.

The aggregate mean result of the major theme, as shown in Table 15, 'training and experience sharing,' is 3.3. As the figure shows, respondents have a moderate level of agreement with the statement. The mean scores obtained from all the attributes are provided hereunder to grasp the response given to each item.

Table 9 Training and Experience Sharing

Descriptive Statistics						
No	Variables	N	Minimum	Maximum	Mean	Std. Deviation
1	The office of agriculture arranges regular training programs.	120	2	5	3.67	.508
2	I usually get relevant knowledge from the trainings.	120	3	4	3.79	.408
3	The training programs usually accompany experience sharing sessions	120	2	4	3.43	.513
4	The content of the training focuses on topical issues that are pertinent to our locality.	120	3	5	3.71	.492
5	The experience-sharing session is contextual and related to our environment.	120	3	4	3.57	.498
6	The training sessions are extensive	120	2	5	3.45	.532
	Valid N (listwise)	120				

Each item's mean values range from 3.43 to 3.79, and there is a moderate to slightly higher level of agreement with the statements.

When asked whether the agriculture office arranges regular training programs, the level of agreement was within a moderate range (M=3.67). This implies that agriculture office does not have regular training sessions. One of the ways to help DAs update about their field of specialization is through delivering training. As the mean value shows, DAs do not feel they are getting regular training from the Office of Agriculture.

The second item that inquires respondents whether they get relevant knowledge from the training has the highest mean value among the list of items above (M=3.79). It has a relatively high level of agreement with the statement. The implication is that, however, not all DAs agree upon the relevance of the training given to them.

When asked whether the training program incorporates experience-sharing sessions, the level of agreement is moderate (M= 3.43). Therefore, from the mean value, it is possible to conclude that the training programs do not always incorporate experience-sharing sessions .

In response to the statement that inquires whether the training content focuses on topical issues pertinent to their locality, it has a mean value of 3.71, which shows a slightly higher level of agreement with the statement. Considerable portions of respondents feel the training content focuses on topical issues; however, as the mean values show, significant respondents still do not agree with the statement.

In another item, respondents were asked whether the experience-sharing session was contextual to their environment. The level of agreement with the mean value was 3.57, which is not strong enough to conclude that the experience-sharing session was contextual to their environment. The training given to DAs must be contextual and related to their field of study. It should provide up-to-date innovations related to their field of study.

Furthermore, for the item that inquires whether the training session is extensive, the mean value obtained was 3.45. As the mean score implies, there is a moderate level of agreement with the statement – an indication that when training is given, the content and

the duration are not enough and extensive. Delivering extensive training for DAs would help them understand the content better.

4.3.6. Use of different communication methods

Communication can take place and flow through different means. It might occur through group, interpersonal, or mass media communication techniques (AEST, 1994). DA makes in-person or virtual visits to individual farmers via interpersonal communication, including phone calls. Through field visits, farmers' days, demonstrations, and experience-sharing trips, farmers can exchange information and gain expertise in groups (Oakley & Garforth, 1985). Mass media, which includes the Internet, is the third means of communication. Mass media are important because they can reach a large portion of society at once with messages or information. A communication tool known as the mass media can help generate interest in agricultural innovations by raising knowledge of novel concepts (Oakley & Garforth, 1985). Communication methods could be chosen according to specific criteria. The context, objectives, message type, society's educational level, etc., all influence the choice of the most effective communication techniques (Nyakuni et al., 2001).

The aggregate mean result of the major theme ‘Communication Methods′ (as shown in Table 15) is M=3.4. This overall mean value indicates a moderate level of agreement with the statement. The attributes that make up major themes are presented in the table below with their respective mean values.

Table 10 Communication Methods

Descriptive Statistics						
No.	Variables	N	Minimum	Maximum	Mean	Std. Deviation
1	I regularly visit model-farmers home to home	120	2	5	3.87	.647
2	I regularly arrange field day trips.	120	2	4	3.37	.517
3	I usually arrange model farmer experience sharing sessions.	120	2	4	3.22	.505

4	I arrange a session at which farmers discuss with agricultural experts.	120	2	4	3.34	.510
5	I encourage farmers to listen in groups to a radio program that focuses on agriculture.	120	2	4	3.30	.495
6	I arrange television or screen shows that focus on agriculture on a regular bases	120	2	4	3.18	.430
	Valid N (listwise)	120				

DAs can utilize various communication methods to provide agricultural knowledge and services to the community. The deployment of communication methods can be different from place to place and situation to situation; it all depends on the message and the goal of communication. In disseminating information related to agriculture, the utilization of various techniques and communication methods are crucial. Farmers-DAs' interaction and communication often occur in person-to-person or in-group settings.

The mean value in Table 10 above tells DAs' utilization of communication methods when communicating with farmers. The items that ask respondents whether they visit farmers home to home regularly have a mean value of 3.87. The level of agreement is slightly high. This implies that a significant size of DAs do not frequently visit farmers and communicate on a one-to-one basis.

The other result obtained from the respondent was on the item that asked whether they regularly arranged field day trips. The mean value for the level of agreement is 3.37, which is slightly higher than moderate. The result implies that there is no regular trend of field visits. Field visits are important because they provide an opportunity for farmers to learn from the actual scene undertaken by farmers or other sources. Field trips help farmers get insight or comprehend the purpose through group and interpersonal communication methods.

The third item inquires respondents whether they usually arrange model farmers' experience-sharing sessions. Its mean result was 3.22, which is a moderate level of agreement with the statement. The inference from the result would be that even though it

is widely applicable in communication methods, DAs lack the habit of arranging model farmers' experience-sharing sessions.

When asked whether they arranged a session in which farmers could discuss with agricultural experts, the level of agreement was not substantial (M=3.34). The implication is that DAs do not arrange such a setting where farmers and experts contact and discuss agriculture.

The other item that inquires respondents whether they encourage farmers to listen to radio programs that focus on agriculture in a group has a mean value of 3.30. The result has a moderate level of agreement with the statement. The meaning obtained from the mean value in this attribute tells that DAs do not encourage farmers to listen in groups to agricultural radio programs. Advising and inspiring farmers to listen to agricultural radio programs will help them discuss issues presented in the programs, which will be very helpful.

A deviation in the result was also found on the final item. It inquires whether DAs arrange television or screen shows that focus on agriculture on a regular basis. The mean value for the inquiry is 3.18; the level of agreement is not quite substantial. The implication of the data is obvious. DAs are not fully utilizing visuals as a method satisfactorily.

In general, the data obtained from all attributes clearly shows that although DAs use various communication methods, they do not use them regularly or sufficiently.

4.3.7. Self-image in communication and relationship with farmers

Positive or negative self-images are possible. People's interactions with others might be influenced by how they perceive their own potential. One factor that influences involvement in interpersonal communication is one's perception of oneself. An individual's interaction with others is influenced by the self-image they uphold in their minds (Sampthirao, 2016).

The aggregate mean result of the major theme 'self-image in communication and relationship with farmers, as shown in Table 15, is 4.06, which is quite strong. The mean

value obtained from the attributes implies that DAs have a good self-image in communication and relationships with farmers.

Ten attributes were designed to measure the major theme, 'self-image in communication and relationship with farmers.' All items with their mean values are presented in the table hereunder.

Table 11 Self-Image in Communication and Relationship with Farmers

Descriptive Statistics						
No	Variables	N	Minimum	Maximum	Mean	Std. Deviation
1	Farmers have confidence in my professional knowledge.	120	4	5	4.16	.367
2	I am satisfied with the feedback I get from farmers after I communicate with them.	120	4	5	4.08	.278
3	I have sufficient knowledge and can carry on my job effectively.	120	4	5	4.11	.312
4	I am helpful to the farmers.	120	4	5	4.10	.301
5	I am a respectful person in the community.	120	3	5	4.11	.338
6	I have a good relationship with farmers.	120	3	5	4.06	.269
7	Due to my good relationship with farmers, they frequently invite me to solve their social problems.	120	3	5	4.03	.222
8	Farmers usually welcome me whenever I visit their homes or farmland.	120	4	5	4.08	.278
9	Farmers want me to participate in social occasions like marriage.	120	3	5	4.07	.310
10	Farmers trust me to take responsibility in a social association like ‘edir’	120	3	5	3.83	.423
	Valid N (listwise)	120				

As shown in the table above, respondents were asked whether farmers have confidence in DAs’ professional knowledge. The level of agreement with the mean value is 4.16, which is strong. The implication is that DAs believe that farmers have confidence in the knowledge DAs possess.

The second item inquires respondents about the level of satisfaction they get from farmers' feedback after communicating with them – the mean result for the level of agreement is 4.08, which is strong. In this item's inquiry, the mean score confirms that DAs are satisfied with the feedback they received from farmers after communicating with them. The satisfaction level can be interpreted here by DAs' observation of farmers' reactions to the advice they received from DAs.

When asked whether they have sufficient knowledge and can carry on their job effectively, the level of agreement was significant (M= 4.11). This implies that DAs feel that they have sufficient knowledge to carry out their job effectively.

The fourth item inquires whether respondents are helpful. The mean result for the level of agreement was highly significant (M=4.10). Thus, the implication is that DAs believe they are valuable to the farmers.

In another item, respondents were asked whether they are respectful person in the community. The mean value obtained for this inquiry was 4.11, which indicates a high level of agreement with the statement. The interpretation would be, therefore, that DAs feel that they are a respectful person in the community.

From the list of items, the one that inquires respondents whether they have a good relationship with farmers has a mean value of 4.06; this also has a high level of agreement with the statement. By implication, it is evident that DAs claim to have a good relationship with farmers.

When asked whether farmers frequently invite them to solve social problems due to their good relationship with farmers, the level of agreement was significant (M=4.03). This implies that because of the good relationship DAs built with farmers, they have been invited to participate in solving farmers' social problems. This means that DAs feel that their participation level in activities other than agriculture resulted from a good relationship.

In the same manner, respondents were asked whether farmers accept them gladly when they visit farmers' farmland; the mean value of 4.08 was obtained. This indicates the

presence of a significant level of agreement on the part of the respondents that they feel farmers receive them to their farmland in a welcoming mood.

From the list of items, respondents were required to answer whether they are invited to participate in social occasions like marriage. The mean result for the level of agreement is 4.08, which is considerable. This implies that farmers invite DAs to social occasions like marriage because of their healthy relationships.

The last item inquires respondents whether farmers trust DAs to make them responsible in a social association like 'edir.' With a mean value of 3.83, the result deviates a bit from the other items' mean values. This indicates that not all DAs believe that farmers can trust them to assume responsibilities in social associations like 'eder.' This may be because associations like 'edir' are private matters to farmers. Still, a significant number of respondents believe that farmers trust DAs and give them responsibility in social associations.

From the mean result obtained in each attribute, it is evident that the relationship DAs have built with farmers is perceived by DAs to be confirmatory, and in the same line, DAs feel that they are helpful to the farmers. As the mean scores attested, DAs feel that they have a good self-image and relationship with farmers. Having a good self-image helps DAs communicate well and interact with farmers.

4.3.8. Research linkage

DAs provide farmers with information and innovations developed by agricultural research centers/institutions. In addition, they offer technical issues and supply inputs to enhance agricultural production. On the same thought, the nature of research done by research institutions should include stakeholders like DAs and farmers. When it contains stakeholders, researchers understand the basic needs of farmers or the main problems that affect agriculture most.

The aggregate mean result of the major theme, as put in Table 15, is 2.3. The interpretation is that researchers and DAs have a very weak connection. The mean value of each attribute that measures the nature of research linkage is presented here in the table.

Table 12 Research Linkage

Descriptive Statistics						
No	Item	N	Minimum	Maximum	Mean	Std. Deviation
1	Researchers contact us frequently to discuss research practices.	120	1	4	2.21	.709
2	Researchers usually provide us with an opportunity to participate in their research projects.	120	1	4	2.17	.690
3	Researchers allow us to participate in disseminating the result of the research.	120	1	4	2.38	.688
4	As a development agent, we participate in implementing a research projects.	120	2	4	2.73	.594
5	We are allowed to participate in assessing the research project results.	120	1	4	2.25	.664
	Valid N (listwise)	120				

All mean values of the variable lie between 2 and 3, indicating low and moderate levels of agreement with the statements.

The first item inquires respondents whether researchers contact them frequently to discuss research practices. In this case, a mean value of 2.21 was obtained, indicating a low agreement level with the statement. This implies that respondents did not feel that researchers contacted them frequently to discuss research practices.

When asked whether researchers usually provide them an opportunity to participate in their research project, the mean value was found to be quite low (M=2.17). This implies that respondents did not feel that there was an opportunity to participate in the research project provided by researchers.

In response to whether researchers allow DAs to participate in disseminating the results of the research, a mean value of 2.38 was obtained. Such weak mean results indicate that DAs felt excluded during the dissemination of the research results.

Similarly, a very weak level of agreement was obtained in the other item that asked respondents whether they participated in implementing the research project (M=2.73). The implication is that the majority of the respondents feel that their participation in implementing research projects is quite low.

The last item inquires whether respondents are allowed to participate in assessing the research project result. The mean result for the level of agreement is 2.25, which is very low. This clearly shows a visible limitation of DAs' participation in assessing research project results.

In general, as the mean result attested, respondents could not confirm the presence of a high level of agreement with the statement that inquired about the status of DAs' participation and their contact with researchers.

In conclusion, these items show that the contact and regular discussion between researchers and DAs on research practice is insignificant.

4.3.9. Workload of agents

Working as a development agent demands more effort and continuous follow-up of activities, particularly in providing farmers with knowledge and information. Agricultural communication and activities are not something that can be attained easily. It is a prolonged process with a particular goal; DAs keep delivering knowledge and information until a significant portion of the farming community decides to adopt and utilize agricultural technologies and innovations. Even the communication does not stop here; DAs are constantly engaging with farmers to help them become aware of changes. The tasks, duties, and responsibilities of DAs are huge. They are responsible for visiting all farmers regularly and frequently. They should know the problems and challenges that farmers face every time.

DAs were asked to see the effect of workload on their utilization of a participatory communication approach; as shown in Table 15, the aggregate mean result of the major theme ‘workload of agents' is 4.23. Thus, several respondents feel that workload does not affect them from the utilization of participatory communication entirely. The mean values of each attribute are presented hereunder in Table 13.

Table 13 Workload of Agents

Descriptive Statistics						
No	Variables	N	Minimum	Maximum	Mean	Std. Deviation
1	I can manage my activities properly on the given workdays.	120	4	5	4.38	.486
2	The burden of job responsibility doesn't affect me in the utilization of a participatory communication approach.	120	4	5	4.21	.408
3	I am capable of addressing the requests of farmers through a participatory mode of communication.	120	4	5	4.19	.395
4	I visit farmers on their farmland and discuss with them through a participatory approach.	120	4	5	4.21	.408
5	As I carry out my duties through a participatory communication approach, I have seen better achievement.	120	4	5	4.17	.374
	Valid N (listwise)	120				

Working as a development agent means accomplishing daily activities, which can be a burden. DAs need to exert their maximum effort to attain their daily tasks moving from one place to another.

As illustrated in Table 13 above, the item that inquires respondents whether they can manage their activities properly on the given workdays has a mean value of 4.38, which shows a strong level of agreement with the statement. The respondents' mean value indicates that DAs can manage their tasks and activities in a given time.

In the same manner, the item that inquires respondents whether the burden of job responsibility does not affect them in the utilization of a participatory communication approach has a significant mean value (M=4.21). The implication is that DAs feel that the utilization of a participatory communication approach is not affected by the burden of job responsibility.

Concerning DAs' capacity, respondents were asked whether they could address the request of farmers through a participatory communication approach. Its mean value is

4.19 and is quite strong. The result entails that DAs can address farmers' requests through a participatory communication approach.

In response to the statement that inquires whether DAs visit farmers on their farmland regularly and discuss with them through a participatory approach, the mean value of 4.21 was obtained. This is an indication of the presence of a high level of agreement with the statement. The working environment demands DAs to regularly manage their time visiting farmers, which is challenging. However, as the mean value entails, the burden does not affect DAs in visiting and communicating with farmers through a participatory approach.

The last item asks respondents if they have seen better achievement as they carry out their jobs through a participatory communication approach. The mean result for the level of agreement is 4.17, which is substantial. This particular item inquires about the utilization of participatory communication approach by DAs and the presence of achievement because of the utilization of participatory approach. As the mean value indicates, DAs feel they have achieved better when carrying out their activities through a participatory communication approach.

In conclusion, several respondents responded that the work burden did not be considered as a setback from dealing with farmers through participatory communication approach, however a considerable number of DAs believe that the work burden have its own impact in impelementing participatory communication approach effectively.

4.3.10. Access to mass media

Mass media accessibility is essential for promptly distributing important information to the general public and other societal segments. The rural community can receive information from all media channels. However, due to its affordability and wider audience reach, radio is far more practical for rural populations than other forms of media, particularly in developing nations like Ethiopia. Furthermore, literacy is not necessary for radio. Radio is seen as a more valuable media in communication for growth. Television offers numerous advantages for agricultural communication, even

though the infrastructure required for its expansion is costly and does not now reach the majority of rural communities (FAO, 1984).

The usefulness of mass media goes beyond information dissemination; it may also be utilized to raise awareness and educate people (Mefalopulos and Kamlongera, 2004). For instance, audio-visual instruction and demonstration can be provided. Printed resources are also highly beneficial for providing further conceptual clarification. Printed materials can be utilized in training to correctly demonstrate steps and directions. DAs and literate farmers can receive new information and knowledge through the use of leaflets and broachers, which are relatively controllable and simply adaptable for accurately delivering vital information. They can be prepared with ease by agricultural professionals and researchers. Additionally, agricultural messages can be clearly and readily displayed on billboards and posters to reach a wider audience (Mefalopulos & Kamlongera, 2004). The accessibility of the internet is a significant issue in relation to mass media access. Despite its great potential to spread information on agricultural and associated topics more swiftly, it is not well utilized because of our lack of skills, limited access, and low literacy rate.

The farming community benefits greatly from mass media availability and accessibility because it can reach a large audience quickly, convey the same agricultural message more accurately and clearly across various formats, mobilize a sizable portion of the community, and raise awareness and develop new perspectives repeatedly (Leeuwis & van den Ban, 2004).

Bearing in mind the importance of the presence of mass media in disseminating agricultural topics, access to mass media was included as a major theme in the survey study. The aggregate mean value of the major theme, as put in Table 15, read as M=2.1. The mean result for the level of agreement is very low. The implication is, thus, that access to mass media is low and yet not widely available to the larger community as it should be. The mean score obtained from the respondents on each attribute (based on their unique features) is presented hereunder.

Table 14 Access to Mass Media

Descriptive Statistics						
No	Variables In my area, I have access to	N	Minimum	Maximum	Mean	Std. Deviation
	Radio	120	1	5	3.26	1.280
	Television	120	1	4	1.93	.695
	Newspaper	120	1	4	1.88	.668
	Magazine	120	1	5	1.83	.752
	Leaflets, broachers	120	1	4	1.83	.694
	Billboard	120	1	5	1.83	.748
	Poster	120	1	4	1.92	.762
	Internet	120	1	5	2.23	1.096
	Valid N (listwise)	120				

As seen in Table 14 above, respondents were asked whether the radio is accessible. The highest mean score was observed (M=3.26). Though the access to radio was far better than other media, it was not found to be remarkably significant.

When respondents were asked about the accessibility of television, the mean result for the level of agreement was 1.93, which is quite low. This implies low access to television.

In response to the statement that asked respondents whether a newspaper was accessible to the community, the mean value of 1.88 was obtained. The level of agreement with the statement is very low because access to a newspaper is very low. In the same manner, respondents were asked whether a magazine is accessible to the community. The level of agreement was quite low (M=1.83). This is an indication that magazine has never been utilized well for disseminating agricultural topics.

When asked whether the community has access to leaflets and brochures, the mean result for the level of agreement is 1.83, which is very low. The implication is obvious; the utilization of leaflets and brochures to disseminate agricultural information is less.

From the list of attributes, the one that inquires respondents about the accessibility of billboards has a mean value of 1.83; the level of agreement was low. This implies that billboards are not used to transmit agricultural issues.

Respondents were asked about the accessibility of the poster, and the level of agreement was less significant, with a mean value of 1.92. This indicates that the culture of using posters to disseminate agricultural information is quite low.

The last item asked respondents if the internet was accessible. The mean result for the level of agreement is 2.23, which is low. This is an indication of lesser access to the internet. This response may not also specifically show internet usage for agricultural issues. DAs may use the internet for other purposes, such as social media networking.

A major part of agricultural communication is the mass media (Mass media plays a significant role in agricultural communication). The mass media's accessibility and availability are key factors in this situation. The general public must have access to mass media. Making mass media accessible to the community frequently comes before teaching people how to use them. After access is guaranteed, the content is provided the following: the goal, production, content, form, path forward, language medium, amount of time, and space. In conclusion, the mean value result verifies that there is limited access to mass media. As a result, the use of mass media for agricultural communication is underutilized.

4.4. Aggregate Mean Result of Major Themes of the Study

The table below presents results obtained from respondents. The major themes do have a list of attributes that make up the aggregate. Thus, the overall mean of major themes tells the mean score of each theme in aggregate. As mentioned earlier in this chapter, the interpretation of mean values was made using cut-points adopted from Ramli1 et al. (2013): 1 to 2.33 (low), 2.34 to 3.67 (moderate), 3.68 to 5 (high) level of agreement. Inferences and meanings are given based on the mean value.

Table 15 Aggregate Mean Result of Major Themes of the Study

Descriptive Statistics

No.	Major themes	N	Minimum	Maximum	Mean	Std. Deviation
1	Utilization of Participatory Communication	120	3	4.2	3.8	.269
2	Confidence in Communicating with Farmers	120	2	4.3	3.7	.471
3	Information Seeking Behaviour	120	2	4.6	3.3	.531
4	Availability of Training and Experience Sharing	120	3	4.2	3.6	.334
5	Use of Communication Methods	120	2.3	4.2	3.4	.351
6	Self-Image in Communication and Relationship with Farmers	120	2.7	4.2	3.7	.338
7	Research Linkage	120	1.2	3.4	2.3	.478
8	Work Load of agents	120	2	5	4.23	.444
9	Agents Access to Mass Media	120	1	4.4	2.1	.594
	Valid N (List wise)	120				

The above table 15 indicates the overall mean value obtained from the sum of the mean results of the major themes of the study. Only a few of them are high. The overall mean value that inquires respondents about the utilization of participatory communication is 3.8; its level of agreement with the statement is slightly strong. This implies that although more tend to agree, a significant number of respondents do not feel that participatory approach is utilized. In the second theme of inquiry, respondents were asked whether they were confident in communicating with Farmers. The overall mean value for the level of agreement is 3.7, which is a little higher than a moderate level of agreement. This entails the lack of consensus among the respondents on whether DAs have the confidence to communicate with farmers on agricultural issues.

The third theme enquires respondents about their information-seeking behaviour. The overall mean value for the level of agreement is 3.3, which is moderate, indicating that a significant number of respondents did not have active information-seeking behaviour. In response to the theme that inquires respondents about the availability of training and experience sharing, the overall mean value of 3.6 was obtained. This is an indication that the level of agreement is not that satisfactory. The fifth theme inquires respondents about the utilization of various communication tools. The overall mean value for the level of

agreement is 3.4, which is a moderate level of agreement. This shows that very few DAs believe that various communication tools were utilized for the purpose.

In response to the theme that inquires about DAs' self-image in communication and the relationship they have with farmers, the overall mean value of 3.7 was obtained. As the result depicts, the level of agreement is a little higher than the moderate level. This indicates the presence of a significant number of respondents who feel they have a good self-image and a healthy relationship with farmers. In the other theme, respondents were asked with various items that inquired about the presence of linkage with researchers and its nature of inclusiveness of research activities. The overall mean result for the level of agreement is 2.3, which is the second lowest of all mean values in the list of themes of the study. This clearly depicts a lack of connection between the knowledge producers and the users, which is quite alarming.

In the other theme, the impact of workload in utilizing participatory communication was inquired through various items. The overall mean value for the level of agreement was significant (M=3.8). This shows that the respondents feel they do not feel that workload have affected their duties highly in the area. In the last theme, respondents were asked about access to mass media. The overall mean value is 2.1, which is quite weak. This is an indication of the presence of a low level of access to mass media.

4.5. **Correlation Analysis**

Table 16 Correlation result of selected variables Correlations

			Research Linkage	'Information Seeking Behavior'	Access to Media	'Presence of Training and Experience Sharing'
Spearman's rho	'Confidence in communicating with farmers'	Correlation Coefficient	.178	.459**	.272**	.126
		Sig. (2-tailed)	.005	.000	.003	.169
		N	120	120	120	120

**. Correlation is significant at the 0.01 level (2-tailed).

Based on the nature of the data, a Spearman's Rank Order Correlation test was conducted to see the results of associations between the dependent variables (Agents' Confidence in Communicating with Farmers) and selected independent variables such as Research Linkage, Agents' information-seeking behavior, Access to Media, and Presence of Training and Experience Sharing. In the case of information-seeking behavior, the statistical result of the Spearman's correlation shows that rs = .459, significant at 0.01 level (p = .000). This result indicates the existence of a positively significant correlation between the Agents' Confidence in Communicating with Farmers and Information Seeking Behavior of Agents. Likewise, a significant positive correlation was found in the case of Access to Mass Media and Agents' Confidence in Communicating with Farmers, rs=.272, significant at 0.01 level (p=.003). Research Linkage was also found to be positively and significantly correlated with Agents' Confidence in Communicating with Farmers at rs =.178, significant at 0.01 level (p=.005). However, no significant correlation was found in the case of availability of training and experience sharing: rs = .126, significant at 0.01 level (p= .169). It indicates that agents with better information-seeking behavior, those with relatively high access to the media, and those with better linkage with researchers exhibited relatively higher levels of confidence while communicating with farmers. The nature of training has no significant effect on the confidence level of the agents.

CHAPTER FIVE

DISCUSSION OF RESULTS, CONCLUSION AND RECOMMENDATIONS

A section with recommendations, conclusions, and discussion is included in this chapter. Major findings from focus group discussions, in-depth interviews, and questionnaires related to the topic's theme are presented in the discussion section. After presenting conclusions based on the study's findings, the researcher offers suggestions on a few important topics.

5.1. Discussion of Results

This study aimed to explore the nature of communication interventions in agricultural extension in the Sidama region. Attempts were made to assess whether the interventions utilized participatory communication techniques and the challenges faced in the process of using PC. The findings depicted the impacts of the aid approach on farmers and the resulting dependency. It was found out that model and non-model farmers were treated differently as DAs interact and communicate with the model farmers more frequently; this entails the presence of a selective communication approach. The prevalence of the top-down communication approach practically overwhelmed the entire communication system. The theme in the questionnaire and the guides used in the focus group discussions (FGDs) and in-depth interviews (IIs) produced relatively consistent results. Nevertheless, there has been some inconsistency among respondents from FGDs, II and questionnaire. The utilization of participatory communication (PC) was one of the topics brought up in the survey, FDGs, and interviews. The findings from the survey show that a sizeable portion of respondents believe that DAs use a PC. Even though DAs and experts thought PC was crucial, the aggregate data collected from all participants produced a variety of conclusions; hence, PC was not effectively used. From the survey, it was found that the workloads did not affect DAs ability to utilize participatory communication. Surprisingly, the results revealed that DAs did not perceive using PCs as burdensome.

The other issue concerns DAs' level of confidence in communicating with farmers, which turns out to be less than what is expected. There could have been a number of causes. Responses from qualitative data attribute this to the lack of the necessary competence and

knowledge that DAs are required to possess. A confident personality can positively affect thoughts and behaviors. One's perception of one's abilities might influence how one communicates and interacts with other people. One of the factors that influence interaction in interpersonal communication is self-confidence (Nair, 2016). People's interpersonal relationships are impacted by their level of self-confidence; ***i***t helps them master agricultural information (Nurhayati et al., 2020). Building excellent communication skills requires assertiveness and self-worth (Perera, 2021)**.** Effective communication requires combining knowledge, good relationships with farmers with whom they work, and positive self-esteem. They must have adequate knowledge and skills (Kaynakçı & Boz, 2019). Successful extension agents are skilled workers who successfully carry out their duties in supporting farmers. Extension agents must become more knowledgeable, talented, and competent in technical subject matter and communicative skills (Kaynakçı & Boz, 2019).

The information-seeking behavior of DAs was found to be very weak. Through the FGDs and IIs, DAs also disclosed that they did not have a culture of seeking out agricultural information from the media, including the Internet. Their reading habits were not very effective in helping them advance their careers. Training and experience sharing were not well provided. Agricultural offices and other stakeholders failed to provide DAs with enough training. The farming community wants to see any interventions' positive and negative consequences. Training, experience sharing, and field visits will become critical to awakening and positively influencing the community. In this regard, as the fact implies, using experience sharing and field visits as communication tools lacks stakeholder coordination (Zikargae et al., 2022).

As most respondents indicated, opportunities for training and experience-sharing sessions were declining. In communication, confidence is essential. When it comes to agricultural communication, farmers should receive information that is straightforward and unambiguous. DAs must gain confidence to speak briefly with farmers. DAs can interact with farmers effectively and communicate when they are confident. When DAs connect with farmers, their primary duty is to use communication as a tool to bring about change.

As a result, communication's function is to aid farmers in learning about issues and gaining an understanding of them. The top priorities of DAs would be to provide farmers with relevant information, educate them about resource usage, and encourage them to adopt new technologies (EATA, 2017). According to Azmandian (2010), communicators who have confidence in their ability to communicate are more courageous in their search for solutions. In particular, DAs in the agricultural community must have confidence in their ability to overcome ideal and professional workplace challenges.

Depending on the situation, it is important to use a variety of methods of communication in order to effectively impart agricultural information, expertise, and skills. The findings revealed that DAs primarily used group communication. While interpersonal dialogues are considered effective in extension, DAs frequently provide agricultural information at meetings. When it comes to interpersonal communication, most of the time, DAs visit model farmers more frequently than non-model farmers. DAs stated during FGD that model farmers were so engaged and successful when given advice and new prospects. As stated in the analysis part, DAs did not develop methods to contact non-model farmers and encourage them to become active; instead, they focused their efforts exclusively on model farmers.

The study unequivocally demonstrated the poor communication between researchers and end users, such as farmers, DAs, and local experts. It would be difficult for new information to get to farmers if there was a poor relationship with research centers and a lack of inclusion in the design and application of research. The majority of II respondents saw that end users could not access the research findings. Scholars state that farmers, research, and the extension system remain the three main pillars of agriculture. Hence, for its effectiveness, a strong link among them is crucial. It follows that, effective collaboration and strong interaction are needed between all stakeholders to achieve the desired goal of increasing productivity and improving the standard of living of the rural poor (EATA 2017; Davis et al., 2010). Agricultural information is critical to agricultural and extension programs (Vidanapathirana, 2012). Information on improved agricultural practices enhances agricultural production and productivity (Zhang et al., 2016). Farmers deserve to receive up-to-date and relevant agricultural information continuously; research

findings must be readily available to end users (Wale, 2023); this process is not easy. Development agents connecting farmers and research institutions can also obtain agricultural innovations and improved agricultural practices.

Ethiopia's agriculture extension and research sector is characterized by a fragmented and underdeveloped innovation framework (EATA 2017). This structure has practically weakened innovation capacities both at the regional and national levels. Farmers are typically thought of as passive consumers of technology. As a result, research findings are kept in file in research centers rather than reaching farmers. Research and extension must, instead, take place within linked, overlapping, and continuously evolving procedures (Tilaye & Daniel, 2016). The relationship between extension and research systems greatly aids in the creation and spread of suitable technologies. More vital and efficient communication between the agriculture sector's players must arise from strengthening the links between extension and research. Several linking projects have been attempted at various times and with varying degrees of success to achieve this (Tilaye & Daniel, 2016).

According to Feder et al. (2010), extension policy in Ethiopia has been only concerned with output, centrally controlled, institutionally homogeneous, and set up on the premise that public sector extension networks may successfully reach village-level communities (Tilaye & Daniel, 2016). For agro-technologies to be relevant to local needs, farmers, extension workers, and researchers must play significant roles in identifying research problems, adapting the recommendations to local conditions, and providing feedback to researchers about the innovations that have been developed. Effective and sustainable communication among the main actors is vital to provide technological recommendations and initiate further problem solving research. Inclusive projects are mandatory because the participation of extension workers in adaptive research trials allows them to become familiar with the technologies they are expected to promote. It also helps to ensure that the sociological dimensions of farming are not neglected (Agbamu & Van den Ban, 2000). Kassa and Alemu (2017) stated that recent empirical research in developing countries has identified weak linkages between research and extension because of a lack of appropriate flow of information and understanding of valuable new technologies

among actors. Wasihun (2022) attributes the low productivity in Ethiopian agriculture to the absence of a powerful link between agricultural research and extension structures.

There was limited media access. Print media were unavailable and underutilized. For agricultural information, radio was likewise not widely used, even though more farmers had access to it. Television was not available. The availability and accessibility of mass media to the farming community and development agents have tremendous advantages – a large audience can be accessed swiftly; the same agricultural message can be delivered in various formats more clearly and accurately; mobilizing a large segment of the community can be possible; awareness and enhancing newly developed views can be done repeatedly (Leeuwis & van den Ban, 2004). Agriculture is increasingly dependent on information; hence, access to information is necessary and a vital resource for agricultural development (Rodman, 2006). Obinne et al. (2000) cited in Anyanwu & Godwin (2022), state that the mass media carries out this function through its agenda-setting power for critical topics, knowledge transfer, forming opinions, and behavior change. According to Ndaghu and Taru (2012), the media are channels of communication that can expose a large number of people to the same information at the same time within a short space of time. The mass media are generally helpful as sources of initial information to farmers and veritable tools for conveying production information to farmers on new developments and emergencies. Mass and interpersonal communication plays a vital role in the diffusion process (Kaur, 2022). The nature and extent of the use of the mass media in mobilizing people for development greatly influence the success of agricultural development programs in developing countries. There is a strong realization among planners in developing countries that the development of agricultural extension could be accelerated with the proper use of the media (Mgbakor et al., 2013).

The media are vital for effective technology transfer (Okwu & Daudu, 2011). Farmers with access to the mass media acquire knowledge and profit from it using the information in their farming practices. Extension agencies utilize various media to transfer information. They are important channels through which agricultural information is delivered to farmers and constitute means of delivering notification to farmers of the

latest developments or emergencies. They are also vital in motivating farmers to build interest in the latest ideas and practices (Ario et al., 2013; Khan et al., 2020).

Very few people use the Internet for farming-related objectives. Because the media and ICT-based digital communication infrastructure is limited, it becomes difficult to improve the access and management of agricultural knowledge and information (EATA, 2017). The need for more use of ICTs and media communication in agriculture is considered as one of the shortcomings of Ethiopia's agricultural extension system. Extension workers in rural Ethiopia still face challenges to obtain current and relevant information materials from the Ethiopian Extension Service (Birke et al., 2016).

All types of data revealed a similar response about the media's culture of disseminating agricultural information. Data collected from all respondents confirmed that farmers, DAs, and experts had little access to and media utilization culture. They did not take advantage of the media to learn about agriculture. The culture of attending agricultural programs and the use of media to spread agricultural issues is poor. According to Gulte (2021), a significant percentage of agricultural extension workers do not regularly listen to radio programs in Ethiopia. Farmers were found to be less active in implementing DAs' and experts' advice. Farmers are not under any obligation to accept recommendations and advice from DAs and experts. No mandatory regulation forced farmers to utilize their farmlands and work to increase agricultural production to the highest degree possible. In terms of aid-approach development programs, it has practically resulted in the community's propensity to become dependent. The farming community preferred to wait for assistance in any situation of difficulty rather than attempt to solve their problems by themselves. The majority of the community seeks to be embraced by certain types of aid programs. As illustrated in the analysis, even farmers with better economic status wanted to be included in aid programs.

5.2. **Conclusion**

The findings show that development agents and agricultural experts believe the PC approach is essential and helpful if properly deployed. However, there is a continuation of the old path in the practices of the agricultural system, i.e., the top-down approach.

DAs revealed that they favor the participatory approach; however, in practice, they did follow the top-down approach. The practical routine on the ground did not allow them to stick to the participatory approach. Starting from the planning stage to implementations and evaluations, the top-down approach was widely deployed. At a superficial level, the approach looked participatory; nonetheless, it was definitely top-down in practice. The interchange of monthly reports occurs on paper. The level of farmer participation in annual plan preparation is low. DAs often only talk about the annual plan with a small number of farmers. Then, without discussing or informing farmers, DAs made changes to the annual plan depending on the direction they received from the woreda expert while compiling the kebele's annual plan. Even occasionally, woreda specialists and officials may instruct DAs to increase their annual plan without consulting farmers in the middle of the year. The same procedure is followed when new initiatives originate from the regional bureau. This approach highly affects the end user's sense of belongingness and ownership of projects. Concerning the frequency of interaction, DAs contact the few model farmers more frequently than non-model farmers, who are the majority. This practice discriminates against those who were non-model farmers, and it is hard to imagine development and productivity by focusing on a small proportion of the farm community.

No clearly defined communication strategy was designed contextually for the region in general and the provinces in particular. There are no deliberately planned community conversation sessions. DAs do not arrange an opportunity for farmers to have a dialogue on agriculture. In the absence of proper dialogue to identify problems, interventions fail to address crucial issues in the community. Responses indicate that the intervention ignores the pressing issues of the farmers of the farmers and prescribes what the experts assume is important.

Farmers, DAs, experts, and research institutions have no regular communication channels. Research findings are not accessible to the farming community, which means that research findings are not properly channeled to the agricultural extension system. DAs and experts stress that they have very limited links with researchers and research centers. This should be alarming for policymakers and relevant stakeholders because the

government assigns huge amounts of finance to research and development. If research centers are conducting their research activities in isolation, it would be hard to believe they focus on the real problems of farmers.

The other problem of communication is a lack of regular interaction and discussion with farmers; farmers are not given enough time. Meetings were primarily used to continue the conversation. Farmers' difficulties won't be fully understood if they aren't given the chance to speak up directly, one-on-one or in a group setting. There is no regular, scheduled, or continuous mode of communication between farmers and DAs. This can be due to various reasons. Firstly, the number of DAs is limited to cover vast geographical areas in rural contexts. Secondly, DAs are not motivated enough because of the absence of incentives and the very small salary they receive. As a result, a clear difference has been found with regard to the interaction DAs have with model and non-model farmers. DAs visit model farmers more frequently than non-model farmers; they focus on farmers who do better and accept their advice easily. Also, when government officers and experts visit the area, DAs take them to model farmers' farmland in most cases. The success of agricultural activities is evaluated by the status of model farmers' achievements. Continuous contact, interaction, and clarification are crucial when communication aims to persuade farmers to accept new technologies. As long as DAs and experts communicate primarily with model farmers, the communication strategy they have in place cannot be deemed effective because the highest-ranking members of the community (non-model farmers) would receive less attention and treatment than the model farmers.

One way for farmers to get new information and innovation is through the training offered by DAs. There were a few trainings in place, and these trainings did not include all farmers. Moreover, when farmers were called for training, they expected some incentives and were not eager to participate. On the other hand, whenever they are called for a political meeting or different issues by administrators, several farmers show up, fearing consequences. Farmers do not get accurate and up-to-date information about the exact date of availability of the seed variety they need most. The gap in this regard is that development agents cannot tell farmers accurate information about the inputs because

they are not provided with the information from those at the top. Thus, failing to provide information on the presence or absence of agricultural inputs can highly damage the relationship, trust, and confidence of farmers in DAs.

Regarding training, few farmers get the chance, mainly model farmers, and there is no obligatory policy to force them to attend. DAs generally prefer to contact farmers selectively, mainly model farmers; the selective communication approach targets mainly model farmers. The typical routine task is to meet with farmers during fertilizer and seed distribution times. Meeting with farmers during the distribution of fertilizer and seeds is a typical routine duty. But such irregular contact would be disadvantageous for farmers, as agriculture practices require sustainable and continuous interaction throughout the year.

DAs found group communication methods easy to utilize and get in contact with farmers. They state that it is not easy to contact and exchange agricultural information through interpersonal communication methods because traveling from home to home on each farmer's farmland is difficult. One of the challenges is that DAs lack transportation service, and the topographic nature forces DAs to travel on foot. The job is tedious and requires more energy. Most frequently, as a result, DAS couldn't contact each farmer regularly and repeatedly. Instead, they prefer getting farmers in a group or meeting. The utilization of interpersonal communication as a method is less frequent than group communication.

Due to the absence of proper motivation, DAs are not interested and do not want to stay long working as DAs.

One issue that appears in the DAs-farmers relationship is the frequency of contact between them. The expectation was that DAs should visit farmers frequently to influence farmers to accept scientific suggestions and recommendations. However, DAs do not visit farmers frequently. In development communication, using the local language is strongly recommended because it helps the community understand issues easily. DAs and agricultural experts commonly use the Sidama language when they exchange agricultural information with farmers; they also use the Amharic language occasionally. This is one positive aspect of the communication context. The other challenging issue is that farmers,

DAs, and experts are all not accountable for low achievement. The responsibility of DAs is only to provide the necessary information and agricultural inputs when farmers need them. DAs do not have the power to enforce farmers. Experts feel that they are only required to present their knowledge and discuss it with farmers. The whole interaction between farmers and DAs finally ends with the decision made by farmers on whether to receive or reject the recommendations.

The other challenge in agriculture is that youths do not want to live as farmers; they try to generate income through other means, mainly through engaging in tiny businesses. In most cases, the business they run is not successful. It would be better if they got to work on their father's farmland. In this regard, DAs and agricultural experts do not attempt to set such an agenda to discuss it with the community. Through proper dialogue, the community could see the problem and be able to think about it. DA's responsibility is found to be not limited to communicating and providing agricultural issues; they also engage in other activities, such as emerging political and health matters. DAs are supposed to move from one farmland to another regularly and frequently to communicate with farmers about agriculture. This task by itself is a laborious and energy-consuming kind of work. The presence of additional responsibilities limits DAs' productivity in agriculture.

The data bluntly shows that one of the problems is the effects of agricultural operations through the aid approach. The community's tendency to seek assistance is usually growing. Dependence has increased. Notably, farmers who are chosen and included in the Safety-Net program seek to stay in the program permanently. Many rural communities, including those populated by farmers with better assets, want inclusion in the Safety-Net program or another aid program. Farmers feel more dependent than they do, and they are not becoming self-driven. Farmers do not desire to become independent.

Access to and utilization of media are limited. Radio is much better available than other media. The agricultural radio program is significant in making audiences aware of different issues. Farmers listen to a variety of radio programs, but they cannot think of a single one that concentrates solely on agriculture. The radio program about agriculture has a key role in bringing various issues to listeners' attention, yet nobody in the

community is sure whose radio program about agriculture is frequently broadcast. The culture of attending agricultural programs is very poor. Due to the scarcity of electricity in rural areas, access to television is only available in urban areas. The utilization of print media for disseminating agricultural issues was very poor; almost no print media were used recently. Access to mass media is generally low, yet it is not exploited to utilize agricultural communication. Not all media have regular agricultural programs. Lack of access to major media outlets is a missed opportunity. DAs were supposed to have access to media, including the internet, to develop their knowledge and understanding of scientific agriculture, which is very dynamic.

Not all media have regular agricultural program. Beside, the media that operate on a set timetable gave agriculture little airtime. DAs lack the motivation to tune in to radio broadcasts about agriculture. Farmers are not encouraged by DAs to listen to agricultural radio programs and hold discussions based on the themes presented. The community makes virtually little use of the internet. DAs also avoid using the Internet for agricultural communication, including reading and exchanging new information. The availability and use of print media are equally poor. Agricultural communication does not have the same consideration as other communication fields, such as politics and health. Very few media outlets have aired agricultural programs regularly for a limited length of time. The utilization of various media for disseminating agricultural information is extremely low. Information about the productivity of agriculture can be distorted in favor of the government's interests and those of its respected officials. Reports about agricultural success stories are usually exaggerated. Farmers are not provided with facts. Nobody brings up the issue as a problem and discusses it with the farming community. DAs who graduated from ATVET colleges lack professionalism. DAs do not get on-the-job training regularly. This forces them to be limited to only what they get from colleges, and they never get an updated education or knowledge on agricultural issues.

5.3. **Recommendations**

Based on the findings of the study, the researcher forwards the following recommendations with the hope that relevant stakeholders would consider them to improve the condition of agricultural extension and communication in the region.

- The present system favors only some segments of the community, such as model farmers; Encouraging non-model farmers is crucial if the community's marginalized population is to be included.
- DAs are very much disinterested in their work. Examining and mitigating the worsening factor that causes DAs to lose interest in their jobs is vital. Stakeholders need to take corrective action.
- The prevalence of aid-providing programs is increasing the number of people developing dependency in rural contexts. Farmers should be allowed to develop a sense of self-reliance and independence.
- The main responsibilities of DAs are to support farmers in all possible directions. Their contact with farmers must be based on a regular basis. They must contact and communicate with all farmers without excluding non-model farmers.
- Agricultural programs need to more effectively utilize participatory communication. Farmers must be included in the final decision of the annual plan. Without genuine participation, farmers would never perceive the annual plan as their own if not involved. They will never develop ownership and cannot take the risk of failure. Decisions must be made together with consensus.
- The typical trend that DAs and experts frequently contact farmers only during the ploughing season must be addressed; contacts must be continuously implemented throughout the year with regular programs.
- Woreda and regional experts should have properly programmed visiting sites on a regular basis rather than depend on paper reports. Whenever they visit, they must see various sites that could show the overall situation; they must avoid only visiting model farmers' sites and conclude the overall achievements of agriculture solely by tracing on model farmers' achievements. That does not show the entire accomplishments.

- The link between the research institute and the office of agriculture should be improved; the Ministry of Agriculture must take the initiative to establish a setup in the extension system. Continuous communication must be in place to help the non-farmers understand and ultimately adopt the knowledge and services brought to them; these farmers must get advantages as model farmers do.

- The provision of training for DAs and farmers must be increased. The Office of Agriculture must be at the forefront of facilitating training. Experience sharing, demonstrations, and farmers' field days are quite important in mobilizing and initiating the rural community; therefore, utilizing them to communicate about agriculture must be implemented. DAs must take care in selecting farmers for training and experience sharing; all farmers from various categories must be included. DAs should use interpersonal communication when contacting farmers; it allows farmers to discuss issues that concern them thoroughly.

- There must be a practical obligation with a consensus that demands farmers, development agents, and experts to accomplish their tasks and duties on time with maximum effort as far as possible. Accountability and responsibility should be included in the country's agricultural extension system.

- Youths lack interest in being farmers and living as their parents did; rather, they look for other means of livelihood. This might not be a problem; however, the question would be to what extent their business is effective. Mostly, they engaged in very small businesses. Some others engaged in transportation services using motorcycles. In the meantime, these working forces are moving away from the knowledge of agriculture their parents acquire. Therefore, this issue must be addressed immediately. DAs and experts should present this issue to community for conversation.

- Continuing thorough research in agricultural communication is highly recommended to understand the issue comprehensively and develop a working solution.

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APPENDIX

Section One: Checklists for Focus Group Discussions and In-Depth Interviews

I. Guiding points for Focus Group Discussion with Farmers

Biographical information: Kebele, Name, Age.

1. How would you define an extension? How do you evaluate your utilization of extension services provided in your area? How do you evaluate the knowledge of the DAs on overall agriculture?

2. What form of channels do you use to communicate with development agents? What would you say about the regularity of your communication with them?

3. Do DAs allow you to take part in all of the extension activities aimed at raising agricultural output? How? Do DAs set up scenarios in which you discuss or debate problems related to agriculture production? Describe the entire process.

4. What communication approach do DAs employ to talk to you about agriculture? (How do they approach you? How do you feel about the current communication interventions?

5. How inclusive is the dialogue or communication? Do they pay attention to certain farmers while disregarding others? Do you have a forum where DAs may discuss planning, implementing, and assessing all relevant issues? If yes, how do you do it? Do they let you know in advance what plans they have for the village? Do they allow you to participate in the planning?

6. How do DAs introduce you to new ideas? Do they simply inform you? Do they go into great depth and demonstrate the benefits of innovation via various communication channels, such as demonstrations and the like?

7. Do you have access to mass media such as print media, radio, television, and the Internet? Do the media outlets broadcast agriculture programs? Do you understand them? If the answer is yes or no, describe. On which topics do the programs focus? Is the language of transmission your own? How often do you watch or listen to agricultural programs on television or radio?

8. Have you seen any fliers or posters that feature information on agriculture? If yes, what do you comprehend? Which language medium is most commonly used?

9. Which communication methods are commonly used when you communicate with DAs? Like an interpersonal method, group method, demonstration, or fieldwork? Which of the methods do you think is best? Why? Have you ever taken part in training or experience sharing? If you do, how do you find it? Was it helpful?

10. How much does the current communication intervention adhere to gender equality? Do you believe DAs are giving female household members the same access to information as they do for male household members? Discuss.

II. Guiding points for Focus Group Discussion with development agents

Biographical information: Kebele, Name, Age, Education Level.

1. Do you believe you have the necessary communication knowledge and abilities to serve as a DA?

2. What are your communication strategies for contacting farmers individually and at the community level?

3. Which forms of communication—demonstration, group communication, interpersonal communication, or fieldwork—do you use while interacting with the community? Which is the better option among them? Why?

4. Do you think that the way you interact and communicate with farmers is appropriate? How? How do you feel about the communication initiatives that are in place right now?

5. Do you feel that the way you communicate with farmers is participatory? How? When speaking with Woreda authorities and experts, what communication approach do you employ?

6. What print media—such as flyers, newspapers, magazines, posters, and the like—are frequently used to disseminate information on agricultural production? Do they make sense? Which language is in use here?

7. How frequently do current television and radio outlets air agricultural-related content? If so, what were the main topic they brought up? What language is in use here? Do you encourage farmers to attend agricultural programs from the media? Do you use the internet for the purpose of agricultural production? How?
8. Do you feel that the extension practice is gender inclusive? What communication intervention is being used to motivate female farmers to participate in agricultural production?
9. How do you evaluate the current generation concerning agriculture? Like their parents, do they want to be farmers? What notice do you have in connection to this fact?
10. What challenges do you encounter when putting an appropriate communication strategy into practice? What are the problems, in general, you face in the process of providing agricultural services to farmers? What rationale do you have for the DA turnover? What causes DAs to become disinterested and unsatisfied with their work?

III. In-depth Interview Guides for Farmers

Biographical information: Kebele, Name, Age, Education Level.

1. How important do you think agricultural extension is in your community?
2. How do you describe your relationship with DAs and agricultural experts?
3. How do development agents and experts approach you when they communicate about agriculture?
4. Explain. Do you take an active part in all phases of the projects designed to improve agricultural productivity? Explain.
5. Do DAs come see you and engage in one-on-one or group communication with you? What is mainly given due emphasis? Do DAs visit and communicate equally with all farmers?

6. How do you find out about innovations? Who else is giving you information about agriculture other than DAs? Describe.

7. Do you have access to mass media, like radio, TV, print media? Have you heard of programs transmitted through mass media that focus on agriculture? If yes, do these media provide knowledge that promotes agricultural production? What lesson do you get? What is the medium of the language?

8. What is your view on gender inclusiveness of the overall extension practice? What roles do the existing communication approaches play in encouraging female farmers to participate in agricultural production?

9. What challenges do you encounter in contacting DAs and experts for agricultural support?

IV. In-Depth Interview Guides for Woreda Expert

Biographical information: Name, Age, Educational Level.

1. Do you believe that your communication strategy assists farmers in increasing their production? Could you please explain?

2. How do you make it possible for the community to take part in all events that result in higher crop yields? How do you evaluate the roles you play in communicating agricultural production issues?

3. Which of the following approaches is commonly utilized in an extension communication system: top-down, participatory, or integrated? Why?

4. In the existing extended communication system, which of the following communication modalities is most preferred? Interpersonal approaches; group methods; farmer training center-based farmer training events; newspaper, flyer, poster, radio, billboard, television, film, and internet; local community conversation setups and indigenous communication methods; demonstrations.

5. In order to support and advocate for agricultural production projects, how often do you meet with specialists from zonal and regional offices, DAs, and the

community? Do DAs' extension communication messages adequately address the problem? Could you elaborate further? Do you think DAs have the requisite training and experience? Describe.

6. Do you inform and include the community in the annual planning process? How? Do you incorporate community/grassroots concerns that are prioritized in the yearly plans you draft?

7. Are mass media accessible to the community? Regarding printed material, which of the following is a preferable format for you to communicate with farmers? (Text, drawing, pictures, textual and graphic elements as a poster). Do you attend the agricultural program from the media? Describe the media that you are accustomed to. Which language is being used most frequently? Do you feel that the agricultural knowledge delivered by media adequately contributes to enhance agricultural production? How? What gaps do you observe?

8. Have you ever used communication strategies that acknowledge the gender issue and the value of women in agriculture? How do you make it if you do? Describe.

9. What challenges do you encounter in your role as an expert to improve agricultural production? Have you ever evaluated the current communication approach? What result have you obtained?

V. In-Depth Interview Guides for Regional Experts

Biographical information: Name, Age, Educational Level

1. Do your bureau have a communication strategy document that directs the communication activities? Could you elaborate on that?

2. How do you enable the community to participate in the all-communication process that leads to increased crop production? What is your assessment of the roles you do in communicating agricultural production issues?

3. What are the most often employed approaches in extension communication systems: top-down, participatory, integrated? Why?

4. How do you evaluate the knowledge and skills DAs acquired? How do you evaluate the provision of training for DAs and farmers?

5. Which of the following communication methods are most preferred in the current extension communication system? Mass media method (i.e., newspaper, flyer, poster, radio, billboard, television, film, internet); group methods (i.e., demonstrations, farmers' days, a farmer training center based, local community conversation set-up/indigenous communication method); interpersonal methods.

6. How do you frequently meet with experts from woreda and zonal offices, DAs, and the community to promote and advocate projects that focus on agricultural production? Do DAs' extension communication messages and services adequately address the problem? Would you explain it more?

7. Do you support community members becoming aware of and involved in the annual planning? Do you urge DAs and experts to include community/grassroots concerns that are given top priority in the annual plans? Elaboarate your role?

8. Regarding printed material, which of the following is a preferable format for you to communicate with farmers? (Text, drawing, pictures, textual and graphic elements as a poster). Why?

9. Which media outlets do you know that air agriculture program? Do you regularly attend agricultural programs that are transmitted through media? What language is being commonly utilized? Do you think that the media's portrayal of agriculture knowledge is sufficient in contributing to improve agricultural production? How? What are the gaps that you observe?

10. Have you ever used communication strategies that acknowledge the gender issue and the value of women in agriculture? Could you kindly elaborate on how you integrate gender issues and their inclusivity into your extension system to improve agricultural productivity?

11. What are the challenges to effectively communicating with stakeholders to improve agricultural production? Have you ever assessed the communication strategy in place? What result have you obtained?

VI. In-Depth Interview Guides for Journalists

Biographical information: Name, Age, Educational Level

1. Could you provide more information on the program's history?
2. Who is your intended audience? What topic of agricultural issues is covered in the program, which is given a lot of attention, and why?
3. How do you assess your level of accessibility to the general public?
4. Can rural residents, for example in Sidama region, hear and comprehend your program? Please provide further details on issues related to the language through which the program is being transmitted.
5. Have you ever carried out audience research?
6. Do you make your program open to community participation? Do you incorporate expert knowledge, research findings, development agents' experiences, and farmer input in producing the programs?
7. Where do you get your information from? Please explain your primary source of information for the program.
8. Could you describe the program's overall format?
9. What challenges do you experience when producing agricultural programs?

Section Two: Questionnaire for Development Agents

Dear respondent,

This questionnaire is developed to examine communication interventions in agricultural extension and their role in production. Your cooperation and honest response are very much appreciated and will allow the researcher to focus on critical issues related to communication intervention in agricultural production.

Statements of Data Confidentiality*:* The information you provide will be confidential and used only for this research. Your identity will not be revealed in any publications that

result from this study. No reference will be made in the written reports that could link you to the survey. Therefore, you are not required to give your name.

If you have questions, suggestions, or concerns at any time about the study or procedure, you may contact the researcher (Tel. +251 911855864) or email hailemeskel.zewdie3@gmail.com

Thank you very much for your cooperation!

Instruction one: Demographic data

Please complete all questions below.

1. Gender _____
2. Age _____
3. Kebele _____
4. Level of education _____
5. Knowledge of the local language
    i. I do not know _____
    ii. I speak a little bit _____
    iii. I speak fluently _____
6. Marital status
    i. Married _____
    ii. Unmarried _____
    iii. Divorced _____
    iv. Widowed _____
7. Work experience as a development agent _____
8. Years of college training in years _____

9. Area of specialization _____

10. Number of household responsibilities _____

11. Woreda _____

Instruction two

Please answer the following questions. Using scales 5(strongly agree), 4(agree), 3(Undecided) 2(disagree), 1(strongly disagree). Mark (X) below the number that best represents you to the corresponding items listed.

1. Utilization of Participatory Communication (UPC)

Code	Variables	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
UPC1	I believe participatory communication approach would help to increase agricultural production.					
UPC2	I utilize a participatory communication approach whenever I communicate with farmers.					
UPC3	Practically, I observed that participatory communication approach helps develop a sense of ownership among farmers.					
UPC4	I always discuss agricultural issues with farmers to give priority to their concerns.					
UPC5	All agricultural activities are undertaken based on consensus and genuine participation.					
UPC6	In drafting the annual plan, farmers participate fully.					

UPC7	Farmers are involved during the problem identification stage.					
UPC8	Farmers usually participate in prioritizing problems to include their needs in the annual plan.					
UPC9	Farmers take responsibility for executing their share of the task based on mutual understanding.					
UPC10	Whenever innovation comes out, farmers are introduced through a participatory communication approach.					
UPC11	New plans and activities from higher experts and officials would be executed through dialogue and interactivity.					

2. Confidence in Communicating with Farmers (CCF)

Code	Variables	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
CCF1	I always read on issues to communicate with farmers with complete confidence.					
CCF2	I usually search for new, valuable innovations before communicating on issues.					
CCF3	I have got ample information to share with farmers in my field of specialization.					

CCF4	I am well equipped with communication skills to exchange information confidently.					
CCF5	Practically, my knowledge of my profession is rich in dealing with farmers.					
CCF6	The utilization of multiple methods of communication makes me a good communicator.					

3. Information Seeking Behavior (ICB)

Code	Variables	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
ISB1	I interact with researchers and try to get new information regularly.					
ISB2	I am ready to discuss agricultural issues with my colleagues.					
ISB3	I listen to radio programs that focus on agricultural issues.					
ISB4	I attend training and workshops on agriculture.					
ISB5	I follow media programs related to agriculture.					

4. Training and Experience Sharing (TESH)

Code	Variables	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
TESH1	The office of Agriculture arranges regular training programs.					
TESH2	I usually get relevant knowledge from the training.					
TESH3	The training program usually accompanies experience sharing session.					
TESH4	The content of the training focuses on topical issues that are pertinent to our locality.					
TESH5	The experience-sharing session is contextual and related to our environment.					
TESH6	The training session is extensive.					

5. Communication Methods (CM)

Code	Variables	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
CM1	I regularly visit farmers home to home.					
CM2	I regularly arrange field day trips.					
CM3	I usually arrange model farmers' experience-sharing sessions.					

CM4	I arrange a session at which farmers discuss with agricultural experts.					
CM5	I encourage farmers to listen to a radio program that focuses on agriculture in groups.					
CM6	I arrange television or screen shows that focus on agriculture on a regular bases.					

6. Self-image in Communication and Relationship with Farmers (SICRF)

Code	Variables	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
SICRF1	Farmers have confidence in my professional knowledge.					
SICRF2	I am satisfied with the feedback I get from farmers after I communicate with them.					
SICRF3	I have sufficient knowledge and can carry out my job effectively.					
SICRF4	I am helpful to the farmers.					
SICRF5	I am a respectful person in the community.					
SICRF6	I have good relationship with farmers.					

SICRF7	Due to the good relationship I have with farmers, they frequently invite me to solve their social problems.					
SICRF8	Farmers usually welcome me whenever I visit their homes or farmland.					
SICRF9	Farmers want me to participate in social occasions like marriage.					
SICRF10	Farmers trust me to take responsibility in a social association like 'edir'					

7. Research Linkage (RLI)

Code	Variables	Strongly agree	agree	Undecided	Disagree	Strongly disagree
RLI1	Researchers contact us frequently to discuss research practices.					
RLI2	Researchers usually provide us with an opportunity to participate in their research projects.					
RLI3	Researchers allow us to participate in disseminating the results of the research.					
RLI4	As a development agent, we participate in implementing a research project.					
RLI5	We are allowed to participate in assessing the research project					

	results.					

8. Workload of Agents (WL)

Code	Variables	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
WL1	I can manage my activities properly on the given workdays.					
WL2	The burden of job responsibility doesn't affect me in utilizing a participatory communication approach.					
WL3	I am capable of addressing the request of farmers through a participatory mode of communication.					
WL4	I visit farmers on their farmland and discuss with them through a participatory approach.					
WL5	As I carry out my job through a participatory communication approach, I have seen better achievement.					

Instruction 3

Please answer the following questions. Using scales 5(very high), 4(high), 3(I don't know) 2(low), 1(very low). Mark (X) below the number that best represents you to the corresponding items listed.

9. Access to Mass Media (AMM)

Code	Variables In my area, I have access to	Very high	High	I don't know	Low	Very low
AMM1	Radio					

AMM2	Television					
AMM3	Newspaper					
AMM4	Magazine					
AMM5	Leaflets, broachers					
AMM6	Billboard					
AMM7	Poster/drawing					
AMM8	Internet					