



Mekelle University
College of Business and Economics
Department of Cooperative Studies

**ACCESSIBILITY AND UTILITY OF AGRICULTURAL MARKET
INFORMATION IN ALAMATA AND ATSBI-WEMBERTA
PILOT LEARNING *WEREDAS*, TIGRAY, ETHIOPIA**

With Emphasis on Radio

by

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A Thesis

**Submitted in Partial Fulfillment of the Requirement for the
Master of Arts Degree
in
Cooperative Marketing**

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June 2009

DECLARATION

This is to certify that the thesis entitled “Accessibility and Utility of Agricultural Market Information in Alamata and Atsbi-Wemberta Pilot Learning *Weredas*, Ethiopia – with Emphasis on Radio” submitted in partial fulfillment of the requirements for the award of the Master of Arts Degree in Cooperative Marketing, to the College of Business and Economics, Mekelle University, through the Department of Cooperative Studies, done by Mr. Tsegay Okubay Fekadu, Id. No. FDA/PR0029/2000 is an authentic work carried out by him under our guidance. The matter embodied in this project work has not been submitted earlier for award of any degree or diploma to the best of our knowledge and belief.

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ACKNOWLEDGEMENTS

I would like to take this opportunity of acknowledging the guidance, comments, encouragements and cooperation I have had, as follows.

I would like to forward my deep appreciation to Dr Girmay Tesfay and Dr Moti Jaleta for their concerns in checking and giving comments as well as guidance. I have had real encouragements and freedom of creativity from these advisors. Particularly I am very much indebted to Dr Moti Jaleta for his constructive comments, lessons and real advice.

I really appreciate his commitments in sparing his precious time to see every details of the draft report and give valuable inputs.

I am very much indebted to Dr Berhanu Gebremedhin and Dr. Gebremedhin Weldewahid for their basic and constructive guidance, particularly, at the stage of designing the project. The cooperation I had from Dr Gebre Yohannes Berhane, Brike Enyew and all other IPMS project staff is not forgettable. Moreover, if it were not for the research fund I got from IPMS-ILRI, this unaddressed topic of research might not have been taken into account. Therefore, I do not only pass giving thanks to IPMS-ILRI project but I also want to express my readiness to contribute in implementing the necessary activities to turn the research results into actions.

The cooperation I have had from the existing staff of Department of Cooperative Studies is appreciable. In particular, I would like to thank Dr Kelemwork Taffere and Ato Gebrecherkos Gebregiorgis. The constructive lessons I had from Professor Dr G.Balakrishna Pillai is also not forgettable.

I am very much indebted to Ato Kiros Tikue, General Manager of TAMPA, as well as TAMPAs' staff, for their encouragement and the favorable environment, without which I might not be able to start the MA study and reached at this stage, comfortably.

The decision of joining the MA study was not easy if it were not for the encouragement of my wife W/o Asegedech Hagos and even more from Assistant Professor Fesseha Abadi. The lovely atmosphere I got from my beloved children Kalkidan Tsegay and Eyob Tsegay served me to work this thesis energetically and happily.

I am really touched with the friendly atmosphere I have had from many friends, particularly, in Mekelle University and BoFED, of which their expression of availability for assistance gave me love and encouragement throughout the research project.

I should not pass recognizing the cooperation I had from the staff of OoARD in Alamata and Atsbi-Wembeta, as well as enumerators, in particular, Tesfay Hiluf and Haily Hagos.

All these cooperation, love, encouragements, appropriate guidance, and assistance I have had to accomplish my study were due to God's will. Like all of my achievements, the chance of joining and completing this MA study is made happened as of what God fixed its time and the manner of its performance, in such favorable condition for me. Thanks God.

This MA study, I believe, is a means to other achievements rather than to be considered as an end for itself. I promise all of you - who have been giving me love, encouragement, and assistance - to compensate what I am indebted to you by actions of promoting peace, assisting needy people, and working for sustainable development human beings to the best of my capability.

ACRONYMS

ADLI	Agricultural Development Led Industrialization
BoARD	Bureau of Agriculture and Rural Development
BoFED	Bureau of Finance and Economic Development
DA	Development Agent
DEWT	Local radio named <i>Dimtsi Weyane Tigray</i>
EPRDF	Ethiopian People Revolutionary Democratic Front
FAO	Food and Agricultural Organization
FTC	Farmers Training Center
GDP	Gross Domestic Product
GOs	Governmental Organizations
HH	Household
IPMS	Improving Productivity and Market Success
MI	Market Information
MIS	Marketing Information System
MIService	Market Information Service
MMS	Multi Media Services
MOFED	Ministry of Finance and Economic Development
NGOs	Non-Governmental Organizations
OoARD	Office of Agriculture and Rural Development
PA	Peasant Association
PASDEP	Plan for Accelerated and Sustained Development to End Poverty
PLWs	Pilot Learning <i>Weredas</i>
SDPRP	Sustainable Development and Poverty Reduction Program
SMS	Short Message Services
TAMPA	Tigray Agricultural Marketing Promotion Agency

LOCAL TERMS

<i>Shember</i>	A local unit of grain measurement¹.
<i>WEREDA</i>	District

¹ One unit of *Shember* is estimated about 1.3 Kg, with plus or minus variation, depending on the type of grain and its corresponding density.

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ABSTRACT

Introducing and promoting the production of marketable commodities require adequate, accurate, relevant and timely information. Noting the background of poor market information provision efforts in the country and the new regional initiative on the other hand, it was necessary to conduct this research aimed at studying the availability, accessibility, and utility of agricultural market information in Alamata and Atsbi-Wemberta pilot learning weredas. Assessing the sources of market information; investigating the process of market data collection up to broadcasting on radio; and studying accessibility the utility of market information are the specific objectives.

Primary and secondary sources as well as quantitative and qualitative information were collected. Systematic random sampling method was used to select 141 households for interview. From the random sample, only 18 households were able to comment on the MI received from radio. Therefore, additional 10 radio listeners were interviewed to increase the sample size of radio listeners. Information was also collected from experts working at wereda and region levels as well as from DAs and cooperatives.

Radio, information display boards, cooperatives (for marketing-in products) bulletin and website of TAMPA, are the formal media of MI. Out of these, MI broadcasted on local radio and MI placed on display boards are assumed to be accessed by farmers and other rural households. The results of the study showed, HHs with practical access (who actually were able to comment on the MI on radio) were only 12.8 percent of the randomly selected households though HHs having access to radio account for 47.5 percent. The functionality of MI service using display boards is very poor, so far. The role of extension agents as well as cooperatives in disseminating MI to the local farmers/traders is minimal and seasonal. The media of MI frequently used by farming households and farmer-traders are weekly market visits and information exchange among farmers/traders. Telephone is used by few farmers/farmer-traders while wholesalers and cooperatives use it widely. The overall access scale to MI, for the majority of randomly selected households, is below 'medium' scale whereas satisfaction on the usefulness of MI received from radio is 'high' scale for the majority of respondents (able to comment on the radio MI service). In sum, accessibility and utility of MI could be improved by ensuring better management and coordination of the available media and sources; by creating awareness on the availability of these resources and how to use them; by improving the quality of access to MI; by improving networks and coordination among the formal and non-formal medium of MI; and ensuring the continuity of the service by allocating regular budget. Monitoring MI quality dimensions and considering the use of ICT are also among the recommendations.

Key Words: Market Information; Radio; Accessibility; Utility; Alamata; Atsbi-Wemberta.

CHAPTER ONE

INTRODUCTION

1.1 Background

Agriculture has for the long decades been the backbone of the Ethiopian economy. However, until the last decade and half, the agricultural production had been very poor due to the subsistence and traditional system. Until this turning event, the sector had been growing backwards for it had not been supported with necessary infrastructure, technology, appropriate extension, and market information. Deribe (2007) has also remarked that though a number of agricultural development programs were implemented in Ethiopia, none of them came up with significant change in the lives of the rural people and in the economy at large. Therefore, it was only recently that the agricultural economy has been showing encouraging growth, in response to Agricultural Development Led Industrialization (ADLI) that has been under implementation after 1994 (MOFED, 2007).

Even though encouraging growth is being observed in the agricultural sector, solving the centuries old problems of agriculture and building necessary supporting services still requires a lot of activities. According to MOFED (2006), introducing and promoting the production of marketable commodities is difficult in the absence of adequate, accurate, relevant and timely information. It is evident that small farmers' role in agricultural marketing can be enhanced through the Government support activities which include provision of necessary infrastructure, appropriate technologies and relevant market information. Similarly, "Changing market conditions and consumer preferences require

rapid adjustments in production technologies, and timely and effective transmission of market information” (Berhanu et al., 2006, p. 4.).

However, the situation to systematic agricultural data/information handling in Ethiopia is not well-developed and could generally be concluded that there is no adequate national system that manages the gathering, processing and dissemination of agricultural information (Deribe, 2007, p. 20). Deribe has also tried to indicate some of the limitations and weaknesses of agricultural data generation and processing at country level. Poor data processing and data management practices; lack of standardized formats for data collection; lack of well documented instructions necessary for data collection; and insufficient cooperation among data collectors and processors (at different levels) were among the weaknesses and limitations (p. 21). Deribe further stated the limitation of extension in providing market information as “difficulties of the country’s long-lived extension system faced in providing consistent, accurate and timely information in a systematic, coordinated and sustainable way to address the wide-ranging needs of the agricultural information users” (p. 20).

Until few years back the regional situation was also similar with the national situation with respect to availability and provisions of agricultural market information. Customary practices (weekly market visits and information exchange among farmers/traders) had been the main source of market information for farmers for many years back. Even though, market data collection activity had been conducted by BoARD (and later by cooperative offices), this activity was characterized by lack of consistency in its service.

In spite of such background situation, recently, regional and *wereda* level initiatives are emerging with objectives of providing market information service. The establishment of

Tigray Agricultural Marketing Promotion Agency (TAMPA) and its efforts can be cited as one of the moves in providing market information service in Tigray. The role IPMS Project can play is also one among the most important interventions to be considered. However, the recent status of the study area (also if there is any recent change in the roles governmental lines) was not studied and documented until the initiation of this study with respect to market information related topics.

1.2 The Statement of the Problem

Most farmers receive no information about changes in the value of their products whereas traders have reasonably rapid access to such trade-based information. Such access gaps to basic market information have been cited as a major impediment to empowering farmers to negotiate for better prices and thus build market confidence and trade links (Almond and Hainsworth, 2005, p. 22.). However, regular and adequate market information service has not yet been in place in Ethiopia, and agricultural support services have been very poor, as already explained in section 1.1.

Not only the market information service but research on the subject and, particularly, in the study area was not available. Even though Arsema (2008) has attempted to do her research on *Problems and Prospects of Agricultural Marketing Information in Atsbi Wenberta and Alamata Woredas* as summarized in section 2.2.3, it does not touch the research questions dealt by this latest study.

The research questions which have been expected to be answered by the results of the research are the following:

- What are the existing and potential market information sources (*formal*² and *non-formal*³) in the PLWs?
- How do the different market actors at different levels (*wereda*, PA, and HH) access and use market information in the PLWs?
 - What is the role of extension agents in communicating and disseminating market information?
 - How do cooperatives play the role of disseminating market information?
 - How do farmers currently access market information to market their agricultural commodities?
- To what extent is the market information accurate, timely, relevant, and useful in the PLWs?
- To what extent is market information being used by beneficiaries in the PLWs?
- What are the major opportunities and problems observed related to accessing and utilizing market information in the PLWs?
- What are the key gaps to be addressed of which concerned organizations can make use of the research findings to enhance market information service *accessibility* and *utility* that could be scaled-up at Regional and even at National level?

² Formal sources of market information are such as extension sources, cooperatives, mass media, MI notice boards, and other GOs and NGO sources of MI to be identified.

³ Non-formal sources/means of market information are such as using private mobile telephone, wireless telephone, fixed telephone lines, social networks, and personal visit to markets.

Hence, from the point of considerations of the research questions as well as the research significance (as presented in section 1.5), the research problem is stated as *Accessibility and Utility of Agricultural Market Information in Alamata and Atsbi-Wemberta PLWs (With Emphasis on Radio)*. Emphasis is given to radio MI by virtue of its dominance over the other *formal* media, even though study on the *utility* of all the *formal* MI services was given equal consideration at the beginning of the study.

1.3 Objectives

The overall objective of the research is to study the *availability*, *accessibility*, and the *utility* of market information for agricultural commodities in Alamata and Atsbi-Wemberta pilot learning *weredas*.

The specific objectives are:

1. To assess the availability of *formal* and *non-formal* sources of market information in the study area;
2. To investigate the process of market data collection, processing, and broadcasting on local radio in the study area;
3. To study the *accessibility* of market information in the study area;
4. To measure the *utility* of market information broadcasted on local radio in the study area; and
5. Recommend appropriate interventions and useful ideas to improve and scale-up innovative market information *accessibility* and *utility* in the study *weredas*.

1.4 Hypotheses

In Ethiopia, even though efforts are on the way to improve agricultural market information service, given the background situation in the agricultural support services in general, and the agricultural market information service in particular, the situation for agricultural market information is not yet matured. According to Shepherd (1997), in spite of the number countries having some kind of market information system, most of the services provided to farmers and traders can not be useful as expected. Thus, the hypotheses are stated negatively as follows:

- Access to market information is below ‘medium’ scale of access for majority of households in Alamata and Atsbi-Wemberta *weredas*.
- The *satisfaction* of majority radio MI receivers is below ‘medium’ scale of *satisfaction*.

1.5 Significance of the Study

Putting effective market information in place, among other agricultural support activities, could play significant role in speeding up the transformation activities of the traditional agricultural production system with production of market-oriented agricultural commodities and products. Here, the importance of supporting the existing agricultural information provision efforts, with research, has been found essential.

The results of this research are expected to show the gaps with regards of accessing market information and the *utility* of the information for making marketing decisions by the users of the information. Feasible interventions are expected from the recommendations given.

Following the immediate interventions expected from this research results, initiatives existing in other parts of the country could be benefited from lessons and the impacts of the interventions. Therefore, in addition to the area this study covers (Alamata and Atsbi-Wemberta PLWs), the findings could also be applicable and scale-up to other *weredas*, with the aim of improving agricultural market information services, may be with minor modifications.

Moreover, the research report could serve as one source of reference material in the area of agricultural market information assessment. The findings can also be used by the Regional policy makers and development planners as well. The research results beyond answering the research questions and the research objectives would assist sensing other research problems, for further studies, too.

1.6 Scope and Limitations of the Study

Agricultural information types could be many. Market information would mean mainly price information supplemented with production quantity, demand and supply, transport charges, and conditions of road and communication facilities. In this study area, the market information accessed by most of market actors is price information of agricultural commodities. Information on transport charges is printed in the bi-weekly bulletin which is accessed by few experts and not accessible to the farmers directly. With regards to the quantity of agricultural products supply, the information is collected from only Mekelle and Abi Adi markets, even though there is occurrence of irregularity in the accomplishment. For this reason, the focus of the study is limited to price information.

Adequate care was taken in randomization of the respondents as well as in collecting sound data. Beyond this, regular checking and timely corrections were made while collecting data as well as during data entry. At all stages of the research each activity was measured from the point of its meaning towards addressing the set objectives. In spite of these strong sides the research could not be without limitations. Obtaining lists of households, and keeping respondents patiently till they complete their questionnaires were some of the difficulties faced. Therefore, it was necessary to replace detailed questions on cultivated crop types (by hectare), and question on percentage of marketed commodities (by type) into simple description of patterns (as first, second, etc). This way, it was necessary to prioritize on the major indicators and possible to manage the survey.

Lack of literature on agricultural market information in general and particularly that can serve as a model of good agricultural market information practices has been one of the limitations faced. Since the agricultural production was of subsistence nature and due to lack of overall supporting facilities, at national level, adequate attention was lacking on provision of agricultural market information. Hence, not only was the service of agricultural market information poor, but also the literature materials in the subject area, for Ethiopia.

1.7 Organization of the Report

The second chapter deals with definitions of basic concepts and results of empirical studies. The third chapter presents description of the study area, methods of data collection, the sources and the instruments used in data collection, the sampling techniques employed, the operational definitions of variables, and the analytical methods

used are presented. Chapter four deals with the availability of market information (both from *formal* and *non-formal* sources), access to the market information available, and the *utility* of market information (MI) received from local radio. Moreover, the overall process of market data collection, processing and dissemination on radio, are focused and presented in the same chapter. Finally in chapter five, conclusions and recommendations are presented.

CHAPTER TWO

LITERATURE REVIEW

This chapter begins by defining basic concepts on *market information* versus *marketing information* and *market information service* versus *marketing information system*. The definition of concepts continued on *utility* of MI, *customer satisfaction*, and *accessibility* as well as other *MI quality dimensions*. The literature review deals with studies made on methodologies, theories and practices relevant to the objectives of this research. Among the topics reviewed are types of market information, advantages of market information, assumed roles of extension line and cooperative enterprises, and the issues and problems related to market information. Moreover, available related studies in Ethiopia, the role of ICT as a media of market information, and experiences of some African countries are presented and discussed. In the last sub-chapter, a conceptual model is presented, of which the overall ideas taken from literature review were also considered.

2.1 Concepts

2.1.1 Market Information Vs Marketing Information

According to Shepherd (1997), *marketing information* is a concept “which is likely include details of potential market channels, payment requirements, packaging, quality and a whole host of information required by a producer to make successful sale, including market information”. Therefore, it is necessary to note that there is a clear difference between *market information* and *marketing information* of which the former is only a subset of the latter. In other words, *marketing information* is a much wider concept than *market information*.

2.1.2 Market Information Service Vs Marketing Information System

Market Information Service (MIService)

Shepherd (1997) defines *market information* as “a service, usually operated by the public sector, which involves the collection on a regular basis of information on prices and, in some cases, quantities of widely traded agricultural products, from rural assembly markets, wholesale and retail markets, as appropriate, and dissemination of this information on a timely and regular basis through various media to farmers, traders, government officials, policymakers and others, including consumers” (p. 2).

Hence, it is important to note that *market information service* is limited to information on prices and quantities, and its main purpose is to serve others by providing the information (as in the case of public sector). However, *market information service* could also be run by private sector for profit, even though there are issues of ethics and transparency regarding the provision of the service fairly to all potential information users (CARE, 2006).

Marketing Information System (MIS)

Kotler and Armstrong (2004) define *marketing information system* as a system that consists of people, equipment, and procedures to gather, sort, analyze, evaluate, and distribute needed, timely, and accurate information to marketing decision makers (p. 143). The same authors further added that MIS begins and ends with information users that are usually marketing managers, internal and external partners and other who need marketing information.

The definition of *marketing information system* by Kotler and Armstrong is a broad definition. Its application is not limited to company managers but also to “others who

need marketing information”, as in our case, like farmers and traders who are involved in production and/or marketing agricultural products. Thus, the process of collecting marketing information by farmers and traders (information on the people involved in collecting and grading products, the media and source of information they use, product handling equipments, the means of transportation, the condition of store, etc) and associated costs versus income from selling the products (based on received market information) all this process is the *marketing information system* farmers and traders use to market agricultural products.

2.1.3 Market Information and Knowledge Transfer

Logically the received information has to be meaningful for the information receiver to generate a knowledge useful that can make marketing decisions. *Knowledge* and *information*, according to IFPRI (2004), are important factors for increasing agricultural production as well as improving marketing and distribution. Since knowledge is the application of information, there is a need to move from information to knowledge (Almond and Hainsworth, 2005, p. 12). Therefore, further supportive actions are necessary to assist farmers/traders to turn the received market information into useful market knowledge.

2.1.4 Utility of Market Information

Before directly dealing with *utility* of market information it is important to see how the concept of *utility* has been changing as well as the major differences and arguments that have been made by different contributors of the concept. Weele (<http://www.eui.eu/Personal/Researchers/joelvdweele/Work/Utility.pdf>) has tried to discuss and evaluate how the term has been understood, used and measured by different scholars, in

his/her analysis made on the concept of *utility*, based on literature work titled *Utility : A Case Study in Concept Explication*. Weele also tried to evaluate the limitations and gaps of each contributor on the concept.

According to Weele, Jeremy Bentham is a father of utilitarianism. *Utility* for Bentham was meant *usefulness* or pleasure obtained from buying something or getting a service. It can be studied quantitatively by measuring the willingness of customers to pay, of which subjective factors have also influence on it. *Duration, intensity, and purity*, are the dimensions of pleasure considered to measure *usefulness* in number. However, the numerical values are given arbitrarily so that the measurement is not considered easy. *Utility* for Francis Edgeworth was meant *pleasure* and his conceptual definition was based on studying *demand* in relation to *consumer behavior*. For him *utility* value of a product can be different when using the product alone or simultaneously with another product. For Vilfredo Pareto *utility* was meant *preference satisfaction* using comparative measurement which actually can not be feasible with cardinal or quantitative measurement. Pareto considered constructing *utility* value numerically from obtaining *preference satisfaction*. For Samuelson, *utility* is *revealed-preference* (observed choice preference). *Expected utility* is one among the *preference representation* measurements designed by von Neumann and Morgenstern. Here preference is done under uncertainty. Therefore, preference over risks and preference to alternatives are done simultaneously, using cardinal measurement. Thus, the main points of argument among these contributors of the concept revolve around the content of *utility* and regarding the measurability of *utility*. *Utility* as a *pleasure, preference, well-being, and usefulness* are the major alternative terms which have been used to express *utility* contents. *Utility* as a

pleasure is criticized because all things giving *pleasure* are not necessarily good for human beings. *Utility* as a *well-being* is criticized similarly since the sense of *well-being* varies from a certain category of people to the other, according to the situational differences. Therefore, *preference-satisfaction* does not necessarily show the *well-being* of individuals. *Utility* as *preference* is also criticized because preferences can be influenced by different social and other factors. The other area of argument among the different contributors was regarding the acceptability of the measurement and regarding the cardinal versus ordinal measurement. Generally, most of the quantified measurements suggested were not workable compared to the ordered measurements.

Investopedia (2009) is an internet sourced material wrote *economics basics* including *utility*. According to this internet source, *utility* is an abstract concept rather than concrete and observable quantity, and the units assigned to measure *utility* are given arbitrarily. This could be one of the reasons responsible for observing difficulties in measuring *utility* quantitatively.

Having tried to show the differences among different contributors of *utility* concept, Weele seem to be in difficulty to give appropriate conclusion saying that the concept is rather complicated with an increase of the number of contributors. Actually Weele has tried to indicate that the main reason for difference in conception is the difference in the discipline and subject of priority. If this is so, there should not be difficulty of giving appropriate conclusion. There could not be an agreed meaning and measurability of *utility* for all people in different disciplines and subject of concern. Rather, the important considerations should be whether the meaning of *utility* is correct from the point of the

subject area under consideration; whether the measurements proposed are the best and can be feasible; and whether the measurements proposed can give desired output.

It is important to raise some of the arguments from the point of market information *utility*. *Utility* of market information is best expressed as the *usefulness* of the MI service rather than to study the *well-being* of the users of MI. For its simplicity, ordinal ranking on *satisfaction* is used to measure MI *utility*, but it can not be said cardinal measurement could not be feasible. With regards to personal or social factors that may have influence on the *satisfaction* of users of MI, definitely there would be influence, but this does not necessarily lead not to use *satisfaction* as indicator. Rather, the influence of personal or social characteristics of users of MI can either be studied together or after studying the *satisfaction* on the MI service.

According to Ambre et al. (1997), Brackstone (1999), IMF (2001), Kasnakoghu and Robert (2004), Eurostat (2005), and Ahn et al. (2008), *utility* of market information refers to the quality of MI or the state of usefulness of the information to serve its purpose adequately. *Utility* of MI can be expressed in terms of the MI *quality dimensions* (Brackstone (1999), IMF (2001), Kasnakoghu and Robert (2004), Eurostat (2005), and Ahn, et al. (2008)) and the *satisfaction* of users of MI on the quality of the MI service they received.

Usefulness of market information is expressed in terms of the adequacy of information availability, easiness of information *accessibility*, and the degree of supports users get to understand the available information easily (Ambre et al., 1997; USDA, 2002). According to Ambre et al., availing MI service only does not have *utility* unless the

potential users are aware of its existence, know how to access it properly, and provide necessary tools that make them actually use it.

Utility of market information refers to the usefulness of market information expressed in terms of the *satisfaction* of the users of the MI or in terms of market information quality dimensions (see also section 2.1.6). Thus, *utility* of market information can be defined as the quality or state of usefulness of the information and the amount of *satisfaction* users gain from the quality of the market information service they use.

2.1.5 Customer Satisfaction

Schiffman and Kanuk (2007) are authors of a book titled ‘Consumer Behavior’. According to these authors, *customer satisfaction* is a perception of users’ of MI on the performance of market information service in relation to their expectation. If the actual MI service is below what an individual expected, the *satisfaction* will be low and vice versa is true. As expectations of individuals show high variation, a given MI service can result different *satisfaction* levels. Therefore, *satisfaction* of MI service is not only the outcome of the MI service provision quality, but it is also influenced by the level of expectation individuals have. Schiffman and Kanuk further added that *personality* has its own influence on the preference of individuals in favor of certain service instead of others. *Personality* can, thus, be one of the reasons that have influence on varied expectations of individuals which in turn results varied perception on the provision of MI service.

2.1.6 Accessibility and Other Market Information Quality Dimensions

According to Brackstone (1999), IMF (2001), Kasnakoghu and Robert (2004), Eurostat (2005), and Ahn et al. (2008) *accuracy*, *timeliness*, *relevance*, and *accessibility* are the most mentioned data/information quality dimensions followed by *interpretability* of market information

To start with its simple definition of dictionary, *accessibility* is the ease of approach to one location from other locations. This may be measured in terms of the distance traveled, the cost of travel, or the time taken. The explanations of *accessibility* in relation to distance, cost, and time are appropriate also for understanding the meaning of information *accessibility*. In other words, information *accessibility* could also be measured in terms of the distance to the sources of market information dissemination points, i.e. in terms of the time elapses to obtain the information, and in terms of the direct or indirect costs associated to obtain the information, when appropriate.

Accessibility to market information refers to whether potential users of the information know about the existence of information, where the market information is available, and how to obtain the information (Brackstone,1999; IMF, 2001; Kasnakoghu and Robert 2004); whether the received information is communicable or understandable by the potential users (Ibid); and the ease of accessing the information attributed to layout of tables, charts, figures, clarity of texts or readings (IMF, 2001; Kasnakoghu and Robert 2004).

Therefore, *accessibility* means whether potential users of the information know about the existence of information, where it is available, and the know-how to obtain the information. Only receiving market information is not sufficient for arriving at marketing

decisions but the received information must be communicated easily in a way to give adequate meaning and give better serviceability to the potential users. For the study of *Accessibility and Utility of Agricultural Market Information in Alamata and Atsbi-Wemberta PLWs – with Emphasis on Radio*, the *clarity* of radio to be heard properly; the ease of *language* used in broadcasting the MI; the appropriateness of the *reading speed* to hear MI; the convenience of *presentation day & hour*; and the adequacy of *broadcasting time* to deliver the MI adequately are components of *accessibility* that have influence on the utility of MI broadcasted on radio. As explained so far, the concept of *accessibility* is presented from the point of view of the MI service providers to measure the quality of accessing the market information (at output level). In relation to this, it is worth mentioning that *accessibility* has another face of measuring it (at result level). The size of beneficiaries that have access to market information; households that have radio; and other indicators revealing the access of households have to market information, are also dealt in other section of the thesis, so these are not part of the section dealing with MI quality dimensions.

While some literatures treat *interpretability* as part of *accessibility*, in most instances, it is defined and treated for its own (Brackstone, 1999; Kasnakoghu and Robert, 2004; Ahn et al, 2008). Kasnakoghu and Robert (2004) clarified that the adequacy of definitions of concepts, variables, and terminologies are some of those which determine the *interpretability* of market information. *Interpretability* refers to whether a given market data/information is getting the desired meaning adequately or not.

Accuracy is explained as one of quality dimensions of data/information by Brackstone (1999), IMF (2001), Kasnakoghu and Robert (2004), Eurostat (2005), and Ahn et al.

(2008). According to Shepherd (1997), data *accuracy* depends on the quality of data collection. Quality of data collected depends on the capacity of data collectors that in turn depends on training and benefits they get. The quoted price of products must refer to a definite quality of product. Average price quotations should also be used carefully. At least there must be five prices recorded daily for each product to make an average. When the gap between the lowest and highest price is wide, quoting highest and lowest prices or quotations of dominant price might have better meaning than the average price. Besides, whether the “lowest”, “highest”, and “average” prices are referring to the same quality of product is important.

Relevance is one of the dimensions of market information qualities that measures the degree to which information addresses its purpose from the point of view of its intended users (Brackstone, 1999; IMF, 2001; Kasnakoghu and Robert, 2004; Eurostat (2005), and Ahn et al., 2008). *Relevance* is based on qualitative assessment using such as user *satisfaction* index (Kasnakoghu and Robert, 2004, and Eurostat, 2005). According to Brackstone (1999) *relevance* of market information reflects the degree to which the information reflects the real needs and interests of the users. Therefore, assuring *relevance* is a subject matter dependent on the information need type of the users.

Brackstone (1999) continued that *relevance* of information is expressed whether the topics (information contents) are appropriate for the intended user; whether concepts used and measurement units reflect the existing situation of the area where the user is living or specific to the situation of the user. *Relevance* deals with assessing the adequacy of information of whether it is available or not at all. *Relevance* of market information also depends on the available alternative of other sources of market information. Therefore,

whether a particular information source is relevant or not may also be influenced by whether the respondent has another better information source or not.

According to Shepherd (1997) if market information is not relevant the information would not be usable. Market information may be relevant if say the price information is regarding wholesale prices while retail prices are needed by the users. Similarly if there is no adequate transport facilities to major markets this may be a cause not to use the price information as expected. Therefore, accompanying price information with information such as supply and demand situations in the market, situation of transport, road conditions would increase the *utility* of market information.

Timeliness is one of the major market information quality dimensions considered that determines the *utility* of MI. *Timeliness* refers to the degree to which market information is ready, available, provided or presented on time or in advance of the specified time on which the market information is expected so that to make important marketing decisions.

2.2 Empirical Studies

2.2.1 Methodological Review

Innovations in Market Information Services is one section of a study named as *Market Information Systems and Agricultural Commodities Exchanges*. The study was conducted in Uganda aiming to measure the *accessibility*, *usefulness*, and *utility* of the existing market information system and how such MIS could be financed in the future. In this study indicators used were about main sources of accessing information and crops priority for MI; perception of farmers on MI *accuracy*, *timeliness* and *relevance*; and how the overall MIS is rated as well as its usefulness. To study the perception of farmers, 3-

scales of ‘very useful’, ‘useful’, or ‘not useful’; ‘very accurate’, ‘accurate’, or ‘not accurate’, etc. were employed to generate the information. Hence, the results obtained showed that 94 percent of farmers surveyed owned radio and those who were able to access information using radio reached 70 percent. While those who were able to access market information using mobile phones were 76 percent those who owned private mobile phones were 25 percent. With regards to the usefulness of the MIS, 60 percent of the farmers said it was ‘useful’, 33 percent ‘fairly useful’, and the rest 7 percent ‘not useful’ (Ferris et al. 2005).

2.2.2 Theory and Practice on Agricultural Market Information

2.2.2.1 *Types of Market Information*

According to Shepherd (1997), market information is basically two types – *current* and *historical*). *Current* market information refers to information which is as up-to-date as possible. Market information must be accessed timely in order to facilitate bargaining and provide benefits of spatial arbitrage. Thus, in this case, current market information is needed. *Historical* market information, on the other hand, is information compiled overtime that may take several years. *Historical* information can be used for production planning and storage decisions, among others.

2.2.2.2 *Benefits of Agricultural Market Information*

Some of the most important uses of market information are helping farmers where to sell their produce, how to reduce marketing costs, and informing them costs associated with accessing high price markets. The benefits of market information also include helping farmers in decision making: whether to store or not, whether to grow produce out of

season, whether the prices they are offered are in line with market prices, and whether to produce new/other crops (CARE ETHIOPIA 2006).

According to Shepherd (1997), market information can facilitate efficient allocation of productive resources; help to improve the bargaining position of farmers with traders; reduces transaction costs; decrease entry barrier to both production and trade; and can bring shifts in cropping patterns (to higher value crops). Farmers, traders, and consumers can be benefited from improved spatial distribution due to market information. Moreover, policy makers can be benefited from improved policy formulation (p. 3-4).

2.2.2.3 *Role of Supportive Institutions and Organizations*

Farmers' access to market information, among other institutional support services, is one of the changes expected from agricultural extension activities (Berhanu et al, 2006, p. 5). The marketing aspect must get adequate support from the extension system. Extension workers can play the role of advising small farmers as to how the farmers can interpret current prices as well as seasonal price trends. Therefore, extension workers can play the role of enhancing the utilization level of market information (Ambre et al., 1997, p 51). Hence, questions like *'Is there any such support within the extension system? Are the extension personnel satisfied with the quality and adequacy of market information? What are the problems in helping the users to make the market information utilized?'* should be considered in this study.

Similarly, cooperative organizations are expected to participate in information transferring activities to their members. Among the roles farmers' cooperatives can play, in relation to market information, include (1) obtain market information (2) keep price/information records (3) familiarize farmers with the way marketing system work

(4) assist farmers to understand the meaning of prices, marketing costs and trader's margins (5) help farmers understand why prices change in both short-term and long-term periods (CARE ETHIOPIA, 2006, p. 15.).

2.2.2.4 *Problems and Challenges Related to Provision of MIService*

Shepherd (1997) has also dealt with problems and the challenges that affect the quality of market information service. According to Shepherd, the problems related to the market data collection process are attributed to whether market data collectors get adequate income, incentives, and obtain adequate facilities. Therefore, high turnover of trained and/or experienced market data collectors is one of the problems occurring in the area of market data collection. Delays in transmitting, processing, and disseminating market data can make the information outdated. In spite of increased availability information communication facilities, these days, the problem of transmitting information from the market place to the place where the processing taking place is not less. This is because some government offices do not easily afford for the improved communication facilities or may be due to problems of power supply and maintenance. Unsuitable information *presentation day & hour* or mismatching the *presentation day/times* with the potential users day/time for listening radio is also one of the problem areas related to market information dissemination.

Since most of larger traders can already invest their resources for establishing their own market information channels, and since they are the exclusive beneficiaries from such information, they may oppose or not welcome with the introduction of MIS that can serve all the farmers and small traders. Therefore, experiences also show some the traders giving misleading prices, deliberately, to attack the reliability of the market information

sourced from MIService. Beyond this, “extreme actions have included attacking price notice boards at some markets” (Ibid, p. 27).

Weak farmers’ organizations of many developing countries – due to poor management, lack of marketing skills, and distrust among the members and particularly with the management bodies – are problems that hinder effective use of market information (Almond and Hainsworth, 2005). The role of cooperatives in transmitting market information was also assumed in such a way so that how the cooperatives of the study area were doing in terms of market information, therefore, was part of the study.

Poor access to roads, transport, electric power, telecommunication, and storage facilities as well as prevalence of natural and man-made shocks are contributing negatively to the growth of markets (Ibid). The influence of drought, therefore, on the marketable surplus of the farmers, on the motivation of the farmers for market information as well as on the access level of households to MI was considered in the study.

Poverty affects farmers’ situation in terms of access and usage of market information. Small-scale producers are not only limited to having access to market information but they also lack capacity to use the information (Almond and Hainsworth, 2005, p. 54). Taking the influence of economic situation of households, in Atsb-Wemberta and Alamata *weredas* in to account, data on the land holding sizes, the total cultivated lands (including sharecropping system), the availability of livestock as well as the marketing capacity of them was collected. Thus, those households with low economic resources, production, and marketable surplus are short of money for buying or repairing radio and access to telephone. Their motivation for obtaining any market information is very weak so that the frequency of visiting market places as well as the information seeking

tendency from other people are very much limited. Secondly, shortage of finance is one of the problems responsible for turning the received information into action. The limited capacity of farmers is also explained by shortage of know-how to take practical steps. Therefore, small-scale producers generally require more than information alone (Almond and Hainsworth, 2005, p. 65). They have to be supported with appropriate capacity building interventions.

Lack of integration, among different marketing initiatives and agencies is one of the areas which should be dealt in order to make success in terms of ensuring better access to market information. Therefore, the opportunity of working together not only gives the atmosphere for developing common strategy but also the advantage of identifying complementarities in the skills from these different institutions. However, lack of such integration and cooperation is one of the areas of problems and limitations occurring in market information gathering process (Almond and Hainsworth, 2005, p.30).

2.2.3 Review of Related Literature on Ethiopia

It has not been possible to get studies on direct market information issues for Ethiopia. Among three related research titles found, one of them is only dealing with other agricultural information (excluding *market information*). So it was not fit for this research purpose, despite the seeming similarity in the titles. The second related study is conducted by Deribe (2007), a research by the title of *Agricultural Information Networks of Farm Women and Role of Agricultural Extension: The Case of Dale Woreda*. According to results of this study, neighbours or friends stood first in rank as a means of accessing to agricultural information while other farmers stood the second rank. The same ranking order is also obtained for questions on importance of agricultural

information. Organizing women into radio listening groups is among the recommendations of this study that can be applied in this study too.

Arsema (2008) has done a research on *Problems and Prospects of Agricultural Marketing Information in Atsbi Wenberta and Alamata Woredas*, which the title has similarity with this research. In spite of the title what Arsema has used, the hypotheses of the study is about testing the influence of different marketing information (explanatory variables) and ‘business success’ (dependent variable) of the sample population. As explanatory variables, marketing information regarding product types, business opportunities, financial, health and safety, technical, inputs, domestic and export market, new technology, production techniques, training, promotion, trade faire and exhibition were considered in the study. The dependent variable (‘business success’) has different dimension – increased profit, increased *satisfaction*, diversification of products, improved quality of products, expansion of business, increased number of customers, employment to others, utilization of family labour, improved customer relation, and employment of new technologies. Multiple regression analysis was applied to test if the independent variables had influence on the ‘business success’. Hence, the regression result showed the overall business is negatively associated with availability of marketing information. Results of ANOVA also gave answers for the rest of the hypotheses that there is no significant mean response difference among operator groups (grouped by product types) on their marketing information needs, on market information sources, on market information delivery modes, and their problems of market information services.

When looking at the contents and essence of Arsema (2008), it is about the influence of different marketing information on ‘business success’ and whether there is mean

difference among the ‘operators’ with respect to their choices such as their needs, sources, delivery modes, etc. of marketing information as already explained above. But, the title - *Problems and Prospects of Agricultural Marketing Information in Atsbi Wemberta and Alamata Woredas* - could not reflect the actual contents of the study. Either the title should have indicated a test of dependence between ‘marketing information’ and ‘business success’ or it should at least give more focus on the ‘problems and opportunities’. In the analysis of ‘operators’ response, six problems were tested whether significant or not. These are: 1) Difficulty of getting timely and dependable marketing information 2) Lack of access to marketing information 3) Difficulty to understand marketing information 4) Incompleteness of marketing information 5) Lack of extension workers to give timely and dependable marketing information 6) Difficulty of sharing marketing information among operators and collaborators. Out of these problems (1), (3), and (5) are found significant. Reporting this result on ‘problems’ is not suffice, considering the naming of ‘opportunities and problems’ in the title of the study. Besides, there is overlap between problems (1) and (2) on one hand and between problems (3) and (4).

Any how, it is not the interest of this study to get into details of review on Arsema (2008) but it was also found mandatory to show how this study resembles or differs from *Accessibility and Utility of Agricultural Market Information in Alamata and Atsbi-Wemberta PLWs (With Emphasis on Radio)*. Even though there is a seeming overlap on the titles of both studies, the contents of the two studies are different as already elaborated above. Thus, *Accessibility and Utility of Agricultural Market Information in Alamata and Atsbi-Wemberta PLWs (With Emphasis on Radio)* is proposed and executed

to answer the research questions and hypotheses specified to *market information* not to *marketing information*. The other big difference between the two studies is while Arsema (2008) is mainly based on ‘urban operators’ this latest study is based mainly on interview of rural farmers, besides to others.

2.2.4 ICT and Market Information: Some Articles on Africa

The role of ITC, particularly mobile phones and internet, has tremendously grown recently in Africa in transmitting market information. In Africa, the use of mobile phones grew by more than 30 percent within one year (by February 2009). In Senegal there were half million mobile phones before six years, but by the end of February 2009 there were seven million (CTA, 2009, p. 2). Following the liberalization of telecommunications market, mobile phone ownership is showing annual average growth of 5 percent in Sub-Saharan Africa. Mobile telephones now become affordable even for the rural poor in developing countries. Mobile phones have diverse uses contributing in economic and social integration even though the other ITC techniques like internet and radio still have important role in disseminating market information (Wald and Reiner, 2008, p 11).

A group of dairy farmers in the Bugerere district in rural Uganda now use mobile phones to deal directly with buyers, negotiate prices and organize delivery. Through using SMS (Short Message Service) farmers are supplied with up-to-date price information for a wide range of commodities. SMS also inform farmers which trader is offering the best price for their products as well as the contact details of the buyers. Therefore, with such broader view of market information, farmers are able to decide the best buyers and make arrangement for delivery before setting off long trips to market. Therefore, SMS is able

to benefit all those involved in the supply chain from the marketing efficiency and savings obtained due to increased profit margins (Karamagi and Lillian, 2009, p. 5). SMS messages are used to send market information to farmers by Zambia National Farmers' Union besides to publishing on the web. The SMS trade and market information was developed from similar initiatives operating in Kenya. The whole system is linking buyers (looking for commodities) and sellers (who do not exactly know where to sell). Farmers are provided with a small information card having codes of each commodity, trader, and district. They are also provided by the Union with instructions how to use the codes. Farmers wanting to know the price of a commodity can simply type its code. After a while the system sends back SMS with latest prices and the codes of traders who already offered certain prices. Again after the farmer selects the code for the best price offer and the trader, the system replies showing the trader's full name, business address, phone number, and even the trader's exact location. Therefore, the farmer can contact the trader easily (Goudappel, 2009, p 9).

Other improved ICT services are multimedia (MMS) that can assist farmers/traders who are not able too read and write by providing market information visually, or via audio message (Garriott and David, 2009, p. 19). It is also possible to use a mobile phone to make market information by linking the information services with mobile banking. With mobile banking farmers can make payments, receive payments, and make savings (Annerose, 2009, p. 3).

2.3 Conceptual Model

The conceptual model is constructed basically depending on the available literature reviewed, taking into account assumptions governing the overall *accessibility* and *utility*

of market information in the study area. The model can be divided into Section I, which is the *utility* of market information obtained from available *formal* media, and Section II, which is the *access* status of households in the study area.

1. Utility of market information received from available formal media (Section I)

The *utility* of market information is designed to measure the usefulness of MI obtained from the available *formal* media of MI, which in the study area case are MI broadcasted on radio and MI placed on display boards.

Utility of market information deals mainly about the usefulness of market information service quality provided from the side of MI service providers (as a study on the MI service output). The usefulness of MI service can be expressed by the performance of a set of *quality dimensions*, the level of *satisfaction* on the MI quality, and by the level of *usage* of the MI.

1.1. The *MI quality dimensions* considered in this model are *accuracy*, *relevance*, *timeliness*, *punctuality*, *interpretability*, and *accessibility qualities* (*clarity* of the MI presented, the ease of *language*, convenience of *delivery day & hour*, *time adequacy*, and *reading speed*, of which the latter three are only for MI on radio). Thus, the collective measurement of these MI quality dimensions gives the *utility* of the MI service.

The level of *accuracy*, *relevance*, *punctuality* and *timeliness* are *quality dimensions* of MI dependent on the performance of the market data collection and processing activities as well as on the appropriate presentation of the processed information. Similarly, the level of *interpretability*, and *accessibility qualities* (*clarity* of the MI presented, the ease of *language*,

convenience of *presentation day & hour*, *time adequacy*, and *reading speed*) depend on the accomplishments of the MI presentation design and activities. Therefore, MI quality dimensions have a backward link with accomplishments of market *data collection*, *processing*, and *preparation for presentation*.

1.2. *Satisfaction* refers to the perception of beneficiary households on the overall usefulness of MI qualities collectively. The *satisfaction* of households on the MI quality dimensions (and on overall *utility* of MI) influences the coverage of *practical access* of households to a MI service under consideration, which this in turn influences the level of overall *access scales* of households to market information. Besides, *satisfaction* of households has positive influence over the *usage* of MI (which is explained in 1.3). Therefore *satisfaction* has also a forward link with households having *practical access* and *usage* level of the MI received (considered as result-level indicators).

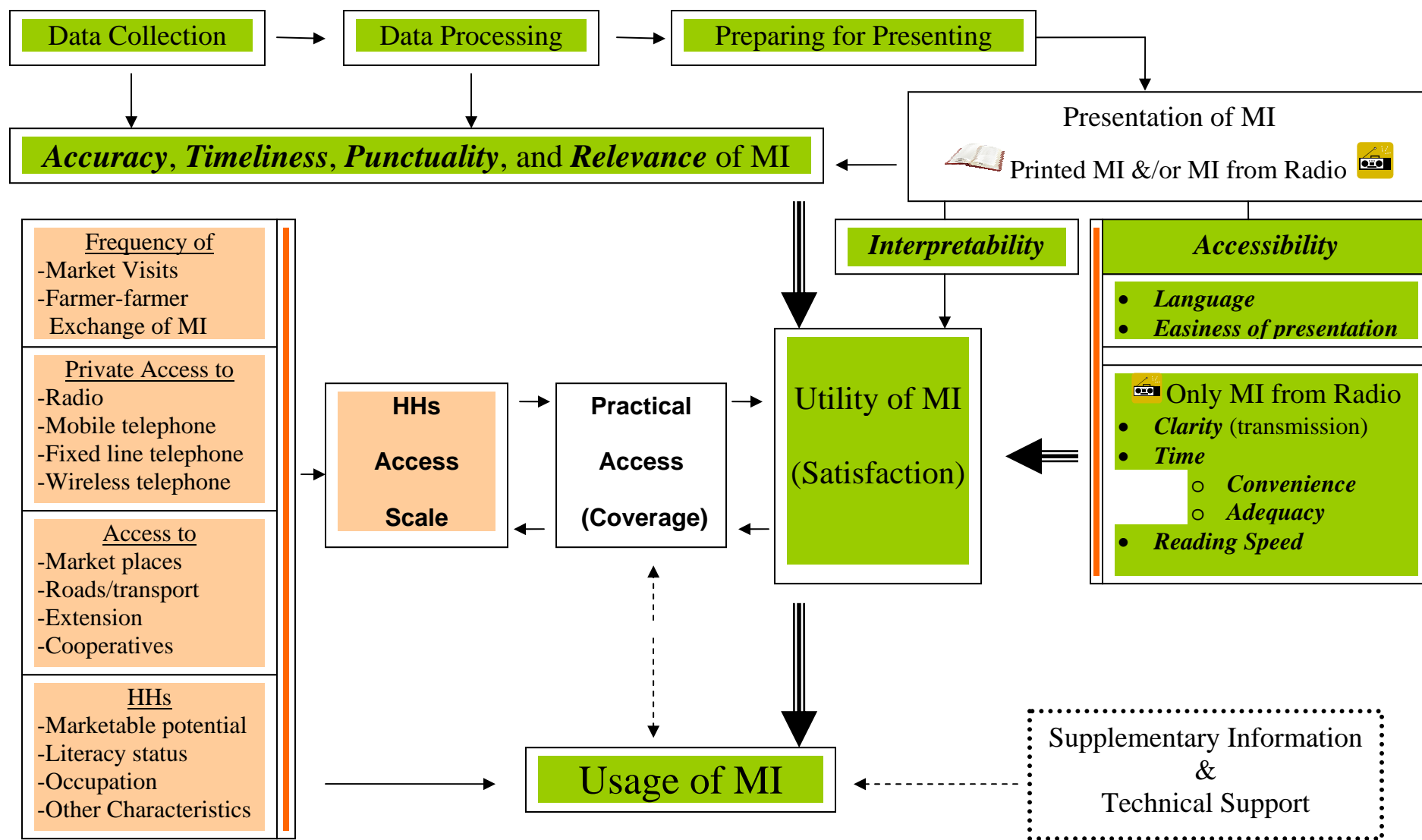
1.3. *Usage* of MI refers to whether households actually use the MI or not so that it can be used as indicator of *utility* of MI and be considered as having more of objective measurement than *satisfaction*. *Usage* of MI can be influenced positively by household characteristics like *literacy status* and household resources as well as *marketable potential*. Besides, the levels of available technical support, and *utility/satisfaction* of MI (expressed by MI quality dimensions) have positive influence over the *usage* of MI. *Usage* of MI can influence *practical access* and *access scales* as well as be influenced by them too.

2. Access status of households to market information (Section II)

This part deals with MI *access scales* achieved by households using all available MI media and source. The level of access to market information is expected to have positive relationship with the access of households have to private communication facilities (such as mobile, fixed line telephones, and radio), personal networks, and by the degree of physical proximity to basic social and economic infrastructures (such as *roads* and *transport*), public *telecommunication service*, and *market places*. The resources of households as well as the *marketable potential*, and *literacy status* of household heads are also expected to have positive relationship with *access scales* of households. Besides, *occupation type* and other demographic characteristics are expected to have relationship with the *access scales* of households to MI.

There is an interaction between Section I and Section II of the model already briefed. As you can see in the middle of Figure 1, there is interaction between *access scale*, *practical access*, and *utility (satisfaction)*. The *utility* level of MI received from radio, for instance, has influence over the *practical access* coverage of MI transmitted on radio. This in turn influences the over all *access scale* of households to market information. On the other hand the level of *access scales* of households to market information (from different sources) may have influences whether to use or not a certain media for obtaining MI which in turn influences the *practical access*. Therefore, the *utility* of MI received from radio (as in the example used), depends whether the households have access to better MI media (indicated by the *access scales*) that in turn have influence over the level of *practical access* to MI received from radio media.

Figure 1: Conceptual Model on Accessibility and Utility of Market Information



Alamata *wereda* is located about 180 km south of Mekelle (the capital of Tigray) and 600 km north of Addis Ababa. Alamata is the south most *wereda* of the Tigray Region bordered by Afar Region from the east and by Amhara Region from the south and west. Atsbi-Wemberta *wereda* is one of the *weredas* of Tigray located some 65 km away in the northeast direction of Mekelle. Atsbi-Wemberta is bounded by Saesie Tasaedaemba *wereda*, in the north, by Enderta *wereda* in the south, by Kilte Awlaelo *wereda* in the west, and by Afar Regional State in the east (Ibid).

3.1.2 Demographic Characteristics

CSA statistical report of the 2007 Population and Housing Census results show that the total population of Alamata *wereda*, in 2007, was 85,359 (42,460 male and 42,899 Female) while the rural population was 80,796 (40,327 male and 40,469 female). Using same source, the total population of Atsbi-Wemberta *wereda*, in 2007, was 112,234 (53,615 male and 58,619 Female) while the rural population was 101,093 (48,630 male and 52,463 female).

Based on the results of this survey, all respondents in Atsbi-Wemberta were *Tigraway* and worshipping Orthodox faith. In Alamata, those households speaking at least both Tigrigna and Amharic constitute for more than three-fourth of the respondents. This is not only due to the existence of one-fifth of the Amhara Ethnic group there, but most probably due to the location of Alamata bordering to the Amhara Region - with population speaking Amharic. Table-1 also tries to summarize some of the demographic and economic indicators studied using the 141 random sample households.

Table 1: Demographic and Economic Indicators, by Wereda

Characteristics		Percent Households			
		Atsbi-Wemberta		Alamata	
		HHs	Percent	HHs	Percent
Sex	Male	62	80.5	55	85.9
	Female	15	19.5	9	14.1
Faith	Orthodox	77	100.0	53	82.8
	Muslim	0	0.0	11	17.2
Marital Status	Married	62	80.5	51	79.7
	Never Married	3	3.9	4	6.3
	Divorced	10	13.0	6	9.4
	Widowed	2	2.6	2	3.1
	Separated	0	0.0	1	1.6
Literacy	Illiterate	32	41.6	29	45.3
	Read only	2	2.6	5	7.8
	Read and Write	43	55.8	30	46.9
Ethnic Group	Tigraway	77	100.0	47	73.4
	Amhara	0	0.0	13	20.3
	Oromo	0	0.0	4	6.3
Language	At least Tigrigna	56	72.7	11	17.2
	At least Amharic	1	1.3	6	9.4
	Both	20	26.0	47	73.4
Occupation	Farmer	55	71.4	52	81.3
	trader	0	0.0	2	3.1
	Farming and trading	10	13.0	9	14.1
	Farming and other business	10	13.0	0	0
	Other	2	2.6	3	1.6

Those households who are not engaged in farming activities (either fully or partly) account nearly 16 percent in Atsbi-Wemberta whereas there are at most 2 percent in

Alamata. This most probably could be due to the relative shortage of land in Atsbi-Wemberta.

3.1.3 Agricultural Resources and Production

The area size of Alamata is 550.3 km² while its altitude ranges from 1178 to 3148 meters above sea level. The rainfall amount ranges from 615 to 927 mm with an average of 715.14 mm. The priority marketable crop commodities of the *wereda* are field pea, faba bean, lentils, safflower, noug, flax, cotton tomato, pepper, onion, tropical fruits, haricot bean, ground nut, cow pea, and popcorn (IPMS, 2006). Atsbi-Wemberta covers an area of 885.3 km² while its altitude ranges from 918 to 3069 meters above sea level. The rainfall amount ranges from 365 to 678 mm with an average of 537.34 mm. The priority marketable crop of the *wereda* are faba bean, field pea, irrigated fruits and vegetables. Apiculture, cattle, sheep/goat, and butter are marketable livestock and livestock products (IPMS, 2006).

Table-2 and Table-3 show that the cereals are the most cultivated crops, followed by pulses and oil crops, by order of cultivated area size, production size as well as productivity. Production and productivity have decreased in the year 2008 compared to the year 2007. Here, one of the main reasons known for this is due to the drought situation in 2008, in both Atsbi-Wemberta and Alamata PLWs. While there is variation in production and productivity for all crops, between 2007 and 2008, in Atsbi-Wemberta, the variation in Alamata excludes crops such as wheat, barley, field pea, and beans. This shows the PAs which grow wheat, barley, field pea, and beans were not having drought problem, and actually the highlands of Alamata which mainly grow these crops were not exposed to such drought situation.

Table 2: Cultivated Area by Crop Type and Production in Alamata PLW by Year

Crop Type	2007			2008		
	Area (ha)	Product (Quintal)	Product/ Hectare	Area (ha)	Product (Quintal)	Product/ Hectare
Sorghum	6,716	218,270	33	1,736	21,776	16
Maize	921	18,470	20	1,420	11,360	8
<i>Zengada</i>	220	4,620	21	120	960	8
F. Millet	180	2,520	14	130	1,170	9
<i>Teff</i>	16,143	226,002	14	22,739	136,434	6
Wheat	1,474	36,850	25	1,585	44,380	28
Barely	2,508	60,192	24	2,345	42,210	18
Field Pea	810	13,770	17	1,675	26,800	16
Bean	669	10,704	16	1,655	28,135	17
Lentil	277	2,355	9	317	1,902	6
Chick pea	102	816	8	180	1,260	7
Abyssinian Pea	90	828	9.2	210	1,260	6
Linseed	25	200	8	128	768	6
Noug	25	200	8	123	738	6
Sesame	10	70	7	NA	NA	NA

Source: Wereda Office of Agriculture & Rural Development of Alamata PLW

Table-2- and Table-3 also show that the total cultivated areas for wheat, barley, beans, field pea, lentil, and linseed are higher in Atsbi-Wemberta while the total cultivated areas for the rest of crops are higher in Alamata.

Table 3: Cultivated Area by Crop Type and Production in Atsbi PLW, by Year

Crop Type	2007			2008		
	Area (ha)	Product (Quintal)	Product/Hectare	Area (ha)	Product (Quintal)	Product/Hectare
Bean	3532.2	46797.46	13.25	2657.80	14080.15	5.30
Field Pea	2001.85	25034.97	12.51	2010.63	12418.18	6.18
Lentil	454.55	2791.15	6.14	468.13	1531.10	3.27
Barely	2582.08	26632.26	10.31	2488.24	11486.39	4.62
Wheat	2978.35	40024.18	13.44	3989.00	20670.73	5.18
<i>Hanfets</i>	62.50	758.00	12.13	NA	NA	NA
<i>Teff</i>	132.45	883.35	6.67	215	733.06	3.41
Finger Millet	4.50	54.00	12.00	48.50	264.55	5.45
Maize	325.90	5154.20	15.82	170.67	1808.05	10.59
<i>Zengada</i>	2.10	33.70	16.05	NA	NA	NA
Linseed	223.10	1236.21	5.54	111.60	300.15	2.69

Source: Wereda Office of Agriculture & Rural Development of Atsbi-Wemberta

Sheep/goat fattening, apiculture, and dairy are among the livestock marketable commodities (Ibid). As shown in Table-4, the livestock pattern in Alamata is cattle (1st), shoats (2nd), and equines (3rd). As Table-5 shows, the pattern of livestock differs in Atsbi-Wemberta from Alamata. Only sheep exceeds the size of cattle in the *wereda*. Shoats are, thus, first followed by cattle, and equines respectively.

Table 4: Livestock Population of Alamata Pilot Learning Wereda (in the year 2008)

PA	Type of Livestock							
	Cattle	Sheep	Goat	Camel	Donkey	Mule	Horse	Hen
Tao	7971	2346	1952	659	564	48	13	1115
Lailay Dayu	11373	1629	3274	685	676	40	0	19228
Gerjle	8291	11076	3285	507	403	161	0	9753
KulgizeLemlem	4148	1395	2645	421	863	30	0	1049
Selam Bkalsi	7348	4208	3460	588	715	140	0	8800
Lim'at	11460	4048	1724	1008	941	33	10	6555
Timuga	15494	5914	4832	1362	973	66	7	19473
Selen Wuha	21857	16763	5128	1971	445	62	14	39395
Tsetsera	8103	10621	1472	192	679	40	0	9602
Merewa	12474	1514	10625	59	359	59	0	17183
Total	108519	59514	38397	7452	6618	679	44	132153

Source: Wereda Office of Agriculture & Rural Development of Alamata PLW

While the total numbers of sheep, donkey, and horse are higher in Atsbi-Wemberta *wereda*, the total number of cattle is higher in Alamata. In Alamata, the total number of camel is more than 14 times to those in Atsbi-Wemberta. With regards to goats and mule the total numbers are almost equal but slightly higher in Alamata.

Table 5: Livestock Population of Atsbi-Wemberta Pilot Learning Wereda (2008)

PA	Type of Livestock						
	Cattle	Sheep	Goat	Donkey	Mule	Horse	Camel
Habes	1388	4215	76	492	11	4	8
Dibab Aqoren	1698	3946	82	542	10	3	4
Felege Weyni	3020	14570	1210	620	39	20	0
Zarema	1896	9164	332	150	3	6	0
Michael Emba	3735	1234	453	1083	89	3	23
Adi Mesanu	2181	7517	689	464	51	0	0
Ruba Feleg	2717	10480	13800	913	90	14	7
Hayeleom	4100	3490	3192	872	0	21	149
Golgol Naele	2087	12995	497	758	21	11	0
Kal Amin	4176	3894	2108	1436	23	5	0
Hadnet	4864	1331	1203	785	43	52	0
Haresaw	2064	9213	3285	1270	4	14	0
Kelisha	3630	62	3492	1083	89	3	163
Barka Adi Sibha	2255	2985	1283	961	28	3	13
Era	4787	79	4012	2282	63	1	154
Gebre Kidan	2123	11899	1101	1020	4	3	0
Grand Total	46721	97074	36815	14731	568	163	521

Source: Wereda Office of Agriculture & Rural Development of Atsbi-Wemberta

Alamata and Atsbi-Wemberta *weredas* are purposely selected for the proposed research mainly due to consideration of the potential of the *weredas* for producing marketable commodities. Moreover, the *weredas* are pilot learning *weredas* of the IPMS project whereby quick responses are anticipated on improvement and production of market

oriented commodities of which the role of efficient market information services are very crucial.

3.1.4 Marketing Infrastructure

In Alamata there are 3 rural markets (at Gerjele, Timuga, and Merewa) other than the main market in Alamata town. In Atsbi-Wemberta there are also 3 other rural markets (at Kelisha Era, Haiki Meshal, and Dera) other than the market in Enda Sillassie town.

Most of the PAs in Alamata are easily accessible and located around the *wereda* center (Alamata town), except Tsetsera and Merewa PAs. The latter two are characterized by hilly and mountainous landforms, with poor road access – which currently is under reconstruction. On the other hand half of the PAs in Atsbi-Wemberta are far from *wereda* center (Enda Sillassie town). Kelisha Emni and Era PAs are not only far from the *wereda* center, but transport is not available to the nearest towns of Wukro except on Tuesdays (the market day). There is transport facilities to Gebre Kidan once in a week (during market day held in the PA) whereby residents in the surrounding PAs (Harresaw and Hadnet) also get the transport facilities.

According to the information gathered from telecommunication administration office of the respective *weredas*, there are 1121 fixed lines, 1228, mobile phones, 15 wireless telephones, 28 internets, and 3 faxes in Alamata *wereda*. In Atsbi-Wemberta *wereda*, there are 12 fixed lines, no mobile phones, 17 wireless phones, 2 faxes, and 3 internet connections. The information obtained during the survey includes that mobile networking and scaling up the fixed lines to make them automatic are under construction in Atsbi-Wemberta *wereda*.

3.2 Research Methodology

Both quantitative and qualitative information deemed important for meeting the objectives of the research were collected from both primary and secondary sources.

Household survey is conducted on farming and/or marketing households. For household survey, interview method was used using interview schedule. Using systematic random sampling technique, 141 households were selected and interviewed. The data set used for measuring *accessibility* of MI (mainly the quantitative part) was based on the answers of these sample households.

The following sampling stages and steps were employed to select sample households for interview using systematic random sampling method:

Step 1: Purposive sampling method was used to select the study area from 34 *weredas* of Tigray. Hence, Atsbi-Wemberta and Alamata *weredas* were selected for their potentials in producing marketable commodities and for the *weredas* are PLWs of IPMS, among other considerations.

Step 2: Percent household sample shares of each *wereda* were determined proportionate to the rural population sizes of 80,796 in Alamata and 101, 093 in Atsbi-Wemberta *wereda*. Therefore, sample share of Atsbi-Wemberta was determined to be 55.58 percent of the total sample size while the sample share of Alamata *wereda* was determined to be 44.42 percent.

Step 3: At this step, the sample sizes of Atsbi-Wemberta and Alamata *weredas* were determined using the sample shares obtained in step-2. The initial target number of households for the household survey was 130. However, the planned household sizes

(including 10 percent contingency plan) became 143. Then, employing the sample shares obtained for the two *weredas*, the sample size of Atsbi-Wemberta was planned to be 79 while it was planned to be 64 for Alamata. However, the actual accomplishment during the survey was 77 households from Atsbi-Wemberta and 64 households from Alamata, totaling 141 households.

Step 4: For each *wereda*, the PAs considered to have similarities were grouped into 9 groups. They were grouped using a combination of criteria: agro-ecology, physical accessibility, cropping and livestock patterns as well as geographical representations, based on the discussions held with the *weredas* concerned experts.

Step 5: The sample size shares of each strata of PAs were then calculated proportionate to the household numbers of the stratified PAs. Therefore, the sample sizes of each stratum of PAs were determined.

Step 6: From each stratum of PAs, random sampling was taken to select 9 PAs, from which household sampling was to be taken.

Step 7: Finally, systematic random sampling was used to take 64 sample households from Alamata and 77 households from Atsbi-Wemberta *wereda*. The procedures used for conducting the systematic random sampling step by step were: obtaining the list of households in each PA; dividing the number of samples by the total household head size of respective PA, to obtain sampling intervals; select one starting number randomly from the first 10 lists of household heads; and add the sampling interval to obtain the next randomly selected household, until the sample sizes planned were met.

Table 6: Sample Households by Wereda and PA

	PAs with relative similarities	Sampled PAs	HHs
<i>Atsbi-Wemberta Wereda</i>			
I	Hadinet, and Haresaw	Gebere Kidan	16
II	Golgol Naele, Ruba Feleg, and Felege Weyni	Golgol Naele	16
III	Kal Amin, Hayelom, Barka Adi Sibha, Michael Emba, and Dibab Akoren	Hayelom	22
IV	Habes, Adi Mesanu, and Zarema	Habes	14
V	Kelisha Emni, and Era	Kelisha Emni	9
	Subtotal 1(Atsbi-Wemberta)		77
<i>Alamata Wereda</i>			
I	Merewa, and Tsetsera	Tsetsera	14
II	Selam Bkalsi, Kulgize Lemlem, and Lim'at	Selam Bkalsi	19
III	Lailay Dayu, Gerjele, and Tao	Gerjele	16
IV	Waja, Timuga, and Selen Wuha	Timuga	15
	Subtotal 2 (Alamata)		64
	Grand Total (1+2)		141

Since most of the sample households interviewed randomly were not able to comment/give information on the *utility* of the MI on radio, 10 additional households, who were in a position to give answers on this part of the MI, were interviewed purposely.

Particularly during the initial stage of data collection, almost all the randomly selected households were not in a position to give the desired data regarding the *utility* of MI on the local radio. This time was really a difficult time which needed immediate alternative

solution. Therefore, the alternative action taken was to collect the required data by interviewing purposely selected individuals who are known for having adequate information about the MI broadcast on the local radio. However, with the advancement of the data collection process it was also possible to get some household heads (selected at random) who can give information regarding the *utility* of the local radio service. Therefore, another data set with a total of 28 respondents of radio listeners was used for measuring only the *utility* part of the MI. Since the data collected from these purposely selected household heads is only considered in the *utility* section of the study, their inclusion does not affect the randomness of the rest of the study.

Table 7: Sample Number of Households Interviewed as Radio Listeners

Name of PA	From Randomly Selected Households	Purposely Sampled Households	Total
Golgol Naeile	2	0	2
Habes	1	1	2
Gebre Kidan	4	0	4
Hayelom	5	0	5
Kelisha	1	2	3
Gerjele	0	2	2
Timluga	0	2	2
Selam Bkalsi	3	3	6
Tsetsera	2	0	2
Total	18	10	28

Interviews were also conducted with DAs, FTC workers, cooperative leaders of the 9 selected PAs for the study. Price data collector of Alamata⁴ *wereda* was interviewed using interview guides and observed how he was conducting the price collection activity. Discussion was conducted with Alamata *wereda* price data collector, on the methods of price data collection, the adequacy of the information, the problems related to price data collection and regarding capacity support issues. Information was also collected from two wholesalers at each of the *weredas*.

As key informants, information was gathered from the *wereda* formal line staffs: two extension coordinators, two heads of OoARD, two heads of Cooperatives Promotion Departments, and two IPMS Project Coordinators. Information was also collected from regional relevant offices of BoARD (Cooperative Department), TAMPA, and DWET regarding the process of market information on radio.

3.3 Operational Definitions

3.3.1 Availability of Media/Sources of Market Information

Availability of market information refers to the presence of market information or not.

Availability of MI is studied by media type (both to the *formal* media and the *non-formal* media) as well as by *source of MI*⁵.

The indicators used to assess the available media of market information, by source of MI and users were: (1) identifying and describing all the available *formal* and *non-formal*

⁴ Alamata is one of the *weredas* covered by the data collection and dissemination service of MI on radio while Atsbi-Wemberta is not.

⁵ Source of MI could be an organization, institution, or people where market information is originated or supplied.

sources and the *media of market information*⁶ (2) the role of social networks, personal efforts used to access market information (3) how the extension system (at *wereda* and PA levels) was working in obtaining and disseminating market information (4) the role of cooperatives in providing agricultural market information and the type of market information cooperatives disseminate. This assessment covers all the available market information at all levels from the region up to the household level.

3.3.2 The Process of Market Data Collection up to Broadcasting

The study covers all the processes of market data collection stage, data processing stage, and finally the information dissemination stage. The indicators used at each stage are presented one by one as follows.

Market Data Collection Process (the Case of Crop Commodities)

The process of data collection steps covers the detail steps of activities gone through to obtain market information from market places chosen for market study. The process of data collection was studied through two methods. The first one is by conducting interview with the *wereda* (Alamata) market data collector, and the second one is by observing while the price data collector was performing his duties.

Number of market data collection required to arrive representative market data; whether the hours used for asking prices are uniform; how price is fixed in a situation of high gap between low price and high price (and whether giving average price in such situation is sufficient or not); and the procedures of taking wholesale price data, were some of the specific indicators used to study the process of market data collection. The market data

⁶ Media of market information is the means or the apparatus used for communicating the market information (eg. radio, telephone, person-person, etc).

collector was asked if he ever had experienced discrepancy between data collected and disseminated, and if he had negative reactions from consumers, farming households, or traders. Moreover, the problems market data collector face, the possibilities of improving the *accuracy* and the overall quality of data and the training opportunities and gaps he has were discussed.

Market Data Organization Process

Data organization process includes the detail activities gone through to obtain market information from *wereda* market data collectors up to the market data storage level. Information on *punctuality* of data sending and receiving schedules, occurrence of data delays, the type of processed data output, where and how it is stored, and how beneficiaries can be able to access to such stored information were collected. At this level, general problems related to receiving raw market data and other problems faced during processing, storing, and sending to radio station for broadcast were asked. In addition, questions like whether there are planned activities to improve the procedures in receiving raw market data and in processing and sending these data to the radio were asked.

The Process Related to Market Information Broadcasting (on Radio)

The specific indicators used to study the process of market information broadcasting were: (1) whether the processed information is received timely or not (2) if there is *punctuality* problem of receiving processed information from TAMPA and may be from other sources (3) the delay of the information by hours, and by probability of occurrence (4) if there were occurrences of interrupting or delaying the program, and the reasons (5) the fate of the scheduled market information broadcasting program, say if there is a delay

of 30 -60 minutes due to complete technical interruption (6) if there were occurrences of escaping the program of broadcasting and the reasons (7) if there were instances of beneficiaries visiting the radio station for referring the quoted market information (8) if there were any service program for dealing with such types of demands from beneficiaries (9) if there were any sort of complains from beneficiaries and other stakeholders related to the transmitted market information (10) if there were any important comments from different people regarding the *utility* of the broadcasted market information (11) if there were any important suggestions forwarded from different people regarding how to improve the market information service.

3.3.3 Access to Market Information

In the literature part, section (2.1.6), *accessibility* to MI has both an output level indicators (the quality of accessing MI like its clarity, ease of language, etc) as well as a result level indicators (like the percent of households having access, by scales). Here we are dealing with the latter one and the remaining part is considered as a part of *utility* study.

The following specific indicators were used to measure the level of access to market information:

- 1) Frequency of answers for ‘Yes’ or ‘No’ answers on whether respondents possess private information communication facilities such as mobile telephone, fixed line telephone, and radio;
- 2) Scales of access of respondents (*access scales*) were measured using the following criteria:

‘Very Low’: If the respondent had no adequate commodities for sale or if he/she did not go market for the purpose of selling his agricultural commodities.

‘Low’: If the respondent only used market visit and/or used information exchange with farmers or traders for the purpose of selling his/her agricultural commodities.

‘Medium’: If the respondent used market visit, information exchange with other farmers/traders, plus if he/she had access to radio and ever had heard MI on radio.

‘High’: If the respondent hears MI on radio and able to comment on the *utility* of that program.

‘Very High’: If the respondent’s access and *usage* of MI is at highest stage, for instance by using telephone, and other better media of MI.

- 3) Frequency distribution or number of respondents by the level of awareness, actual access and *usage* of MI;
- 4) Access to market information by type and coverage, through using radio, mobile, fixed telephone lines, personal market visits, social networks, and other *non-formal* sources;
- 5) Ranking the different media/sources of market information among each other. The respondents ranked the different sources of MI from the point of their perception on market information *accessibility*; and

6) *Access scales* by *marketable potential*⁷, *occupation*⁸, and *literacy status*⁹ of the household heads under study were also analyzed.

3.3.4 Utility of Market Information Broadcasted on Local Radio

Utility of MI was measured based on the responses of radio listeners, not from the total respondents interviewed. The *utility* of market information (broadcasted on local radio) was measured from different angles as presented below.

1. Five scale measurements were used to measure *market information quality dimensions* (consisting of *relevance*¹⁰, *accuracy*¹¹, *timeliness*¹², *punctuality*¹³, *clarity*¹⁴, *language skill*¹⁵, *interpretability*¹⁶, *adequacy of broadcasting time*¹⁷, *convenience of presentation day & hour*¹⁸, and *reading speed*¹⁹) as ‘very high’, ‘high’, ‘medium’, ‘low’, or ‘very low’.

Thus,

- a. Average frequency values of each of the MI quality dimensions were computed after each of the scales are given the values of 1 for ‘very low’, 2

⁷ *Marketable Potential* is a five scale (‘very low’-‘very high’) ranking of HHs based on the marketed commodity type, size, and possible income obtained from marketing agricultural products, taking into account the family size and consumption.

⁸ *Occupation* = 1) Farmer 2) Trader 3) Farmer & Trader 4) Farmer & Other business 5) Other

⁹ *Literacy Status* = 1) Illiterate 2) Only reading 3) Read and write

¹⁰ *Relevance* is the degree to which information addresses its purpose from the point of view of its intended users.

¹¹ *Accuracy* is the degree to which market information received reflects the actual situation measured.

¹² *Timeliness* refers to the usefulness of MI from the point of view of the length of time between market data collection and its availability to users.

¹³ *Punctuality* is the degree of adherence of MI availability according to the set schedules.

¹⁴ *Clarity* means whether the MI disseminated on radio is heard properly or not.

¹⁵ *Language skill* refers to whether the respondent is in difficulty or at ease with the disseminating language of the MI.

¹⁶ *Interpretability* is the ease of the MI to be understood by the receiver of the MI.

¹⁷ *Adequacy of broadcasting time* –means the adequacy of the time for delivering the MI properly.

¹⁸ *Convenience of presentation day & hour* –means the suitability of the MI transmission time versus other duties of the users to accomplish.

¹⁹ *Reading Speed* refers to whether the reading speed of MI is too fast or appropriate to understand and remember the MI.

for ‘low’, 3 for ‘medium’, 4 for ‘high’, and 5 for ‘very high’. Therefore, averages of scales obtained by each market information quality dimension types were used to compare the market information quality dimensions among themselves.

- b. The frequency scales of all market information quality dimensions were calculated to obtain multiple responses on each scale types, irrespective of the types of market information quality dimensions. Thus, the dominant scale is taken as one of the indicators of *utility* for the MI received from the local radio.
- c. Additional indicators were used to measure the *accuracy* and *relevance* of the market information as described under.

Accuracy of price information was also measured by comparing the actual price with that of disseminated price information (based on the recalled answers of the respondents).

Table-8 illustrates how average deviation was calculated as an indicator of *accuracy* of price.

Table 8: Sample Table for Illustrating How Average Deviation is Computed

Source: <u>Radio</u> (e.g.)		Type of MI: <u>Price</u> (e.g.)		Commodity: <u>Tomato</u> (e.g.)	
Price			Probability of occurrence (4)	3 x 4 (5)	
‘Actual’ (1)	Disseminated (2)	Deviation (%) (3)			
4 Birr/kg	8 Birr/kg	100%	.4	40% (5A)	
4 Birr/kg	12 Birr/kg	200%	.3	60% (5B)	
4 Birr/kg	2 Birr/kg	50%	.2	10% (5C)	
4 Birr/kg	3.20 Birr/kg	20%	.1	2% (5D)	
Average deviation				102% (6)	

The steps required were;

- i. Asking respondents to show the degree of deviation (3) they experience for each of the major commodities (by comparing actual (1) versus disseminated price (2);
- ii. Obtaining the percent deviation of that particular occurrence;
- iii. Denote the probability of occurrence for each deviation values given (4);
- iv. Multiply the degree of deviation by probability of occurrence (3x4) and obtain (5A), (5B), (5C), and (5D);
- v. Sum (5A), (5B), (5C), and (5D) to obtain average deviation (6).

Note that the average deviation calculation used in this research, as presented in the above steps, is a bit different from what is understood commonly in the ordinary statistics. To give some hints of difference between the two, in our case, the center of the deviation (the ‘average’) revolves around the price quoted by each respondent as ‘actual price’ and compared to other prices multiplied by the *probability of occurrence*. As in the case of standard statistics the ‘average’ refers to the average of all records of different respondents.

Whether planned market information dissemination schedules were met or not was also collected from the respondents. Regarding *relevance*, whether the MI addresses some or all major products, whether the MI is relevant from the point of view of the language used; coverage of major market area interest of respondents;

and *relevance* of the MI source studied compared to other alternative MI sources were covered.

2. Similar five scale measurement (ranging from ‘very-low’ to ‘very high’) was taken on *satisfaction*²⁰ of the MI received from the local radio. Note that the *satisfaction* of the radio users is measured on those respondents who actually were using MI on radio. Here, also the mode value obtained on *satisfaction* of MI is used as one of the indicators of *utility* for the MI received from the local radio. Besides, the following formula is used to obtain *satisfaction* index.

$$SI = [\%(VL) * PPSI] + [\%(L) * PPSI] + [\%(M) * PPSI] + [\%(H) * PPSI] + [\%(VH) * PPSI]$$

Where

SI = *Satisfaction* Index

VL= ‘very low’, L= ‘low’, M= ‘medium’, H= ‘high’, and VH= ‘very high’
(*satisfaction* scales)

PPSI²¹ = Proportional Presentation of Satisfaction Index - 0.9 for ‘very high’, 0.7 for ‘high’, 0.5 for ‘medium’, 0.3 for ‘low’, and 0.1 for ‘very low’.

²⁰ *Satisfaction* refers to what extent the market information received from local radio fulfils the expectations of the household.

²¹ PPSI is a scale values (1,2,3,4,or 5) converted into equivalent proportional presentation (1= 0.1, 2=0.3, 3=0.5, 4=0.7, 5=0.9).

Scale of <i>Satisfaction</i>	Rank Order	Arbitrary Percentile Range	Average Percentile Satisfaction Index	Proportional Presentation of Satisfaction Indexes
Very High	1	80.01-100	90	.9
High	2	60.01-80	70	.7
Medium	3	40.01-60	50	.5
Low	4	20.01-40	30	.3
Very Low	5	10.01-20	10	.1

According to Dillon et al. (1993), rank ordered data is used to rank *satisfaction* by multiplying the frequency of times a certain brand as first, second, third, etc. by one, two, three, etc. times, respectively, so that the ordinal scale with low cumulative number is considered as having higher preference. In the case of the formula used in this thesis, however, the rank orders as ‘very low’, ‘low’, ‘medium’, ‘high’, and ‘very high’ are multiplied by the corresponding PPSI (low ranks by low PPSI values and high ranks by high PPSI values) so that the first ranked *satisfaction* scale eventually obtains the highest *satisfaction* index value, other things being equal.

3. Scales of *usage*²² of MI was measured using the five scale ranking (ranging from ‘very-low’ to ‘very high’). Similarly the mode value obtained for *usage* of MI is used as one of the indicators of *utility* for the MI received from the local radio. Besides, the following formula is used to obtain *usage* index.

$$UI = [\% (VL) * PPUI] + [\% (L) * PPUI] + [\% (M) * PPUI] + [\% (H) * PPUI] + [\% (VH) * PPUI]$$

Where

UI = *Usage* Index

VL= ‘very low’, L= ‘low’, M= ‘medium’, H= ‘high’, and VH= ‘very high’
(*usage* scales)

PPUI²³ = Proportional Presentation of Usage Index - 0.9 for ‘very high’,
0.7 for ‘high’, 0.5 for ‘medium’, 0.3 for ‘low’, and 0.1 for ‘very low’.

²² *Usage* means whether the market information received is leading to practical implementation (assisting the marketing decisions) of the household or not.

²³ PPUI is a scale values (1,2,3,4, or 5) converted into equivalent proportional presentation (1= 0.1, 2=0.3, 3=0.5, 4=0.7, 5=0.9).

Scale of <i>Usage</i>	Rank Order	Arbitrary Percentile Range	Average Percentile Usage Index	Proportional Presentation of Usage Indexes
Very High	1	80.01-100	90	.9
High	2	60.01-80	70	.7
Medium	3	40.01-60	50	.5
Low	4	20.01-40	30	.3
Very Low	5	10.01-20	10	.1

4. *Access and utility index* was developed to see the *utility* of the MI by *wereda* (study area) level. The following formula was used to measure the *access and utility index* of the study areas.

$$\text{Access and utility index} = \text{proportion of practical access}^{24} \times \text{satisfaction index}$$

The assumption considered here is the *utility* value of *satisfaction* (x) is obtained from 100 percent of practical users of MI received from radio. Therefore, the computation of *access and utility index* of MI at study area level requires estimating the proportion of households which can have *practical access* to the MI. *Practical access* to MI on radio, in our case, is the proportion of households able to comment on the radio *utility* (based on sample households surveyed).

5. Dichotomous choice on continuity or discontinuity of the MI disseminated on the local radio was also measured as proxy and crude indicator of the *utility* of the MI.

3.4 Analytical Methods

From the point of view of considering the coverage of this study to come up with findings on *availability*, *access*, and *utility* of agricultural market information, descriptive analysis method was considered to be sufficient, as an eye-opening study of this subject that is expected to have as much basic information as possible. Therefore, descriptive analysis method was used for analyzing the collected market data with respect to achieving the research objectives.

²⁴ *Practical access* shows the proportion of households found using the MI on radio and who were able to comment on the utility of MI on radio.

Thus, counts of different access sources/facilities, frequency of responses on *access* and *utility* market information, and percentiles (of valid responses only) were widely used descriptive methods. Mode values were used to measure *access scales*, *MI quality dimensions* as well as to measure the *satisfaction* of radio MI users. Besides, *satisfaction* indexes, *usage* indexes, and *access* and *utility* indexes were measured using percentiles. Moreover, multiple responses were also used to analyze questions which have more than one answer. Cross-tabulations were used to show the relationships of different demographic and economic variables to different *access scales* and study *weredas*. Chi-square test is also used see the significance of relationships of *access scale* with scales of *marketable potential*, *occupation* type, and *literacy* status of households.

CHAPTER FOUR

RESULTS AND DISCUSSION

This chapter deals with research results on *availability*, *access*, and *utility* of market information. Besides, results on how the process of market data collection is up to broadcasting (on local radio) as well as the existing constraints and opportunities of agricultural market information in the study area are covered.

Section 4.1 is about the available *formal* and *non-formal* sources and the media used for accessing market information. In section 4.2, access to market information by media type, source, and users of market information are presented. Section 4.3 deals with household's *access scale* to market information by their *literacy status*, *marketable potential*, and *occupation types*. In section 4.4, the coverage of access to MI using the available *formal* media (radio and display boards) is presented. Besides, the process steps followed from market data collection up to broadcasting is covered under this section.

Since the only functional *formal* market information media, found during this study is radio, the *utility* of MI studied is specified to the MI transmitted on the local radio. Therefore, section 4.5 deals only with the *utility* of MI transmitted on radio, based on responses of farmers and traders who were able to comment on the usefulness of the MI. At last, in section 4.6, constraints and opportunities related to the market information facilities are addressed.

4.1 Description of Available Media and Sources of MI

4.1.1 Available Formal and Non-Formal Media of MI

Formal and *non-formal* market information media/sources are used by farmers, traders, and consumers to obtain information on market prices of agricultural commodities. The *formal* media of MI are two types: *formal-regular* and *formal-non-regular*. While the *formal-regular* sources have regular schedules of providing market information those which are *formal* but non regular do not. In this chapter, the *availability* of all media and sources of MI are dealt disregarding the issue of *accessibility*.

4.1.1.1 Formal Media and Sources

Formal and Regular Media of Market Information

Radio, bulletin (*Market Link Tigray*), website of TAMPA, information display boards, and cooperatives (for marketing-in products and inputs) are the *formal* media of MI which their facilities are assumed to be on regular schedules.

Market Information on Radio

The market information transmitted on radio Dimtsi Weyane has two parts (MI for crop and for livestock). Each has its own lines of collection, processing and different broadcasting times. On local Radio Dimtsi Weyane, market information for crop commodities is transmitted on every Thursday morning about 7:50 am (local time) for ten market places (Maichew, Alamata, Mekelle, Abyi-Adi, Hawzien, Adigrat, Axum, Enda Sillassie, Sheraro, and Humera). The cereal products which their prices are transmitted on radio are chick pea, horse bean, lentil, barley, maize, *teff* (white, red, and mixed), and wheat. Prices of vegetables for garlic, onion, pepper (green), potato, and tomato are transmitted. Prices of honey, both from traditional as well as modern bee hives, are

transmitted differentiated by color (for white and red honey products). Price of white sesame is also included among oil crops.

Market information on livestock and livestock products is transmitted on every Thursday in the evening about 06:25 pm (local time) for ten market places (Alamata, Mekelle, Abyi-Adi, Hawzien, Axum, Enda Sillassie, Wukro, Korem, Enticho, and Humera). Prices are transmitted for average size of the following animals: plough oxen, oxen for slaughter, cow for slaughter, cow for breeding, bull, and heifer are collected and transmitted. In similar way, prices for average sizes of castrated sheep, castrated goat, not-castrated sheep, not-castrated goat, female sheep for breeding, female goat for breeding, young sheep (male and female), young goat (male/female) are transmitted. Prices for average sizes of donkey, mule, horse, camel, are also incorporated. Moreover, the prices transmitted on radio include prices of hens, eggs, milk, meat, and animal skin and hide.

While Alamata market is covered by both crop and livestock market information coverage on local radio, Atsbi market is not. However, since Wukro market is one of livestock market area for traders and farmers in Atsbi-Wemberta, it is the interest of these traders and farmers in livestock market information of Wukro market. Besides, it is assumed that market participants of Atsbi-Wemberta *wereda* (also Alamata *wereda*) will be benefited not only from their respective *wereda* market information but also from any other *wereda* market information, so far as they have the possibilities of conducting output marketing and/or marketing-in products from the latter areas.

TAMPA is responsible for the crop market data collection, analysis and sponsoring the transmission of MI on radio, whereas Cooperative Department of BoARD is responsible

for the process steps followed from data collection up to transmission for prices of livestock and livestock products. The process steps on market data collection, data management, and broadcasting on radio is dealt further in section 4.4.2.2.

Bulletin

Market Link Tigray is a bulletin issued by TAMPA. The bulletin among other topics, deals with price information (of same commodity types transmitted on local radio), transport charges, market-link information, and price trends of selected agricultural commodities. Relevant articles are also included.

The bulletin is printed once in every two weeks so that only the price information of the latest market assessment day is accommodated. The bulletin is printed and distributed to different stakeholders and beneficiaries at different administrative levels. Currently, it is distributed to different national, regional and *wereda* offices, economic institutions, embassies, and local mass media, all totaling to 99.

Information Display Boards

In Atsbi-Wemberta, the *Wereda* Cooperative Section, with logistics support from the *wereda* IPMS project, carries the activities of price data collection from Enda Sillassie, Dera, Haiki Meshal, and Kelisha markets, and the commodities and their prices are displayed on the information display boards constructed in seven PAs. In the *wereda*, the PAs having display boards for displaying market information are Habes, Hayelom, Ruba Feleg, Adi Mesanu, Felege Weyni, Golgol Naele, and Barka Adi Sibha.

In Alamata, information display boards were planned to display market information sent from the Regional Cooperative Department. Information display boards are constructed in four PAs (in Lailay Dayu Kulgize Lemlem, Gerjele, and Timuga). The latter two PAs

are part of the sample PAs so that the functionality of the display boards was able to assess during the study. The information display board at Timuga has not been functioning at all whereas the information display board at Gerjele had been used during the vegetable peak seasons. Hence, there was no any display board functioning while the study was conducted.

Website of TAMP

The website of TAMP is *www.agrimartig.org*. Within the website, accumulated price data, electronic copies of successive bulletins, and current market information can be accessible. Users are also able to process price data of their interest (by area and period) according to their data/information requirement.

Cooperatives

The Regional Cooperative Department organizes the collection and dissemination of price information of mainly consumer items as well as certain agricultural commodities which are considered to be demanded (purchased) by the members of cooperatives and surrounding communities.

Price information is collected from 10 sample *weredas* and Mekelle. Copies of the prices collected from the sample *weredas* are sent to Mekelle every month which are sent back to all *wereda* cooperatives appropriate and dealing with the price information.

Since there are cooperatives which are engaged in purchasing agricultural commodities from their members, at harvest time, and sell the purchased agricultural commodities later within same PA, the price information is used to inform these cooperatives by fixing prices of commodities to be purchased. Therefore, the price information received by cooperatives beyond informing the cooperative enterprises is not used to assist the

marketing decisions of individual member farmers. For this reason there is no means of communicating the price information collected to the member farmers and surrounding communities. Thus, the price information disseminated to cooperatives is not targeted and/or used to support and promote the agricultural output marketing of the farmers.

Formal and Non-Regular Media of Market Information

Extension lines, workshops/trainings, as well as cooperatives are *formal* means of obtaining market information in the study *weredas*, though the supply of information is not regular. Extension agents are involved in transmitting price information, particularly, during harvesting and peak seasons for agricultural commodities. Here, extension agents are used as a medium of communicating and informing farmers/producers about market information from regional and *wereda* cooperative departments, TAMPA, and other sources. Similarly, during peak seasons for certain agricultural commodities, cooperative members are told market information so that they have to be aware of the situation or consulted what to do or how to go about with the situation. However, such market information through cooperatives and for cooperative members are only occasional.

4.1.1.2 Non-Formal Media of Market Information

Market Visit/Observation

Visiting markets is the most common way of accessing market information by farmers. Farmers go to market areas not only for the purpose of buying or selling activities but also for meeting their friends and relatives (gathered from different corners) and for the sake of obtaining different information. Therefore, markets are not only serving as marketing places for farmers but they are best places for different social activities - which

on the way are means for hearing market information. Some farmers also visit markets for the sole purpose of studying market situations.

Farmer/Trader to Farmer/Trader Exchange of Information

Asking people, either selectively or incidentally, is the second widely used *non-formal* source of market information. Different social networks, neighborhood, public gathering or recreation places are means for exchanging market information. Traders and farmers who are good in using market information, however, do not use all such sources but have their own information channel persons, selectively.

Telephone

Some traders and farmers also use either fixed line/wireless telephone or mobiles to obtain market information within the *weredas* as well as to make market-link activities outside their respective *wereda*. Telephone is being used by very few farmers and rural traders. Wholesalers use telephones widely (usually mobile phones) to conduct their buying and selling activities with the help of brokers as a source of MI. Similarly cooperative institutions/enterprises also use telephone to exchange MI with *wereda* and regional cooperative offices and experts. Cooperatives, in addition, use printed documents and messages to exchange market information.

4.1.2 Sources, Media, and Users of Market Information

Farmers and other users might be in difficulty to identify and tell the sources of market information they are using. However, they can easily tell the media of MI they use for accessing market information. Table-9 summarizes the media of market information, the sources and the users.

Table 9: Sources of Market Information, by Media of Transmission, and Users

Media of MI	Type of MI	Source	Administrative Level	Target Users	Schedule
Radio	-Crop	-TAMPA	At all levels depending on access	Farmers, traders, wholesalers, consumers, and others	Every Thursdays about 7:50 am
	-Livestock and livestock products	-Cooperative Promotion	At all levels depending on access	Farmers, traders, wholesalers, consumers, and others	Every Thursdays about 6:25 pm
Bulletin	-Prices of commodities -Transport charges -Trade opportunities	-TAMPA	All levels up to <i>wereda</i> depending on access	-Embassies; national GOs & NGOs -Regional Offices (Selective) - <i>Wereda</i> OoARD, Administrative Office - <i>Wereda</i> relevant experts	Once in every 14 days
Information Display Boards	-Crop prices -Prices of livestock and livestock products	-Cooperative Promotion Department	At PA level (if the FTC has display board)	-Farmers -Farmer traders	Once in a week
Website	-All previous bulletins -Price data by time & place -Others	TAMPA	At all levels, depending on access	-International traders, investors, local traders, experts, GOs and NGOs	All the time depending on the network status

Table 9 (Cont'd)

Media of MI	Type of MI	Source	Administrative Level	Target Users	Schedule
Cooperative Enterprises	-Consumer items -Agricultural commodities -Other industrial products	-Cooperative Promotion Department -Cooperatives	From region to <i>wereda</i> level	-Cooperative enterprises	Once in a week
FTCs/DAs	-Agricultural Commodities	-Regional and <i>wereda</i> relevant bodies	At PA level	Farmers and farmer-traders	No schedule; seasonal
Telephone	-Agricultural Commodities	-Wholesalers, Brokers, Relatives, Friends' Cooperative Office	At all levels depending on access to telephone	-Wholesalers, traders, farmers, consumers, and Cooperatives	No schedule
Market Visits	-All items	-Market	All up to PA	-Farmers and Farmer-traders	No schedule
Farmer/Trader to Farmer/Trader	-Agricultural commodities -Consumer items	- community members, walking people, and/or selective people	All up to PA	-Farmers and Farmer-traders	No schedule

Except the MI printed on bulletin, website of TAMPA, and MI distributed by cooperatives (and for cooperatives), the rest all media are used to access MI by farmers and traders.

Mobile and fixed line phones are the most common media used to obtain market information for the agricultural commodities bought from or sold to other distant market places by wholesalers. The sources of the market information, in this case, could be brokers, relatives, friends, or customers.

Mobiles and fixed line phones are also the media used by cooperative enterprises to obtain market information besides to the printed list of prices provided by respective *wereda* cooperative units or lists obtained from the Regional Cooperative Department. Cooperative enterprises use the market information they receive as a reference for marketing-in consumer items and agricultural products with the purpose of selling to their members or other community members.

Due to the alternative media of market information wholesalers and cooperatives have, access and use market information on radio is not used or limited by wholesalers and cooperative enterprises.

4.2 Households Access to MI Using Each Available Media

The survey result shows that market visits and information exchange between farmers/traders, are the widely used media of accessing market information followed by radio, telephone lines, and mobile phone, respectively (see Table-10).

Table 10: Coverage of Households Access to Market Information by Sources

Market Information Access Indicators	Atsbi-Wemberta				Alamata				Study Area			
	Yes		No		Yes		No		Yes		No	
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
HHs ever received MI on radio	36.0	48.0	39.0	52.0	30.0	46.9	34.0	53.1	66.0	47.5	73.0	52.5
HHs ever accessed MI on information display boards	1.0	1.3	75.0	98.7	0.0	0.0	64.0	100.0	1.0	0.7	139.0	99.3
HHs using DAs as MI source	1.0	1.3	75.0	98.7	0.0	0.0	64.0	100.0	1.0	0.7	139.0	99.3
HHs using mobile telephone for getting MI	1.0	1.3	75.0	98.7	1.0	1.6	63.0	98.4	2.0	1.4	13.8	98.6
HHs ever used any telephone for MI	5.0	6.6	71.0	93.4	0.0	0.0	63.0	100.0	5.0	3.6	134.0	96.4
HHs used market visit for obtaining MI	73.0	96.1	3.0	3.9	61.0	95.3	3.0	4.7	134.0	95.7	6.0	4.3
HHs used farmer/trader-farmer/trader MI exchange	72.0	96.0	3.0	4.0	54.0	84.4	10.0	15.6	126.0	90.6	13.0	9.4
HHs owned mobile telephones	0.0	0.0	76.0	100.0	1.0	1.6	63.0	98.4	1.0	0.7	139.0	99.3
HHs owned other telephone	0.0	0.0	76.0	100.0	0.0	0.0	64.0	100.0	0.0	0.0	140.0	100.0
HHs owned radio	38.0	50.0	38.0	50.0	26.0	40.6	38.0	59.4	64.0	45.7	76.0	54.3

Households have the habit of visiting market places with very minor exception related to health or reasons associated with age. Rural households usually visit market places either for selling, buying, or for paying other social duties, which all of these give rural households the opportunity of getting market information. Market visit is used by 95.7 percent of the respondents to obtain market information whereas information exchange among farmers/traders is used by 90.6 percent of respondents. While the coverage of market visits and farmer/trader exchange of MI are almost same in Atsbi-Wemberta, coverage of market visit is higher than farmer/trader exchange of MI in Alamata. Moreover, the percent of households using telephone lines for receiving MI is comparatively higher in Atsbi-Wemberta than Alamata.

Table 11: Percentage of Respondents by Frequency of MI, for Each Medium of MI

Media of Market Information	Interval of Days for Receiving Market Information (in Days)								Total %
	Less than 4	7	14	21	30	90	180	360	
Radio	0.0	24.2	33.3	0.0	33.3	4.5	3.0	1.5	100.0
Mobile	50.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0
Other Telephone lines	20.0	20.0	0.0	0.0	20.0	20.0	20.0	0.0	100.0
Market Visit	11.9	59.0	21.6	2.2	4.5	0.0	0.7	0.0	100.0
Person-to-person	38.1	41.3	12.7	0.8	7.1	0.0	0.0	0.0	100.0

Table-11 indicates that mobile users receive market information more frequently followed by person-to-person, market visits, any other telephone, and radio, by order of importance. Table-11 also shows that the interval of days for receiving market information are smaller for mobile phone users followed by farmer/trader exchange of MI, market visits, radio, and other telephone lines, respectively.

Table 12: Mean and Median Values of Day Intervals for Receiving MI, by Media

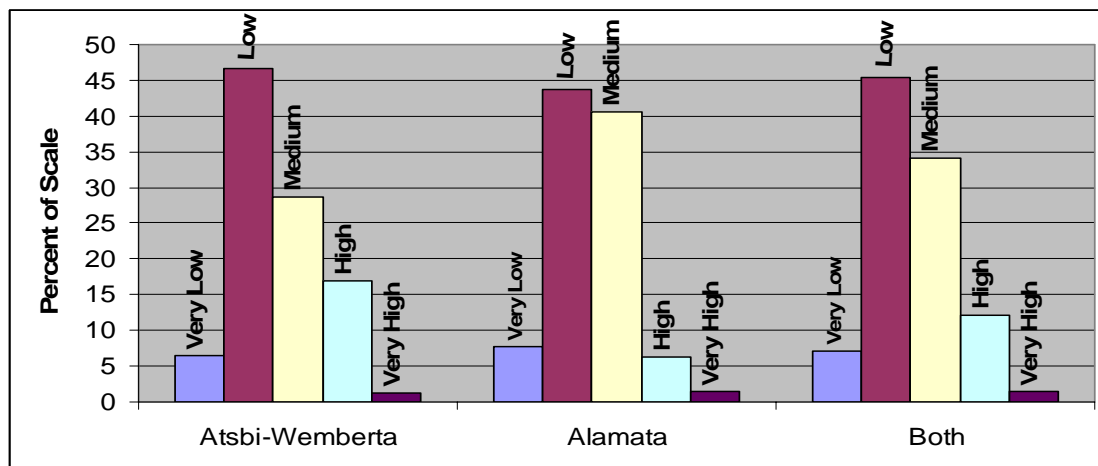
	Mean & Median Interval Days for Receiving Market Information				
	Radio	Telephone lines	Mobile telephone	Market Visit	Farmer/trader network
Mean	31.4	62.1	4.0	10.7	8.3
Median	14.0	30.0	4.0	7.0	7.0

Most of agricultural commodities are accessible by using direct market visit (first ranked) followed by person-to-person, and radio, by rank order (for households which do not use any telephone to obtain MI). For households which telephone is used as a medium of market information, the order of *accessibility* ranking become telephone (the first order) followed by market visit, person-to-person, and radio, by rank order, to all crop products with exception on livestock marketing. As in the case of the latter, the *accessibility* rank is market visit, radio, person-to-person, and telephone, by order.

4.3 Access Scales of Households to Market Information

Respondents are classified in to five of *access scales* - ranging from 'very low' to 'very high' - using five scale measurements. While 86.5 percent of the respondents are below or at most equal to 'medium' access level those households with equal or above 'high' *access scale* are only 13.5 percent. As you can see in Chart-1, the scale of access does not show too much difference for Alamata and Atsbi-Wemberta except that 'high' scale is bigger in Atsbi-Wemberta compared to Alamata while 'medium' scale is bigger in Alamata compared to Atsbi-Wemberta.

Chart 1: Percentage of Households by Access Scales to Market Information



The mode and median values of access to market information show the value of ‘2’ which indicates ‘low’ - access whereas the mean value obtained is ‘2.55’ indicating a half-way between ‘low’ and ‘medium’ *access scales*. Therefore, responses on market information *accessibility* show that *access scale* of majority rural households to market information in Alamata and Atsbi-Wemberta *weredas* is below ‘medium’ scale of access. Thus, we fail rejecting the hypothesis that *access to market information is below ‘medium’ scale of access for majority households in Alamata and Atsbi-Wemberta weredas*.

As presented in Table-12, the relationship between *access scale* and *market potential* of households is positive so that when scale of *marketable potential* increased the *access scale* to MI also increased. The comparison among the categories is statistically significant at 99 percent confidence interval. For ‘very low’, ‘low’, ‘medium’, and ‘high’ *marketable potential* categories the dominant *access scales* obtained are ‘very low’, ‘low’, again ‘low’, and ‘high’, respectively, in the study *weredas*, independently. In other words, in both *weredas*, those respondents with ‘very low’ *marketable potential* majority have ‘very low’ *access scale*, among those having ‘low’ as well as ‘medium’

marketable potential the majority are having ‘low’ *access scale*, and among those respondents having ‘high’ *marketable potential* majority are having ‘medium’ *access scale*.

Table 13: Market Information Access Scales by Level of Marketable Potential

Study Wereda	Marketable Potential	HHs	MI Access Scales					Total
			Very Low	Low	Medium	High	Very High	
Atsbi-Wemberta	Very Low	Number	5	2	0	0	0	7
		Percent	71.43	28.57	0.00	0.00	0.00	100
	Low	Number	0	8	1	0	0	9
		Percent	0.00	88.89	11.11	0.00	0.00	100
	Medium	Number	0	23	14	6	0	43
		Percent	0.00	53.49	32.56	13.95	0.00	100
	High	Number	0	3	7	7	1	18
		Percent	0.00	16.67	38.89	38.89	5.56	100
	Total	Number	5	36	22	13	1	77
		Percent	6.49	46.75	28.57	16.88	1.30	100
Alamata	Very Low	Number	4	1	0	0	0	5
		Percent	80.00	20.00	0.00	0.00	0.00	100
	Low	Number	0	5	3	0	0	8
		Percent	0.00	62.50	37.50	0.00	0.00	100
	Medium	Number	1	15	15	1	0	32
		Percent	3.13	46.88	46.88	3.13	0.00	100
	High	Number	0	7	8	3	1	19
		Percent	0.00	36.84	42.11	15.79	5.26	100
	Total	Number	5	28	26	4	1	64
		Percent	7.81	43.75	40.63	6.25	1.56	100
Both	Very Low	Number	9	3	0	0	0	12
		Percent	75.00	25.00	0.00	0.00	0.00	100
	Low	Number	0	13	4	0	0	17
		Percent	0.00	76.47	23.53	0.00	0.00	100
	Medium	Number	1	38	29	7	0	75
		Percent	1.33	50.67	38.67	9.33	0.00	100
	High	Number	0	10	15	10	2	37
		Percent	0.00	27.03	40.54	27.03	5.41	100
	Total	Number	10	64	48	17	2	141
		Percent	7.09	45.39	34.04	12.06	1.42	100

Table 14: MI Access Scales by Literacy Status of Household Heads

Households		MI Access Scales					Total
		Very Low	Low	Medium	High	Very High	
Illiterate	Number	7	38	14	2	0	61
	Percent	11.48	62.30	22.95	3.28	0.00	100
Only reading	Number	0	4	3	0	0	7
	Percent	0.00	57.14	42.86	0.00	0.00	100
Read and write	Number	3	22	31	15	2	73
	Percent	4.11	30.14	42.47	20.55	2.74	100
Total	Number	10	64	48	17	2	141
	Percent	7.09	45.39	34.04	12.06	1.42	100

There is positive relationship between *literacy status* of household heads and *scales of access* to market information. The relationship between *access scale* and *literacy status* is statistically significant (chi-square with 8 degree of freedom = 25.717, $p = 0.0001$) of households. While the pattern of MI *access scales* is ‘low’ (1st), ‘medium’ (2nd), and ‘very low’ (3rd) for ‘illiterate’ households, the pattern for the rest is ‘medium’ (1st) and ‘low’ (2nd), followed by ‘high’ - only for those who are able to read and write.

Table 15: MI Access Scales by Occupation of Household Heads

Households		MI Access Scales					Total
		Very Low	Low	Medium	High	Very High	
Farmer	Number	7	53	36	11	0	107
	Percent	6.54	49.53	33.64	10.28	0.00	100
Trader	Number	0	0	1	0	1	2
	Percent	0.00	0.00	50.00	0.00	50.00	100
Farmer and trader	Number	0	6	7	5	1	19
	Percent	0.00	31.58	36.84	26.32	5.26	100
Farming plus other business	Number	2	5	2	1	0	10
	Percent	20.00	50.00	20.00	10.00	0.00	100
Other	Number	1	0	2	0	0	2
	Percent	33.33	0.00	66.67	0.00	0.00	100
Total	Number	10	64	48	17	2	141
	Percent	7.09	45.39	34.04	12.06	1.42	100

Table-15 also shows that there is statistically significant relationship between MI *access scale* households have and their *occupation* type (chi-square with 16 degree of freedom = 53.114, p=0.000). Here, the *access scales* are relatively higher for ‘traders’ followed by ‘farmer-traders’ whereas relatively lower for ‘farmers’ followed by ‘other’ occupation types.

4.4 Formal Media Used by Surveyed Households to Access MI

4.4.1 Display Boards

The market information display boards were not functioning during the survey period in Alamata while at least some of the display boards were found working in Atsbi-Wemberta *wereda*.

Table 16: Access and Usage of MI on Display Boards

	Study Wereda				Total	
	Atsbi-Wemberta		Alamata			
	HHs	%	HHs	%	HHs	%
Do not have awareness on availability of the MI	66	86.8	61	96.8	127	91.4
Have the awareness but have difficulty in accessing the MI on display boards	6	7.9	1	1.6	7	5.0
Have access to MI display board but with some difficulties to obtain &/or understand the MI	4	5.3	0	0.0	4	2.9
Have accessed and used the MI but with some of its limitation	0	0.0	1	1.6	1	0.7
Access and use of MI are achieved properly and effectively	0	0.0	0	0.0	0	0.0
Total	76	100.0	63	100.0	139	100.0

The responses of households surveyed also shows similar result. While 91.4 percent of the respondents do not have awareness at all, only 0.7 percent (one respondent) was found as having access and use of the information display boards to obtain market information. Having in mind the display boards are not available in all PAs, the awareness of the target beneficiaries is very low even in the PAs where the display boards were found containing list of market information.

4.4.2 Radio

4.4.2.1 Access to MI on Radio

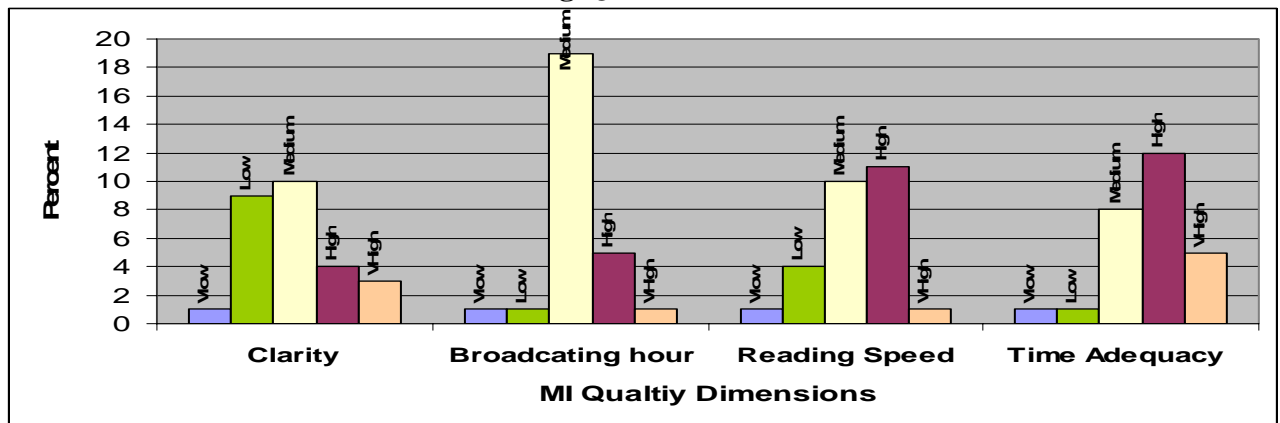
Respondents were asked on their *accessibility* and use practice of market information broadcasted on local radio. While those respondents who are in difficulty to access MI on radio (both having awareness and do not have about the availability of MI on radio) account for 56.4 percent of the households surveyed, the rest 43.6 percent some how have access to the MI. However, those respondents who have answered that they have access without difficulty as well as able to use the MI effectively account for only 2.9 percent. Among the latter, three-fourth are respondents from Atsbi-Wemberta while the rest one-fourth are from Alamata (see Table-17).

The result of the survey presented in Table-17 also shows that among those respondents who have access to MI on radio (excluding those who do not have access to radio), at least 93 percent of respondents said that they have some kind of difficulties (either to obtain and/or to understand the MI or to use the received MI received from the local radio).

Table 17: Access and Usage of MI on Radio by Study Wereda

	Study Wereda				Total	
	Atsbi-Wemberta		Alamata			
	HHs	%	HHs	%	HHs	%
Do not have awareness	13	17.1	11	17.2	24	17.1
Have the awareness but have difficulty in accessing MI on radio	28	36.8	27	42.2	55	39.3
Have access to radio but with some difficulties to obtain and/or understand the MI on radio	19	25.0	14	21.9	33	23.6
Have accessed and used the MI on radio but with some difficulties and limitations	13	17.1	11	17.2	24	17.1
Access and use of MI are achieved properly and effectively	3	3.9	1	1.6	4	2.9
Total	76	100.0	64	100.0	140	100.0

Chart-2 can also give a good hint regarding to the type of difficulties and limitations raised by the majority of respondents having access to MI on radio. The chart is presenting the first four problems/limitation areas of the MI service provided by the local radio.

Chart 2: The Four Least MI Broadcasting Qualities of the Local Radio Service

Source: Based on the radio MI users (randomly selected + accidentally interviewed).

As we can see in Table-18 those respondents who have access to radio and able to comment on the usefulness of the radio are only 12.8 percent. Out of the latter, 72.2 percent are in Atsbi-Wemberta while the rest 27.8 percent are in Alamata.

Table 18: Percentage of Respondents Having Practical Access to MI from Radio

Status of Practical Access to MI	Study Wereda		Total (Households)
	Atsbi-Wemberta (Households)	Alamata (Households)	
No	64	59	123
Yes	13	5	18
Total	77	64	141

4.4.2.2 Process Steps from Market Data Collection up to Broadcasting

For Crop Commodities

Market information, for crop commodities, is broadcasted on every Thursdays in the morning. TAMPA is responsible for the crop MI through sponsoring the market data collection and broadcasting while the data processing is activity carried by TAMPA Market Information and Research Department. The price data collection activity, processing, up to broadcasting on radio is presented as follows.

Alamata market is one the market areas whereby market information on crop commodities is collected and transmitted on radio. Market data collection is carried from 10 am in the morning to 4 pm in the afternoon. For each crop commodities, five prices are taken from five vendors of which average prices are taken, as a rule. However, prices taken on the spot, while buyers and sellers are exchanging are more reliable than prices taken as question and answer, according to the market data collector. According to him, in 2008, complains were repeatedly forwarded from consumers of the town dwellers like ‘it is because of your price information supply that prices are raising’.

Since some traders associate the market study with the process of setting income taxes, obtaining accurate information is not an easy task. The other reason that makes difficulty in the process of obtaining accurate market data is that the increasing number of people who have known the market data collector and why he is going to market. A symptom proving this situation was observed during the market observation conducted in Alamata market.

Occurrences During Observing Market Data Collection Process in Alamata Market

Observation was taken how market data collector was doing his duties. While the observation was being done, one lady said to the market data collector 'the price of beans is 7.50 per Shember (a local unit for measuring grain), without being asked, just as a mock. Similar mocking statements, complains, and questions on the purpose of collecting the market data are common, said the person in charge of collecting the market data.

In the mean time of observing the process of market data collection, suddenly rain has come and buyers and sellers were running for shelters. It is not difficult to imagine how such occurrences in the market could influence sudden price changes, and I asked what similar occurrences could make sudden price changes within hours of same market day. According to the market data collector, prices fall dramatically if rain is on the way or while raining. At times of sawing season, for instance, farmers would buy crop seeds at very high price than do consumers or traders, for the sake of not missing the sawing season. Therefore, price records may show significant difference not only between two consecutive market days but also within records of same market day. In such situation, the offer of exceptional prices, by certain special customers (usually for a short time), are common. However, such prices are not taken in to consideration for estimating the average price.

Wholesale market data is mainly collected between 2 and 3 pm. This is the peak time where farmers sell their unsold commodities to wholesalers-(buying) or to collectors relatively at cheaper price. Usually the wholesalers give advance payments to the collectors of which the later retains commission.

After the collection of market data, the next steps are to convert the prices of local units into standard Kg and send the market data using the *wereda*-net. If there is problem in the *wereda*-net, post message will be sent to TAMPA through any possible means. Telephone is the other alternative of transmitting the market data. However, there are times that price information is not transmitted if it fails to arrive by time. When looking to the records of MI received versus the not received, for Alamata, 6.06 percent of the total expected market day data is not received, so is not transmitted on the radio program.

Both retail and wholesale price data are received and stored²⁵ in the database within TAMPA. With regards to processing data, market data collectors do simple averages and conversion of local units to standard units, there, at *wereda* level. For broadcasting purpose, there is no additional analysis made at regional level. The collected market data is received either through *wereda*-net or telephone and some times through printed mail.

From the stored raw price data, only the price data of ten market areas is processed and sent to the Radio Dimtsi Weyane for broadcasting.

As one can see from Table-19, the collected price data is planned to be received in the next working day, except for Hawzien. Only the market price of Hawzien is expected on the same day so as to reach for the next transmission program. After simple processing,

²⁵ The stored market data can be used by external users on official request to TAMPA. So far there is accumulated price data of 4 years for the following market places: Maichew, Alamata, Abyi Adi, Axum, Enda Sillassie, Sheraro, Humera, Hawzien, Mekelle, Wukro, Mekoni and Adigrat

the processed price data is delivered to the Radio Dimtsi Weyane in the late afternoon of Wednesday.

Table 19: Name of Market Areas, their Market Days, and Delivery Days.

Market day	Market places	Delivery day to TAMPA
Saturday	Maichew, Alamata, Abyi Adi, Axum, Enda Sillassie, Sheraro, and Humera	Monday
Monday	Mekelle and Adigrat	Tuesday
Wednesday	Hawzien	Wednesday

Every Thursday morning at about 7:50 am, price information on crop commodities is broadcasted. According to the workers of radio program, there was no problem of delay in receiving the MI from TAMPA. In the past one year, however, there was one occurrence of delay due to lack of electric power. Because of this, the price information was delivered on Thursday morning and broadcasted in the evening program of the same day. Minor interruptions and delay of few minutes could happen due to electric or other technical failures, but not for so long as more than 10 minutes. Moreover, there was no occurrence of escaping the program, due to program loads or any special occasion days.

According to the interview held with the expert dealing with MI broadcast on radio, feedbacks are received pointing at mismatch between what is in the market and the transmitted prices. There are complaints saying that ‘the importance of the MI program is only to farmers and traders, and worth nothing to the consumers’. Some consumers also associate the increased prices on agricultural commodities with the emergence and existence of the MI program. However, these ‘feedbacks’ are collected from Mekelle. Therefore, the mentioned complaints are not necessarily representing the situation of the

study area directly. Besides, the ‘feedback’ is not a formal feedback but collected through personal interactions (informally).

With regards to dealing with formal feedbacks, there is a desk for dealing with them. The desk arranges special programs by inviting concerned people and held open discussions whereby anybody can also take part, on telephone.

For Livestock and Livestock Output

Cooperative Department of the BoARD and respective *wereda* lines are responsible for livestock market data collection, processing, and delivering to Radio Dimtsi Weyane. Market information on livestock and livestock products is being transmitted on every Thursday evening, starting 6:25 pm (local time).

Price data, on livestock and livestock output, is collected from ten sample *weredas* by respective *wereda* cooperative promotion workers. Livestock and livestock products’ price data are collected from Alamata, Korem, Mekelle, Abyi Adi, Hawzien, Wukro, Enticho, Axum, Shire, and Humera market places.

The collected price data is received by the Regional Cooperative Department, using telephone as a medium. At the region, the received price data is recorded on to the format prepared by the Radio Dimtsi Weyane, in a way suitable for reading, and sent to the Radio station on every Thursdays, the latest by 11:00 am in the morning. In the same evening of the same day, the price data for the livestock and livestock products is broadcasted on radio.

Some of the problems noted by the Regional Cooperative Department are the following:

- Price data collectors (on livestock and livestock products) do not get incentives/allowances for the market assessment they do, like those of crop price data collectors.
- Livestock price quotation is difficult in the absence of standard weights and standard quality measurements.
- There is lack of appropriate data storage facilities for the collected price data.

4.5 Utility of Market Information Received from the Local Radio

4.5.1 Market Information Quality Dimensions

Five scale measurements were taken on ten market information quality dimensions. As shown in Chart-3, the lines representing 'low' and 'very low' scales are limited only to four MI qualities (*clarity of radio*, convenience of *presentation day & hour*, suitability of the *reading speed*, and *adequacy of time* for delivering the MI properly). *Accuracy* of market information is one of the quality dimensions measured with response scale pattern of 'high' – 'medium' – 'very high' whereas the pattern for *relevance*, *interpretability*, and *timeliness* is 'high' – 'very high' – 'medium', by order of importance. The MI quality dimensions with responses of only 'high' and 'very high' scales are *punctuality* and the *language* type used for broadcasting the MI on radio. While the pattern is 'very high' – 'high' for *language* of MI it is the reverse for *punctuality* of MI.

Chart 3: Scales of Market Information Quality Dimensions, by Percent Households

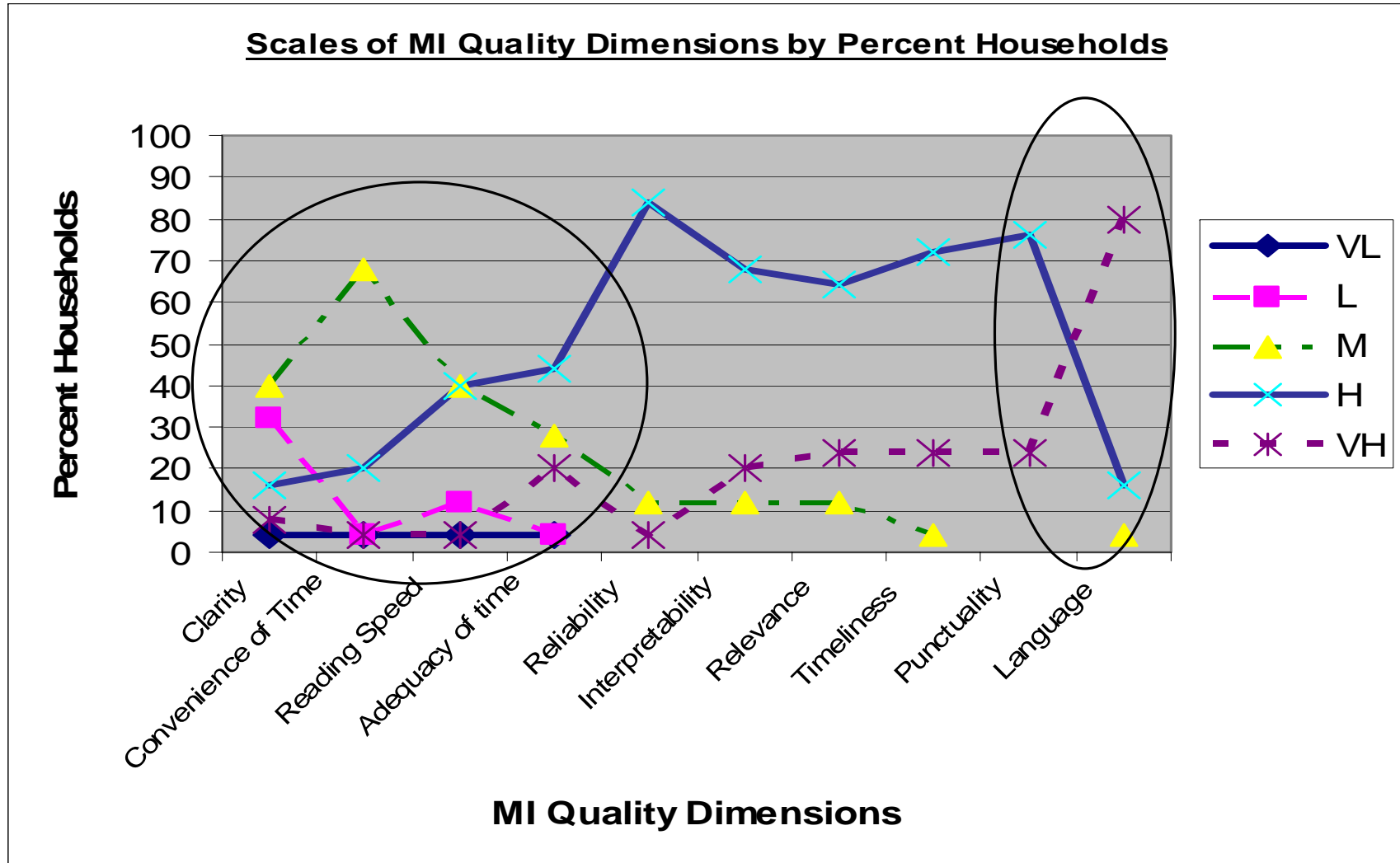
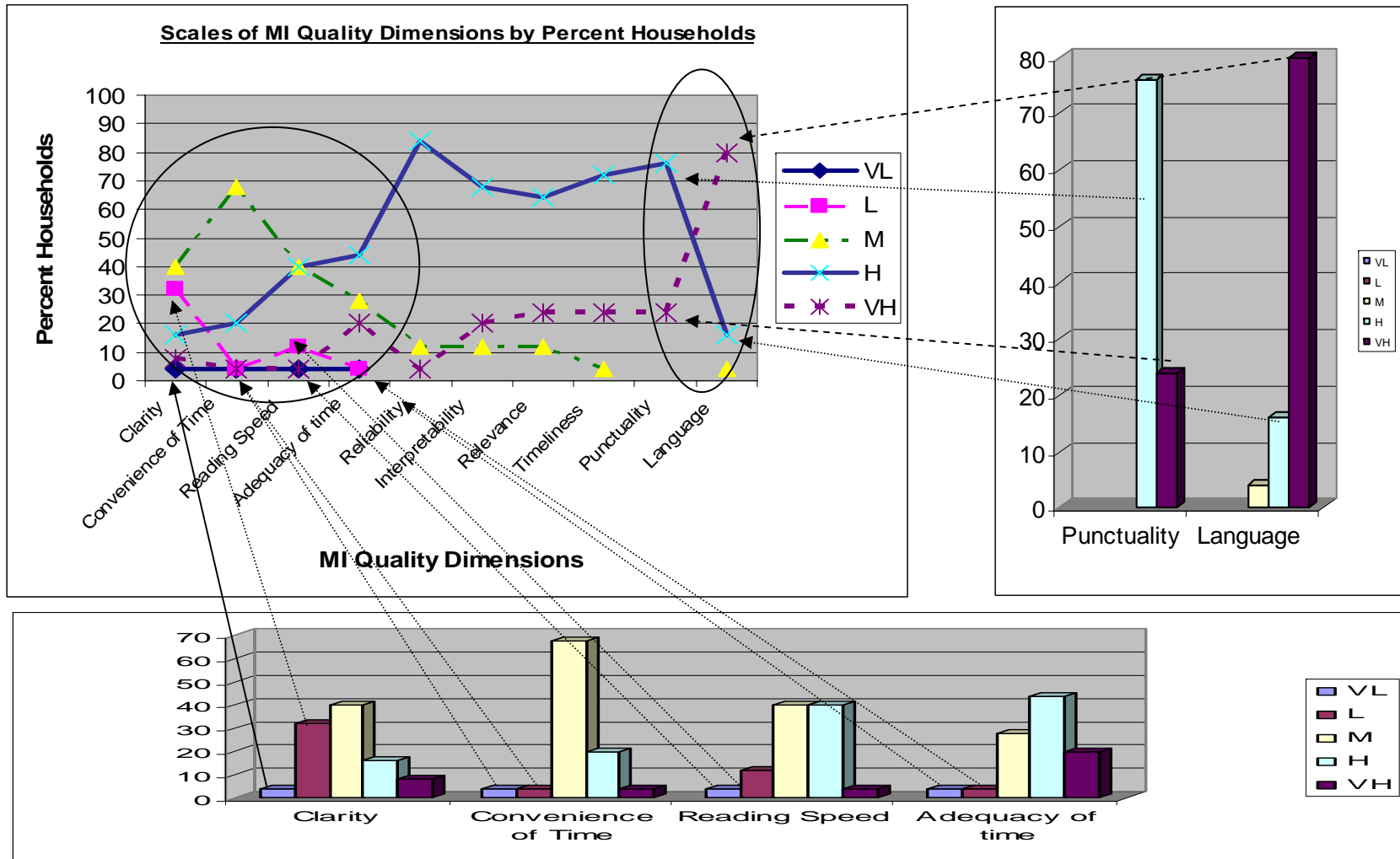


Chart-3 (Cont'd)



The percent of ‘medium’ scale is highest for *clarity*, convenience of *presentation day & hour*, and suitability of the *reading speed*. The percent of ‘medium’ scale decreases from left side of the chart towards the right and ends at *timeliness*. On the other hand, the ‘high’ scale is ranging from 64 up to 84 percent for *adequacy of time*, *accuracy*, *interpretability*, *relevance*, *timeliness*, and *punctuality* of market information on radio.

Besides, average frequency values of the MI quality dimensions were computed after each of the scales are given values of 1 for ‘very low’, 2 for ‘low’, 3 for ‘medium’, 4 for ‘high’, and 5 for ‘very high’. As shown in Table-20 the average values obtained ranges from 2.96 (for *clarity*) up to 4.76 (for broadcasting *language*).

Table 20: Average Scale Values of Market Information Quality Dimensions

MI Quality Dimensions	Average Scales	Description of Scale Values
Clarity	2.92	A little lower than the ‘Medium’ scale value
Convenience of Time	3.16	A little above the ‘Medium’ scale value
Reading Speed	3.28	Scale value above ‘Medium’ scale value
Adequacy of time	3.72	Scale value approaching the ‘High’ scale
Accuracy	3.92	A little lower than the ‘High’ scale value
Interpretability	4.08	A little above the ‘High’ scale value
Relevance	4.12	A little above the ‘High’ scale value
Timeliness	4.2	Above the ‘High’ scale value
Punctuality	4.24	Above the ‘High’ scale value
Language	4.76	Scale value approaching the ‘Very High’ value

Values: 1=Very Low 2=Low 3=Medium 4=High 5= Very High

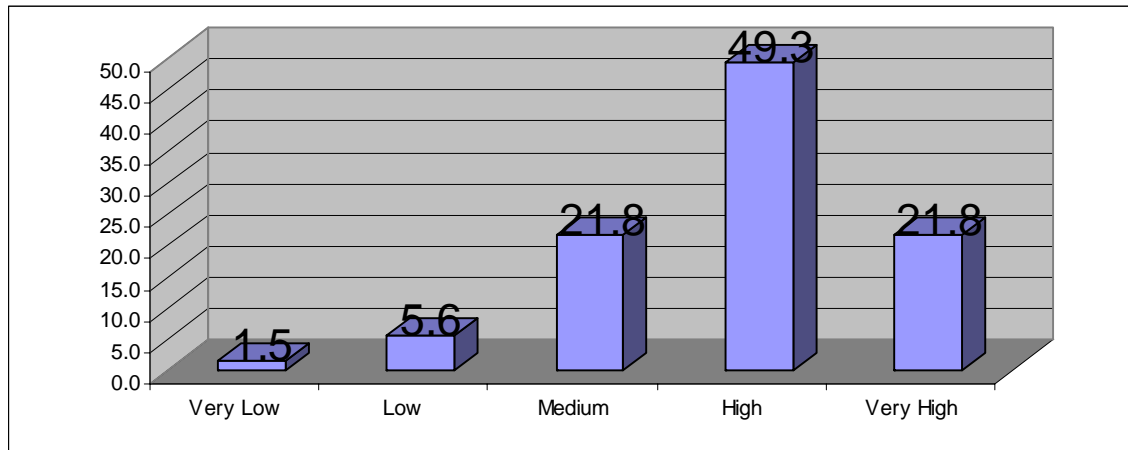
Thus, all in all the MI pattern, from highest to lowest, is *language convenience – punctuality – timeliness – interpretability – relevance – accuracy – adequacy of broadcasting time – reading speed – convenience of presentation day & hour – clarity* of the MI program.

Table-21 also presents combined measurement of all the market information quality dimensions together by using multiple responses. Using this measurement, only the ‘high’ scale accounts for more than half of the responses followed by ‘very high’ scale accounting for more than a quarter of the responses. Thus, based on the responses of the respondents (who are listeners and users of market information on radio) it can be generalized that the market information quality dimensions is in favor of its better side.

Table 21: Percent Scale of Multiple Responses on MI Quality Dimensions

Scales	Atsbi-Wemberta		Alamata		Both	
	Number	% Response	Number	% Response	Number	% Response
Very Low	1	0.6	3	2.7	4	1.5
Low	9	5.6	6	5.5	15	5.6
Medium	36	22.5	23	20.9	59	21.8
High	76	47.5	57	51.8	133	49.3
Very High	38	23.8	21	19.1	59	21.8
Total	160	100	110	100	270	100

Chart 4: Percent Scale of MI Quality Dimensions Based on Multiple Responses



Further enquiries were made on *accuracy*, *punctuality*, *timeliness*, *interpretability*, and *relevance* of market information, thus, *accuracy* of MI was measured also by measuring how the respondents experience the deviation of prices broadcasted compared to the prices in the market. *Accuracy* of market information was measured both by scaling the perception of the respondents (indicating qualitative ranking) as well as by measuring how the respondents experience the deviation of prices. Average deviations of prices (in percent) were taken with considerations of each probabilities of occurrence. Using such indicator, the highest mean average deviation is obtained for hen (19 percent average deviation) followed by vegetables, shoats, cattle, honey, cereals, and pulses.

Table 22: Summary of Average Deviation of Prices by Commodity Type

Commodities	Hen	Vegetable	shoats	Cattle	Honey	Cereals
% Deviation	19	13.98	12.88	6.88	4.85	3.61

In reality, the conception of what an average hen, sheep, goat, or any cattle type would mean differ from a farmer/trader to farmer/trader. Secondly, disregarding the issue of conceptual difference, the price of livestock with similar standard may actually be

marketed for quite different prices, depending on the bargaining capacities of the actors as well as for reasons of color preferences or due to, usually, hidden and unexplained tastes of the customers. Therefore, it seems logical to get relatively higher percentage deviation for hen and shoats. Similarly, relative high percentage deviation was observed on vegetable prices. This is because vegetable prices are fluctuating from day to day and within hours of the same market day. However, such deviations in prices are taken, by the respondents, as normal price variations existing and not as the problem of the market assessment.

Table 23: Punctuality of Market Information on Radio

Punctuality	HHs	Percent
Almost on time – regularly	17	70.8
Almost on time – mostly	3	12.5
On time – regularly	3	12.5
On time – mostly	1	4.2
Total	24	100

With regards to the *punctuality*, what the audience of the radio MI measures, currently, is whether the MI program is delivered after the news time (which sometimes could be long or short) and does not actually notice the delay or adherence of the MI program to exact time specified into exact minutes. Having this in mind, there is no any single record of response showing unconformity on the *punctuality* of the radio MI program. Similarly, there is no felt problem observed in the *timeliness* and *interpretability* of the MI. This,

however, is what the respondents feel, in relation to their existing marketing activity levels and in relation to their background of MI *usage*. On *relevance* of the MI, four out of 28 respondents said that the MI is not relevant from the point of view of covering the market areas of their interest while other two respondents each said the MI does not cover all the commodities of interest, and the MI is not relevant due to the availability of better MI, respectively.

4.5.2 Satisfaction on MI Received from Radio

Five scale measurement taken on *satisfaction* of MI resulted responses ranging from ‘medium’ scale up to ‘very high’ with a pattern ‘high’- ‘medium’- ‘very high’. Table-24 is self explanatory regarding the *satisfaction* scale of respondents who are listeners to radio MI.

Table 24: Percentage of Households by Satisfaction Scales on Radio MI, by *Wereda*

Study <i>Wereda</i>		Satisfaction on Radio MI					Total
		Very Low	Low	Medium	High	Very High	
Atsbi- Wemberta	Number	0	0	5	7	4	16
	Percent	0	0	31.3	43.8	25.0	100.0
Alamata	Number	0	0	3	7	1	11
	Percent	0	0	27.3	63.6	9.1	100.0
Both	Number	0	0	8	14	5	27
	Percent	0	0	29.6	51.9	18.5	100.0

The reasons given for responses of ‘medium’ scale *satisfaction* on the MI received instead of ‘high’ or ‘very high’ are related to lack of logistical and technical support, as will also be explained in the section 4.5.3.

By converting the ordered measurements of *satisfaction* into equivalent percentile presentations, *satisfaction* index is possible to calculate using proportional presentation of *satisfaction* indexes. *Satisfaction* index is possible to calculate using the following formula:

$$SI = [\%(VL) * PPSI] + [\%(L) * PPSI] + [\%(M) * PPSI] + [\%(H) * PPSI] + [\%(VH) * PPSI]$$

Where

SI = Satisfaction Index

VL= 'very low', L='low', M= 'medium', H= 'high', and VH= 'very high'
(satisfaction scales)

PPSI = Proportional Presentation of Satisfaction Index - 0.9 for 'very high', 0.7 for 'high', 0.5 for 'medium', 0.3 for 'low', and 0.1 for 'very low' (see Section 3.3.4 how to obtain these figure values)

Using this formula as well as the values of Table-24, *satisfaction* index of Atsbi-Wemberta will therefore be calculated as follows.

$$SI = [\%(VL) * PPSI] + [\%(L) * PPSI] + [\%(M) * PPSI] + [\%(H) * PPSI] + [\%(VH) * PPSI]$$

$$SI = [0 * 0.1] + [0 * 0.3] + [31.3 * 0.5] + [43.8 * 0.7] + [25 * 0.9]$$

$$SI = 0 + 0 + 15.65 + 30.66 + 22.50$$

$$SI \text{ (Atsbi-Wemberta)} = 68.81$$

Satisfaction index of Alamata will also be calculated as follows.

$$SI = [\%(VL) * PPSI] + [\%(L) * PPSI] + [\%(M) * PPSI] + [\%(H) * PPSI] + [\%(VH) * PPSI]$$

$$SI = [0 * 0.1] + [0 * 0.3] + [27.3 * 0.5] + [63.6 * 0.7] + [9.1 * 0.9]$$

$$SI = 0 + 0 + 13.65 + 44.52 + 8.19$$

$$SI \text{ (Alamata)} = 66.36$$

Similarly, the *satisfaction* index of both *weredas*, together, is calculated as follows.

$$SI = [\%(VL) * PPSI] + [\%(L) * PPSI] + [\%(M) * PPSI] + [\%(H) * PPSI] + [\%(VH) * PPSI]$$

$$SI = [0 * 0.1] + [0 * 0.3] + [29.6 * 0.5] + [51.9 * 0.7] + [18.5 * 0.9]$$

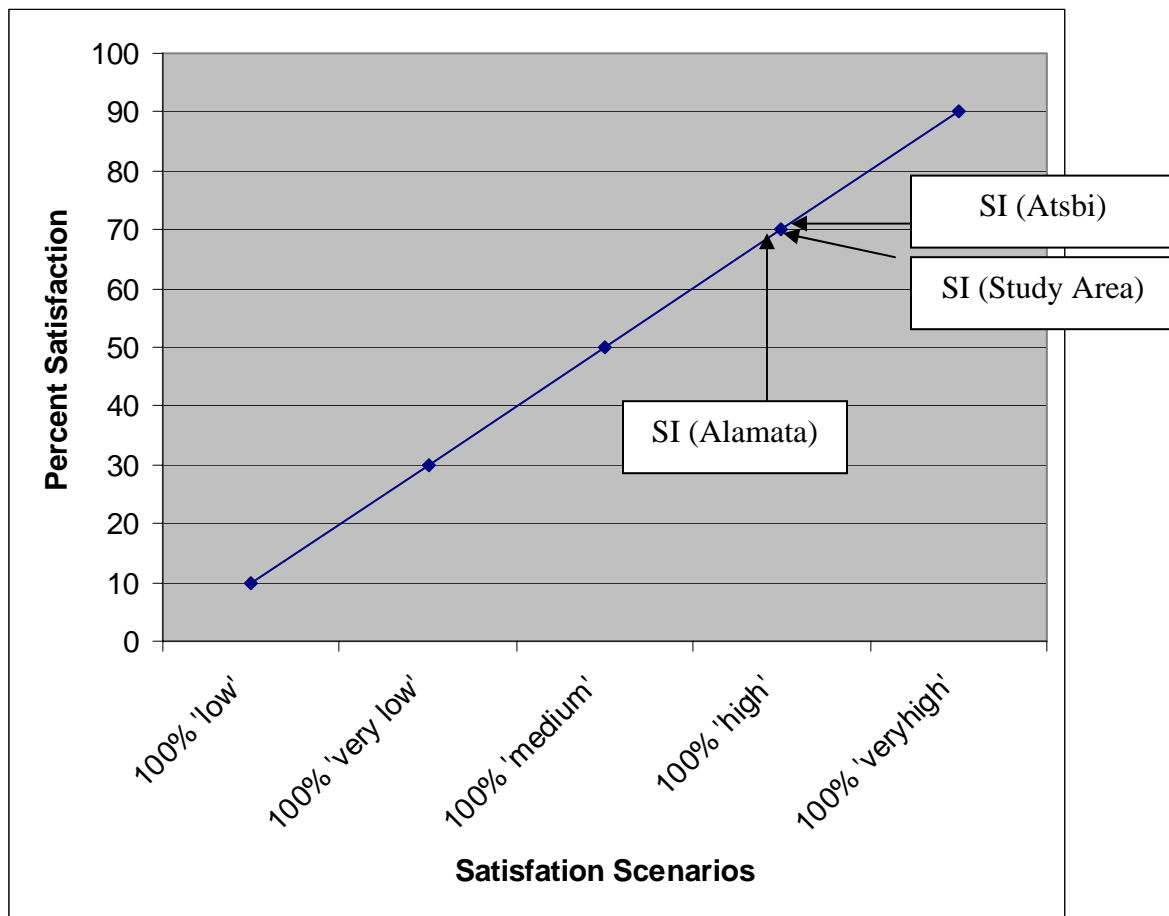
$$SI = 0 + 0 + 14.8 + 36.33 + 16.65$$

$$SI \text{ (Study area)} = 67.78$$

Based on the results of the above calculation, *satisfaction* index of Atsbi-Wemberta is 68.81 percent, while it is 66.36 for Alamata and 67.78 for the whole study area, respectively. Thus, all the measurements done regarding the *satisfaction* of respondents (on the fulfillment of their expectations from the market information they received) show

that there is ‘high’ *satisfaction* (see also Chart-5). Therefore, we conclude that the *satisfaction* scale of majority radio MI users is ‘high’ so that we reject the hypothesis stated as ‘the *satisfaction* of radio MI receivers is below ‘medium’ scale of *satisfaction*’.

Chart 5: Satisfaction Indexes of Respondents Using MI from Radio



4.5.3 Usage of Market Information on Radio

Usage of MI on radio is one of the dimensions for measuring *utility* of MI on radio. According to Chart-6, among receivers of MI on radio, 26 percent of them said their *usage* of MI on radio is below ‘medium’ scale. The reasons given why their *usage* is ‘low’ or to the extent of ‘medium’ are because some of them have better access through telephone while most of them lack the capacity to turn the received MI into action. Some

other respondents said that even though they requested technical and logistical support to materialize the MI they received, they could not get the assistance they requested. Therefore, the MI they received alone could not be suffice to sell their products in far market places where they can get better prices.

As presented in Table-25, the pattern of *usage* of MI is ‘high’ (1st), ‘very high’ (2nd), and ‘medium’ (3rd) for Atsbi-Wemberta whereas the pattern for Alamata is ‘high’ (1st), ‘medium’ (2nd), and ‘very high’ (3rd).

Chart 6: Percentage of Households by Scales of Radio MI Usage

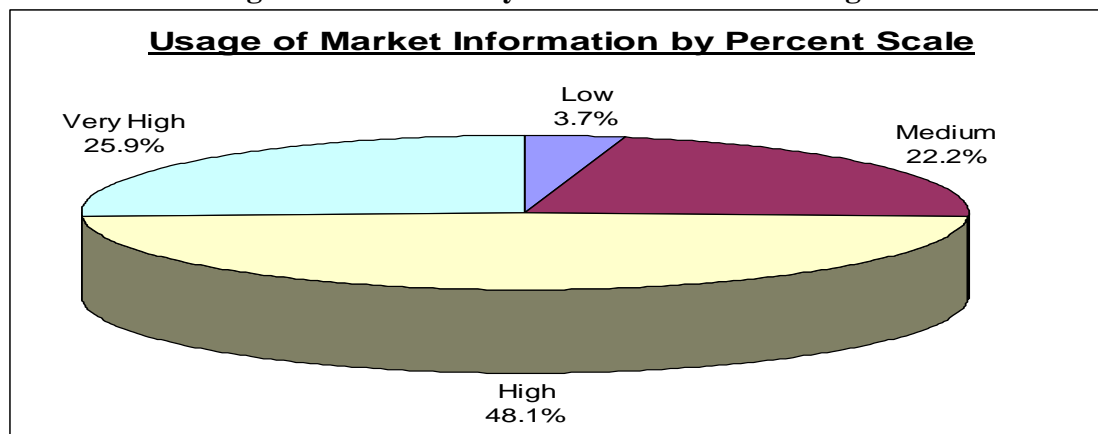


Table 25: Percentage of Households by Usage of MI on Radio, by Wereda

Study Wereda		Satisfaction on Radio MI					Total
		Very Low	Low	Medium	High	Very High	
Atsbi-Wemberta	Number	0	0	3	7	6	16
	Percent	0	0	18.8	43.8	37.5	100
Alamata	Number	0	1	3	6	1	11
	Percent	0	9.1	27.3	54.5	9.1	100
Both	Number	0	1	6	13	7	27
	Percent	0	3.7	22.2	48.1	25.9	100

Market information *usage* index is also attempted using similar formula used for measuring *satisfaction* index.

$$UI = [\%(VL) * PPUI] + [\%(L) * PPUI] + [\%(M) * PPUI] + [\%(H) * PPUI] + [\%(VH) * PPUI]$$

Where

UI = Usage Index

VL= 'very low', L='low', M= 'medium', H= 'high', and VH= 'very high' (*usage* scales)

PPUI = Proportional Presentation of Usage Index - 0.9 for 'very high', 0.7 for 'high', 0.5 for 'medium', 0.3 for 'low', and 0.1 for 'very low' (see Section 3.3.4 how to obtain these figure values)

Using this formula as well as the values of Table-25 *usage* index of Atsbi-Wemberta will therefore be calculated as follows.

$$UI = [\%(VL) * PPUI] + [\%(L) * PPUI] + [\%(M) * PPUI] + [\%(H) * PPUI] + [\%(VH) * PPUI]$$

$$UI = [0 * 0.1] + [0 * 0.3] + [18.8 * 0.5] + [43.8 * 0.7] + [37.5 * 0.9]$$

$$UI = 0 + 0 + 9.4 + 30.66 + 33.75$$

$$UI \text{ (Atsbi-Wemberta)} = 73.81$$

Usage index of Alamata will also be calculated as follows.

$$UI = [\%(VL) * PPUI] + [\%(L) * PPUI] + [\%(M) * PPUI] + [\%(H) * PPUI] + [\%(VH) * PPUI]$$

$$UI = [0 * 0.1] + [9.1 * 0.3] + [27.3 * 0.5] + [54.5 * 0.7] + [9.1 * 0.9]$$

$$UI = 0 + 2.73 + 13.65 + 38.15 + 8.19$$

$$UI \text{ (Alamata)} = 62.72$$

Similarly, the *usage* index of both *weredas*, together, will be,

$$UI = [\%(VL) * PPUI] + [\%(L) * PPUI] + [\%(M) * PPUI] + [\%(H) * PPUI] + [\%(VH) * PPUI]$$

$$UI = [0 * 0.1] + [3.7 * 0.3] + [22.2 * 0.5] + [48.1 * 0.7] + [25.9 * 0.9]$$

$$UI = 0 + 1.11 + 11.1 + 33.67 + 23.31$$

$$UI \text{ (Study area)} = 69.19$$

Based on the results of the above calculation, *usage* index of Atsbi-Wemberta is 73.81 percent, while it is 62.72 for Alamata and 69.19 for the whole study area, respectively. Thus, all the measurements done regarding the *usage* of market information received from radio is ‘high’ in the study area.

4.5.4 Choice on Continuity of MI on Radio

Though some respondents gave ‘low’ and ‘very low’ scales to the *utility* of certain market information quality dimensions, none of the respondents become willing to agree with the discontinuing of the MI service on radio. Therefore, while all MI radio listeners want the

continuity of the radio MI program, 92.3 percent of them gave recommendations on how to improve it. The recommendations forwarded are presented in Table-27.

Table 26: Percent Respondents Wanted to Continue the Radio MI

Continue/Discontinue	Households	Percent
Desired to continue as it is	2	7.7
Desired to continue with some modification	24	92.3
Total	26	100.0

Table 27: Proposed Ideas Useful for Improving the MI on Radio

Proposed Ideas	Degree of Proposed Ideas			Total Respondents
	Less Useful	Useful	Very Useful	
Improving the clarity of the radio		5	13	18
Broadcasting option on Sundays		8	8	16
Slowing the reading Speed		3	7	10
Need for repeating the MI broadcasted	1	4	1	6
Lengthening the air time		2	1	3
Using additional evening programs		8	8	16

4.5.5 Summary of Utility Measurements and Indicative Indexes

The dichotomous measurement regarding preference on continuity or discontinuity of the MI on radio showed 100 percent choice on the continuity of the MI program. This is a crude measurement to show the *utility* of the MI received from the local radio, thus, responses of five scale measurements regarding *satisfaction*, *usage* of MI, and multiple

response scale on other MI quality dimensions are relied upon. As you can see in Table-28, the *utility* of market information received from the local radio is dominated by ‘high’ scale responses.

Table 28: Percentage of HHs by Scales of Different Utility Indicators

Different Utility Indicators	Percent HHs by Scales of Utility				
	Very Low	Low	Medium	High	Very High
Multiple Response on MI Quality Dimensions	0.5	4.8	11.6	55.6	27.5
Satisfaction			29.6	51.9	18.5
Usage		3.7	22.2	48.1	25.9

Since only the respondents able to comment on the MI received from local radio are studied for the *utility* part of the study, the results presented in Table-28 are obtained from all interviewed respondents able to comment on the radio program. To measure the *access and utility index* of the study area the following formula is used.

$$\text{Access and utility index} = \text{The proportion of practical access} \times \text{the satisfaction index}$$

Computing *access and utility index*, at study area level, therefore, requires 1) the proportion of those respondents actually were able to comment on the market information broadcasted on the local radio during the survey (*practical access*), and 2) the *utility* (*satisfaction*) scale values obtained - 68.81 for Atsbi-Wemberta wereda, 66.36 for

Alamata, and 67.78 percent for the study area as a whole (section 4.5.2 presents how these *satisfaction* indexes are obtained).

As Table-29 shows, those household heads who actually were able to comment on the *utility* of the MI broadcasted on the local radio are 16.9 percent in Atsbi-Wemberta, 7.8 percent in Alamata, and 12.8 percent of both *weredas*. These figures are considered as *practical access* indexes useful to compute the overall *utility* indexes at study area level.

Table 29: Percentage of Respondents Able to Comment on the Utility of Radio MI

Able to Comment on Radio MI	Study Wereda				Total	
	Atsbi-Wemberta		Alamata			
	HHs	%	HHs	%	HHs	%
No	64	83.1	59	92.2	123	87.2
Yes	13	16.9	5	7.8	18	12.8
Total	77	100.0	64	100.0	141	100.0

Table 30: Access and Utility Index by Wereda

Wereda	Utility Indexes (Based on <i>Satisfaction</i> Indexes)	Practical Access	Access & Utility Index
Atsbi-Wemberta	68.81	.169	11.63%
Alamata	66.36	.078	5.18%
Both	67.78	.128	8.68%

As you can see in Table-30, the *practical access* indexes obtained for each *wereda* are multiplied with corresponding *satisfaction* index values obtained to get the *access and utility index* of MI received from radio. Thus, the results show that the *utility* index of

Atsbi-Wemberta is higher than Alamata *wereda*. However, the *access and utility index* of both the *weredas* (independently as well as together) is equivalent to ‘very low’ scale.

4.6 Constraints and Opportunities

4.6.1 Constraints

The occurring constraints have been one way or another mentioned in the previous sections. As we have seen in section 4.2, the sources of market information used by majority of the rural households are customary market visits and information exchange with farmers/traders. Therefore, the limited availability of *formal* market information services with radio medium is one of the limitations in the area of *usage* of improved and modern market information facilities.

Even though information on transport charges is included in the bi-monthly bulletin ‘Market-link Tigray’ it is not accessible directly as well as indirectly to rural households. Besides, quantities of commodities supplied are not incorporated while reporting the prices of commodities. The coverage market information studies conducted by TAMPA as well as Cooperative Department are also limited to ten *weredas*, related to limited budget and capacity.

The method of obtaining prices of commodities also has some limitations. The price data collectors are supposed to get five prices for each commodity and take the averages of the prices. However, reporting average prices are liable to be influenced by extreme prices so there is a chance of threatening the *accuracy* of the prices disseminated. Besides, price data collectors are taking prices any time between 10 am to 4 pm. If consistent hours are not used for price data collection, this may not show the change of prices

between different market days, because of possible variations in the prices at different hours of the market days.

Transfer of data collectors and engagement in other duties and meetings; delay of payments; and lack of focused training (relevant to the market data collection activities) were among the problems identified.

The available market information sources are not well exploited in the study area. First, there is limitation in the market information services provided. Awareness creation activities on availability and/or *usage* of market information on radio, on display boards and on how to use rural telephones are not sufficiently done. Therefore, while 91.4 percent of the households do not have awareness on the market information display boards, 17.1 percent of the respondents and 12.5 percent of the multiple responses are accounting to non existence of awareness on MI on radio. Secondly, the *usage* of MI is not adequate related to the potential size of market information beneficiaries due to the reasons like ‘lack of motivation’ and ‘lack of attention’, which partly are also attributed to lack of awareness creation activities on the *usage* of market information.

Even if rural telephones are available in most of the PAs, very few are making use of them to obtain market information. While 1.4 percent of the respondents use mobile phones to access market information, those who use other telephone means are 3.6 percent. Even though most of the PAs are having wireless telephones, their management is poor. In Atsbi-Wemberta wireless telephones are more useful compared to that of Alamata. In Atsbi-Wemberta, individuals are recruited by the *wereda* administration, trained and are serving in the wireless telephones. The income source of those serving in these telephones is obtained from buying the 50 Birr card at 42.5 Birr discount from the

telecommunication office. They are expected to get their income of 7.5 Birr by giving service of equivalent to 50 Birr to users. Here, the income varies based on availability of users. If users are not adequate, their income will not be adequate. Therefore, in relation to this, there are no regular services in some of the PAs. In Alamata, the wireless telephones are not managed like what is practiced in Atsbi-Wemberta. Therefore, wireless telephones are not used by the rural people.

Table-31 is presenting multiple responses (reasons) regarding why market information on radio is not received and/or not used, based on responses of those who do not use MI on radio frequently. Among the answers given by these respondents, inconvenience of time to hear MI on radio (particularly the morning program); some poor quality dimensions of MI; and lack of know how to use the received information are some of the reasons why market information on radio is not received. Besides, 13.7 percent of the reasons given are ‘no need for MI’ since they do not produce surplus products while ‘shortage of money for buying batteries and/or for maintenance’ accounts for 8.93 of the responses. The availability and non-availability of marketable surplus in general has influence on the *usage* and frequency of *non-formal* source of market information too. Among the reasons mentioned that limited the marketable surplus of some respondents, is related to the occurrence of drought of which lack of money for buying batteries (and to pay radio maintenance expenses) is also partly attributed to.

On the other hand, the responses given by MI on radio users, regarding MI quality related problems show that lack of *clarity* is the highest mentioned problem followed by inadequate *broadcasting time*, *speedy reading*, and inconvenient *broadcasting time*, by order of their severity.

Table 31: Multiple Responses Given Why MI on Radio is not Received

Responses of those who do not use MI on Radio	No	Percent
Have no radio (no access to radio) and awareness about the MI	21	12.5
Have awareness about the MI but not radio	59	35.12
Have no agricultural surplus	23	13.69
Just lack of motivation	4	2.38
Inconvenience or shortage of time	27	16.07
Because of having better MI source	3	1.79
Issue related with capacity limitation to use the MI received	2	1.19
Shortage of money for buying batteries and/or for maintenance	15	8.93
Lack of attention on the advantages	3	1.79
Due to poor quality dimensions of the MI	10	5.95
Due to uncertainty of using the MI in sustainable manner	1	0.60
Total	168	100.00

Other factors which are considered as constraints are:

- Lack of integrating the market information in to the extension service;
- The impact of illiteracy level of respondents by constraining them to record the MI received on radio as well as left them unable to read printed market information; and
- The misunderstanding created and the inadequacy of awareness on the MI service, by some beneficiaries.

4.6.2 Opportunities

There are opportunities for improving the *accessibility* and *utility* of market information. Availability of *Lim'at Gujile*²⁶ can be used for disseminating MI in organized and coordinated manner. The available and functioning *wereda*-net communications can be considered as opportunity in terms of transmitting market data collected. The expansion plans of DWET (Radio Dimtsi Weyane Tigray) and expansion plans of telecommunication are expected to improve the facilities that can be obtained from these organizations. Existence of different local news papers, too, can be employed as alternative media of market information dissemination. The existing cooperatives are the available possibilities but not actually playing the role of disseminating market information required for agricultural output marketing of their members. Therefore, provided they are studied how to make them work for this purpose, the existing cooperatives can be used for disseminating MI useful to farmers and farmer-traders.

Availability of TAMPA, and IPMS and NGO (World Vision) can be considered as potentials for working in the market information *accessibility* and *utility* in the study PLWs.

²⁶ The households of each PA are categorized into groups with approximate members of 25-35. The *Lim'at Gujile* do have chair persons and management bodies. These groups are used for disseminating new technologies; for discussing PA plans; and discussing on implementation issues, as well as the results achieved.

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

Even though agricultural support services are growing nowadays there is no visible change in area of market information provision. Yet, there is no well established and coordinated market information system that could give adequate, consistent, and regular agricultural market information service at country level. At study area level, however, the efforts of providing agricultural market information are encouraging due to the Regional and *wereda* level initiatives.

The results of the survey show that the *access* level of majority rural households to market information is below ‘medium’ scale of *access* in Alamata and Atsbi-Wemberta *weredas* (accepting the hypothesis). This shows the customary (market visits and farmer/trader-farmer/trader) means of obtaining market information is the main source of information for the majority of rural households.

Even though radio is the functioning *formal* means of obtaining market information, those households who have *practical access* to market information on radio are small in proportion. The *satisfaction* and the *utility* of market information received on radio are above the ‘medium’ scale for majority of the users, assuring the importance of the information. Accordingly, among those who receive market information on radio, all responses are confirming preference on the continuity of the radio market information, in spite of the problems and limitations pointed out that are responsible for affecting its

utility. On the other hand, the *access and utility index* of market information on radio (of all households) is far below the average scale, in Atsbi-Wemberta and Alamata. The *formal-regular* medium/source of market information identified next to MI broadcasted on local radio is MI placed on display boards. However, market information display (on boards) is of recent activity where only some PAs are having the information display board structures, few of them having started to function, and almost all potential beneficiaries having no or little information about what the information are in the boards. The role of extension agents in disseminating MI to the local farmers/traders is very minimal and seasonal. In fact, in Atsbi-Wemberta the initiation and effort of extension personnel and DAs in displaying market information (on display boards) with logistics and technical support from the *wereda* IPMS Project is encouraging. However, the overall role of extension in market information dissemination, awareness creation (on the existence of available sources) as well as on how to use the information can be placed at ‘very low’ scale. The same is true with cooperatives, since there is no cooperative organization that gives market information to its members for the purpose of assisting the output marketing of the individual members. Thus, market information facilities provided by the existing *formal* sources of MI can generally be said as ‘low’ but the possibilities of improving the *accessibility* and *utility* of agricultural market information in Alamata and Atsb-Wemberta weredas can be expected with the implementation of the recommendations given in section 5.2. The finding on the literature review, however, indicates that improving the existing *formal* sources only will not take the market information *accessibility* and *utility* further enough. The use of ICT needs due

consideration to at least approach the levels of what most African countries have already reached.

5.2 Recommendations

1. Coverage and level of access to MI can be increased through awareness creation activities on the availability of the existing media of MI, the sources and on the advantages. Besides helping actual and potential beneficiaries on how to access and use the existing facilities could improve the *utility* on the MI received by households.
2. Appropriate coordination of existing facilities is one of the potential and may be the easiest area where market information *accessibility* and *utility* can be enhanced. Therefore, it is useful to study how to promote *accessibility* and *utility* of MI through better networking and coordinating the *formal* and *non-formal* media of MI.
3. Improve the quality of market information on radio by doing the following:
 - a. Improving the radio clarity;
 - b. Consider broadcasting all the MI programs during evenings or the possibility of repeating the morning programs on Sundays;
 - c. While reading the market prices, consider inserting classical music, as a break, or any possibility of reducing the reading speed to allow the clients of the MI a chance of recording, at least some of commodity prices; and
 - d. If a sort of summary, comments or remarks could be complemented, the MI could be more attractive and usable.

4. Using all media of accessing market information should be considered
 - a. Exploiting printed media has the advantage of covering all PAs and villages by copying and transmitting MI, using the *wereda* – DA – *Lim'at Gujile* lines. Here, those who are illiterate (41.6 % in Atsbi-Wemberta and 45.3% in Alamata) could have problems of reading and receiving the MI. However, for such illiterate (but in need of MI) some sort of program can be arranged where by the MI can be read for a group of people. The farmers can also take the opportunity of discussing on what the MI means and how they can use it as well as share experience one from the other.
 - b. For obtaining better *accessibility* and *utility* of MI, farmers need in common, the possibility of creating farmer groups (by major commodities) can be considered. In addition to price information, such groups could be benefited from the information on production quantities, and also make agreed and regulated production calendars.
 - c. The existing cooperative establishments can also be used to provide market information that their members require. For this, the interest of the members and their information requirements, how frequent they need the MI, and the communication media have to be identified.
5. Intervening on better management of the existing MI media as well as working on capacity development of the local people on radio maintenance skills can be considered to maximize the *accessibility* and *utility* of market information using the existing media.

Therefore,

- a. The management of rural telephone lines, particularly the wireless phones in Alamata *wereda*, should be considered to make them functional, at least to the level of what is existing in Atsbi-Wemberta; and
 - b. Considering the radio maintenance needs of many radio users of rural households, training rural youth in radio maintenance could improve the access scales of households to MI on radio. Availability of radio maintenance facilities in the rural areas, not only could give the radio users to maintain their radio at near distance, but, also give them the advantage of maintaining at fair price from the relative adequacy of such service providers. Thus, the cost element related to accessing market information could also be somehow addressed.
6. Complementing price information with supply quantity; remarking on the quality of products of which their prices are quoted; giving reasons for price fluctuations; and similar important comments could be provided that would improve the interpretation of MI and its usage.
 7. With specific gap identification activities, it is necessary to upgrade the regional, *wereda*, and PA level capacities. Therefore the following interventions are important.
 - a. Train farmers and traders on how to use MI on display boards, radio, and how to use the *non-formal* media of MI appropriately.

- b. Train DAs and *wereda* experts on how to maximize their access to the available MI and how to communicate and deliver the MI to the beneficiaries, as part of their extension activities.
 - c. Train DAs and farmers how they can interpret and make use of the market information for immediate use and for forecasting market situations.
 - d. Assigning a regular and responsible consultant who can deal with the market information database for conducting trend analysis, forecasting, and consulting.
8. Though the results of this study showed the *accuracy* of market information is about ‘high’ scale, there are indications that working in this area is still important. Besides, the market data collection activity (and the service) must continue regularly without interruption. Therefore,
- a. Insisting the collection of market data activity on consistent hours is advisable. The hours however may vary from season to season;
 - b. Data collectors must get adequate training relevant to their expected activities;
 - c. Data collectors must get adequate incentives and they must get whatever is allocated timely;
 - d. Adequate consideration must be given to obtain and maintaining consistent data collectors; and
 - e. Effective monitoring and evaluation plan must be in place. This can help to correct possible problems observed regarding data quality problems as well as solve problems of what market data collectors face, timely.

9. Ensure the continuity of the service by allocating regular budget, maintain consistent data collectors and fulfill the overall logistics. It is this way that a regular and consistently growing service could be secured.
10. Correcting the underestimations on the advantages of MI service is one of the interventions to be considered. Farmers are expected to be benefited from the advantages of market information services. While market information service is beneficial to beginner-traders, traditional traders who were benefiting unfairly from the old system would not be comfortable from the more competitive market. Consumers will also be benefited from continuous supply of agricultural commodities, at regular basis and fair price, instead of being victims of the high fluctuating prices and availability of commodities for only few months. Therefore, advantages of market information service have to be understood by different sections of the community including those persons who are engaged and expected to support such useful service. This is the immediate step where no time should elapse to take action in order to make the infant MI service workable in the study *weredas*.
11. Taking into consideration the poor background situation with regards to market information systems and services, researching on market information related topics needs special focus. Conducting few related researches might not answer continually arising research questions. Therefore, intensifying research on similar topics has to be encouraged.
12. Improving the overall ICT and particularly SMS as well as the MMS can give the opportunity of lifting the existing poor MI service too much to the level of what other African counties are just experiencing.

5.3 Implications for Further Research

1. The findings, on the study area, do not show *accuracy* problems in fixing prices, using average prices. However, as in the case of Alamata, the data collector has practices of ignoring inflated prices (as already explained in the case market observation in Alamata market and presented in section 4.4.2.2). Similarly, using average prices have their own limitations as explained in the literature review. Therefore, whether it is good to continue with the rule of employing mean average prices or considering other options need further investigation. Besides, the overall issues of improving data quality could be dealt as one potential research area.
2. Studying respondents characteristics and studying the overall factors which have influence over *accessibility* and *utility* of market information is a potential research area. Results and findings of such potential research could contribute to the efforts of designing appropriate approaches and techniques of addressing the psychology, attitudes, capacities and interests of different categories of market information users.

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ANNEX Instruments:

1.1 Interview Schedule Used at Household Level

Research title: Accessibility and Utility of Market Information for Agricultural Commodities in Alamata and Atsbi-Wemberta Pilot Learning *Weredas*

Questionnaire code/ HH ID	_____
Name of the household head	_____
Respondent's name	_____
Respondent's relation to the head of the HH	a) same b) spouse c) _____
Interview date	_____
Interviewer's name	_____
Checked (name and data)	_____
Data entry of to computer	_____

General Instructions

1. MI is repeatedly written. It means Market Information.
2. The objectives of the research, in brief, are: to assess the formal and non-formal MI sources; to study the *accuracy*, *timeliness*, *relevance*, and *accessibility* of MI; to study the *utility* of MI; to analyze factors influencing *access scales* of households; and to study the *accessibility* and *utility* of MI on radio.
3. Note that *sources* of MI are not easy to know by the respondents. But they can understand the media of MI so that it is possible to trace the *sources* of MI.
4. Formal media of MI are: price notice papers on walls or on boards (through cooperatives); radio; news papers/magazines; and formal government or NGO's lines.
5. Non formal media of MI are: any of the telephone, fax, and internet lines; social networks; personal market visits, and the like.
6. Sections *accessibility* and *utility* are studied from point of view of both formal and non-formal media of MI. For the rest MI quality dimensions such as *accuracy*, *timeliness/punctuality*, *relevance*, only the formal media of MI are considered.
7. Within the questionnaire;
 - a. Shaded statements are for you; they are written to remind or guide you.
 - b. Statements that have foot note explanations are made bold, to be observed easily.
 - c. Skip any of the shaded blank spaces (do not fill).
 - d. Use separate paper or the back of the questionnaire if open ended lines are not adequate or if you find relevant and important points to write.
 - e. Identify the questions which are difficult or too much time consuming and inform the field supervisor/coordinator.
 - f. Do not hesitate to ask unclear questions and any ambiguities.

Thank you

I. Location

1	Country	Ethiopia
2	Region	Tigray
3	Wereda	1) Atsbi-Wemberta 2) Alamata
4	PA (tabia)	_____
5	Kushet (Village)	_____

II. Demographic Characteristics

	Name	6	7	8	9	10	11	12	13	14	15	16

Codes or descriptions for 6 - 15

6	Sex	1) Male 2) Female
7	Age	Number of completed years
8	Marital status	1) Never married, 2) Married, 3) divorced, 4) Widowed, 5) Separated
9	Literacy	1) Illiterate, 2) Only reading, 3) Read and write
10	Formal Education	1) Attended formal education, 2) Not attended formal education
11	Education level	1,2,3,10, 11, 12, 13, ...
12	Faith	1) Orthodox, 2) Protestant, 3) Catholic 4) Muslim, 5) Traditional/other
13	Ethnicity	1) Tigraway, 2) Amhara, 3) Afar, 4) Erob, 5) Oromo, 6) Agew, 7)Other
14	Language	1) At least Tigrigna, 2) At least Amharic, 3) 1 & 2, 4) None of the above
15	Occupation	1) Farmer, 2) Trader, 3) 1 & 2 4) 1&5 &5) Other Business
16	HH size	<u>Number of family members, including the household head.</u>

III. Basic Infrastructure, Institutions, and Services

24. credit and saving practice
- Not customer
 - The borrowing practice is higher
 - The saving practice is higher

25. What is the distance to these basic social and economic services?

SN	Variables	Distance in Km	One-way walking time ²⁷ (in minutes)
	Market place		
	Nearest road		
	Nearest transport place		
	Nearest health service place		
	Water		
	Flour mill		
	Credit and saving institution ²⁸		
	Extension center		
	Cooperative		
	Information display board		
	Wireless or fixed line phone		
	Internet (if used by the respondent)		
	Fax (if used by the respondent)		
	Wereda centre		

IV. Agricultural Resources and Products

26. Cultivated area size

	Size in hectare	Size in <i>tsimad</i>
Landholding size		
Rented-in land ²⁹		
Rented-out land ³⁰		
Total cultivated land		

27. Size of irrigable land and cultivation rounds per parcel of land

	Size of cultivated land (ha)	% Irrigated	No. of cultivation (including rain-fed)
1			
2			
3			

28. What is the product pattern of your farm?

Crop type	Ha	Order	Livestock	No.	Order

²⁷ Fill this column selectively, if the questions on distance in Km are not given/answered by the respondent

²⁸ If the household does not get any kind of service write N.A (Not Applicable)

²⁹ Land temporarily obtained for cash or on share-cropping basis

³⁰ Land temporarily rented-out for cash or on share-cropping basis

29. What are the agricultural commodities you sell (by order) and the market areas?

Order	Type of commodity categories ³¹	% commodity marketed	Tick if marketed within the <i>wereda</i>	Name of <i>wereda</i> /Region (if different)	

30. What are the agricultural commodities you buy from market (by order)?

Order	Type of agricultural products	Market places (<i>wereda</i>)		

V. Market Information Availability and Access

31. Availability and frequency of getting market information, by media of MI

31. Availability and frequency of getting market information, by media of market information										
	media of market information	Frequency of getting market information								Never
		2+ in a week	Once in every ____ days							
			7	14	30	90	180	360	____ ³²	
	Radio								____	
	TV								____	
	News paper								____	
	Cooperative								____	
	DA								____	
	Workshop/training								____	
	Mobile telephone								____	
	Fixed telephone								____	
	Wireless phone								____	
	Fax								____	
	Internet								____	
	Market visit								____	
	Social network								____	
	Other (_____)								____	

³¹ Commodity categories: 1=Vegetables, 2=Fruits, 3=Pulses, 4=Oil crops, 5=Cereals, 6=Cattle, 7= Shoats, 8=Milk/Butter, 9= Honey, 10=Poultry, 11=Other (specify) or you can also use tomato, potato, etc. if appropriate.

³² The blank space will be filled if the respondent specifies exact date (other than those within the choices). For instance; 'once in every 20 days'.

32. If you do not use any of the above listed media of MI, why?

(Here, it is an end of the interview and the respondent will be revisited by the field supervisor)

33. Do you have your own

-Mobile telephone? _____ 1. Yes, 2. No

-Fixed line telephone? _____ 1. Yes, 2. No

-Email address ? _____ 1. Yes, 2. No

-Radio? _____ 1. Yes, 2. No

-TV? _____ 1. Yes, 2. No

34. If social network is the medium of MI you use,

a. Is the social network for the MI arranged one (Vs incidence)? 1. Yes, 2.No

b. If the social network for MI is arranged one, with whom, how frequent and how do you exchange market information?

35. Are you a member of a cooperative? _____ 1.Yes, 2. No

a. If you are a member of a cooperative, do you get any market information that other non members do not get? _____ 1.Yes, 2.No

b. If 'Yes'(for question 30-a), what is the name of the cooperative; how frequent do you receive MI; and for what type of commodities?

36. Do you get market information through extension (DA) regularly? _____ 1.Yes, 2.No

a. If you receive MI regularly from DA, what is the program for receiving MI?

b. If you receive any MI from DA (whether it is regular or not- regular), explain what type of information you get, and for what types of commodities?

37. Have you ever had relevant training on market information? _____ 1.Yes, 2.No. If 'Yes'

	month/yr	No. of days	Where	Training content

38. Awareness, access, and usage of MI (by different media of market information).

	Access	Formal media of MI			
		Radio	Coop	News paper	Other (____)
1	I Do not have awareness on availability of MI				
2	I Have the <u>awareness</u> but have some kind of difficulty ³³ to access and use MI				
3	<u>I Have access</u> of the MI but with some kind of problems in the medium of MI, form or presentation				
4	<u>I Have access and use</u> of MI but with some kind of problems in the medium of MI, form or presentation				
5	Access and use of MI are achieved properly and effectively				

39. Accessibility ranking among formal and non-formal media of MI actually used (First, write the commodity codes and names, and identify the medium of MI applicable to the respondent. Then put ranks as 1st, 2nd, 3rd, etc.)

[illegible]

Codes for media of MI

<u>Codes</u>	<u>Medium of MI</u>	<u>Codes</u>	<u>Medium of MI</u>	<u>Codes</u>	<u>Medium of MI</u>
1	Radio	5	DA	9	Wireless phone
2	TV	6	Workshop/Training	10	Market visit
3	News paper	7	Mobile telephone	11	Social network
4	Cooperative/Display board	8	Fixed line telephone	12	Fax, Internet, & Other

³³ Difficulty such as distance to MI and affordability to access MI

³⁴ Commodity categories: 1=Vegetables, 2=Fruits, 3=Pulses, 4=Oil crops, 5=Cereals, 6=Cattle, 7= Shoats, 8=Milk/Butter, 9= Honey, 10=Poultry, 11=Other (specify) or you can also use tomato, potato, etc. if appropriate (say, if there is difference in the medium of MI used and the ranking).

40. Using any media of market information communication, what is the level of the household from point of getting market information? (based on criteria set)

1. Level 1, 2. Level 2, 3. Level 3, 4. Level 4.

41. Using any media of market information communication, what is the access scale of the household from point of getting market information? (based on criteria set)

1. Very Low, 2. Low, 3. Medium, 4. High, 5. Very High.

VI. Relevancy of Market Information

Radio as a Medium of MI

42. The market information is not relevant for it does not address at least part of the major commodities. (circle the answer) 1. Yes, 2. No

43. The market information is not relevant due to major language or any kind of communication barrier. (circle the answer) 1. Yes, 2. No

44. The market information is not relevant from the point of view of addressing at least some of the major target market areas. (circle the answer) 1. Yes, 2. No

45. The market information is not relevant compared to the market information received from other better alternative medium of MI. (circle the answer) 1. Yes, 2. No

46. If the above Yes/No questions on relevance of MI are not answered, why?

1. Because access and/or use of MI on radio is limited or not used at all;

2. _____

Cooperative (or Display Board) as a medium of MI

47. The market information is not relevant for it does not address at least part of the major commodities. (circle the answer) 1. Yes, 2. No

48. The market information is not relevant due to major language or any kind of communication barrier. (circle the answer) 1. Yes, 2. No

49. The market information is not relevant from the point of view of addressing at least some of the major target market areas. (circle the answer) 1. Yes, 2. No

50. The market information is not relevant compared to the market information received from other better alternative medium of MI. (circle the answer) 1. Yes, 2. No

51. If the above Yes/No questions on relevance of MI are not answered, why?

1. Because access and/or use of MI through cooperatives is limited or not used;

2. _____

VII. Timeliness of MI obtained from Formal Media of MI

52. Timeliness of market information, by major commodity type and by formal media of MI.
(Fill the blank space as timelines is 1.VL, 2.L, 3.M, 4.H, 5. VH)

	Commodities ³⁵	Formal Medium of MI			
		Radio	Cooperative/ Display boards	News Paper	Other ()

VL=Very Low, L=Low, M=Medium, H=High, and VH=Very High

53. Market information availing/disseminating schedules by type of formal media of MI (If the respondent does not make use of the medium of MI mentioned, write N.A)

	Formal Medium of MI	Regularity (Yes/No)	(If availed regularly) Obtained on every __ Hrs
1	Radio		
2	Cooperative/Display board		
3	News paper/magazine		

54. Punctuality of MI dissemination/availing schedules

Formal Medium of MI	Punctuality	Frequency of occurrences			
		Regularly	Mostly	Rarely	Never
Radio	Very late				
	Late				
	Almost on time				
	On time				
Cooperative/Display board	Very late				
	Late				
	Almost on time				
	On time				

55. If the above questions on timeliness/punctuality of MI are not answered, why?

1. Because access and/or use of MI through those media of MI is limited or not used;
2. _____

VIII. Accuracy of MI obtained from Formal Media of MI

56. Deviation of price information disseminated on radio compared to the actual (as perceived by the respondent).

³⁵ Commodity categories: 1=Vegetables, 2=Fruits, 3=Pulses, 4=Oil crops, 5=Cereals, 6=Cattle, 7= Shoats, 8=Milk/Butter, 9= Honey, 10=Poultry, 11=Other (specify) or you can also use tomato, potato, etc. if appropriate (say if there is difference in the timeliness or in the medium of MI used).

Medium of MI: Radio

Major Commodity: _____

Price			Probability of occurrence (4)	of	3 x 4 (5)
Assumed (1)	Broadcasted (2)	Deviation (%) (3)			
			(Most cases)		
			(Next most)		
			(Next most)		
			(Last)		
Average deviation					(6)

Commodity (other)	Assumed price		% Deviation
	Actual	Broadcasted (mostly)	

57. If the above questions on accuracy of MI are not answered, why?

1. Because access and/or use of MI on radio is limited or not used

2. _____

58. Deviation of price information disseminated through cooperatives compared to the actual (as perceived by the respondent).

Medium of MI: Cooperatives

Major Commodity: _____

Price			Probability of occurrence (4)	of	3 x 4 (5)
Assumed (1)	On display boards (2)	Deviation (%) (3)			
			(Most cases)		
			(Next most)		
			(Next most)		
			(Last)		
Average deviation					x (6)

Commodity (other)	Assumed price		% Deviation
	Actual	On display boards (Mostly)	

59. If the above questions on accuracy of MI are not answered, why?

1. Because access and/or use of MI through cooperatives is limited or not used

2. _____

60. Level of reliability of market information by type of formal medium and by commodity type.
(Fill the blank space for accuracy as 1.VS, 2.S, 3.M, 4.H, 5. VH)

Commodity ³⁶	Formal Medium of MI			
	Radio	Cooperative	News Paper	Other ()

VH=Very High, H=High, M=Medium, L=Low, and VL=Very Low

61. If there are any market information deviation experience, other than price information, state in words:

IX. Utility of MI

62. Usefulness of market information (of both formal and non-formal media) by commodity type
(Fill the blank space for accuracy as 1.VL, 2.L, 3.M, 4.H, 5. VH)

Commodity ³⁷	Medium of MI (select the applicable ones first)											
	1	2	3	4	5	6	7	8	9	10	11	12

³⁶ Commodity categories: 1=Vegetables, 2=Fruits, 3=Pulses, 4=Oil crops, 5=Cereals, 6=Cattle, 7= Shoats, 8=Milk/Butter, 9= Honey, 10=Poultry, 11=Other (specify) or you can also use tomato, potato, etc, if appropriate (say if there is difference in the level of accuracy or in the medium of MI used).

³⁷ Commodity categories: 1=Vegetables, 2=Fruits, 3=Pulses, 4=Oil crops, 5=Cereals, 6=Cattle, 7= Shoats, 8=Milk/Butter, 9= Honey, 10=Poultry, 11=Other (specify) or you can also use tomato, potato, etc, if appropriate (say if there is difference in the level of usefulness or in the medium of MI used).

Codes for Medium of MI

Codes	Medium of MI	Codes	Medium of MI	Codes	Medium of MI
1	Radio	5	DA	9	Wireless phone
2	TV	6	Workshop/Training	10	Market visit
3	News paper	7	Mobile telephone	11	Social network
4	Cooperative/Display board	8	Fixed line telephone	12	Fax, Internet, & Other

63. Measure the quality dimensions of market information, by media of MI. (Fill the blank spaces as 1. VL (Very Low), 2. L (Low), 3.M (Medium), 4.H (High), 4. VH (Very High)

Market Information Quality Dimensions	Radio	Coope rative	News paper
Physical access to medium of MI is	_____	_____	_____
Punctuality of MI provision/availability schedules is	_____	_____	_____
Timely arrival of MI	_____	_____	_____
Non existence of language or any communication barriers	_____	_____	_____
Clarity of presentation (including reading speed on radio) is	_____	_____	_____
Accuracy of MI is	_____	_____	_____
Meaningfulness/Interpretability of the MI is	_____	_____	_____
Relevance (or information coverage of major commodities, target markets, etc) is	_____	_____	_____
Usage of MI is	_____	_____	_____
Overall satisfaction on the usefulness of MI is	_____	_____	_____

64. Usefulness ranking among media of market information (formal and non-formal), by commodity (First, identify the media of MI for each commodity, then put ranks as 1st, 2nd, etc))

Commodity ³⁸	Medium of MI (select the applicable ones first)											
	1	2	3	4	5	6	7	8	9	10	11	12
	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____

Codes for Medium of MI

Codes	Medium of MI	Codes	Medium of MI	Codes	Medium of MI
1	Radio	5	DA	9	Wireless phone
2	TV	6	Workshop/Training	10	Market visit
3	News paper	7	Mobile telephone	11	Social network
4	Cooperative/Display board	8	Fixed line telephone	12	Fax, Internet, & Other

³⁸ Commodity categories: 1=Vegetables, 2=Fruits, 3=Pulses, 4=Oil crops, 5=Cereals, 6=Cattle, 7= Shoats, 8=Milk/Butter, 9= Honey, 10=Poultry, 11=Other (specify) or you can also use tomato, potato, etc, if appropriate (say if there is difference in the usefulness ranking or in the medium of MI used).

65. Using any of market information sources/ media of information communication, how do you rate the frequency of usefulness of the market information you received?

1. Has never been useful; 2. Rarely useful;
3. Mostly useful; 4. Always useful

66. Using any of market information sources/ media of information communication, how do you measure the level of adequacy of the MI you receive from the point of view of giving useful information?

1. Usefulness is Very Low
2. Usefulness is Low
3. Usefulness is Medium
4. Usefulness is High
5. Usefulness is Very High

X. Evaluating MI Received on Local Radio

67. Market information is received on local radio

1. Never, 2. Rarely, 3. Mostly, 4. Regularly

68. If market information is not received and used, on local radio, why?

1. I have no radio and no awareness about the radio program
2. I have awareness about the radio program but have no access to radio
3. I have access to radio but do not have awareness about the program
4. I have access to radio as well as the awareness about the program, but have no motivation for receiving MI
5. Other (specify) _____

69. If MI, on local radio, is received but not used, why?

1. The MI has interpretability problem
2. I have no motivation for using MI
3. Can get information better than MI on radio
4. I have no marketable surplus
5. Other (specify) _____

70. If the answer for the above question is '4', have you ever used MI on radio during surplus production years? (circle the answer)

1. Yes, 2. No

71. If MI is received and used, on local radio, its usefulness is

1. Very Low; 2. Low; 3. Medium; 4. High; 5. Very High

72. Fill the blank space as 1=VI (Very Inaccurate), 2=I (Inaccurate), 3=N(Neutral), 4=A(Accurate), and 5=VA (Very Accurate), for quality dimensions of MI, on local radio.

	MI Quality Dimensions (on Local Radio)	VI	I	N	A	VA
		1	2	3	4	5
a.	Broadcasting time is inconvenient	___	___	___	___	___
b.	Broadcasting time is inadequate	___	___	___	___	___
c.	There is need for repeating twice and trice the MI broadcasted	___	___	___	___	___
d.	The reading speed has problem	___	___	___	___	___

73. Market information, on local radio, is;

1. Desired to continue as it is;
2. Desired to continue with some modification;
3. Not desired to continue;
4. Have no idea.

74. If you choose to continue MI on radio with some kind of modification, what types of modifications are required?

(Fill the blank space with 1=LU (Less Useful); 2=U (Useful); and 3=VU (Very Useful))

	Type of modification required	LU	U	VU
		1	2	3
		___	___	___
		___	___	___
		___	___	___
		___	___	___
		___	___	___
		___	___	___
		___	___	___
		___	___	___
		___	___	___
		___	___	___
		___	___	___

75. Explain any occurrence whereby you lost a lot of advantage due to lack of market information or an occurrence of benefiting from market information.

76. If you have any supplementary information or general remark, what are they?

1.2 Instruments Used for Data Gathering from Institutions

1.2.1 Interview guide used for data collection from *Wereda* Cooperative Department

Among other general data requirements the following specific questions will be asked:

1. Are there cooperatives involved in MI provision to their members? 1. Yes, 2. No
2. If the answer is 'Yes' for the above question, specify which type of cooperatives, where, how many, what sources of MI used, what type of MI, and for what products?

3. Are there cooperatives getting market information as an institution/enterprise, for their business? 1. Yes, 2. No (circle the answer)
4. If the answer for the above question is 'Yes';
 - a. What formal and non-formal means are used to obtain MI?

- b. Are there cooperatives having known schedules for receiving MI from the formal sources? If so which cooperatives, from what sources, when and how frequent?

5. How do cooperatives use MI from local radio?
 - a. for cooperative enterprises as an enterprise?

- b. for their members?

6. Do cooperatives obtain any MI through extension? 1. Yes, 2. No

7. If the answer for the above question is 'Yes', which cooperative types, how frequent, and the effectiveness of the MI?

8. Are there any cooperatives assisting their members in interpreting the MI provided from any other formal MI sources? If so, which cooperatives, how many, where, what MI type?

9. How do you evaluate the role being played by cooperatives in the provision of MI and what can be done in this area?

10. What supplementary information or general remark do you have? (mark the remarks as LI (less important), I (important), and VI (very important))

1.2.2 Interview guide used for data collection from Cooperative Organizations (*Wereda* and PA Level)

Among other general data requirements the following specific questions will be asked:

1. What are the main activities of the cooperative?

2. How does the cooperative get market information as an institution/enterprise, for its business?

- a. What formal and non-formal means are used to obtain MI?

- b. Are there known schedules for receiving MI from the formal sources? If so when and how frequent?

- c. How is the punctuality of MI supply?

- d. How do the users of the MI found its usefulness?

3. Does the Cooperative provide any formal MI to its members? If so,
 - e. What type of information?

f. How frequent?

g. How do the members of the Cooperative found the MI usefulness?

4. How does the cooperative use MI from local radio?

h. for the coop enterprise

i. for its members

5. Does the Cooperative obtain any MI through extension?

6. Does the Cooperative assist its members in interpreting the MI provided from the other formal MI sources? If so give details.

7. What supplementary information or general remark do you have? (mark the remarks as LI (less important), I (important), and VI (very important))

1.2.3 Interview guide used for data collection from Extension workers (at *wereda* and PA level)

1. Formal MI facilities provided by extension:

- a. If MI is both prepared and disseminated through the extension line itself, how frequent, and how?

- b. If MI is prepared by the extension but re-disseminated through cooperatives, radio, and other formal sources, how frequent, where, and how?

- c. What is the role of extension in recording/gathering and re-disseminating MI received from local radio or other formal MI sources?

- d. Are the intended beneficiaries aware of the schedule of MI dissemination?

2. What do you do in areas of interpreting MI disseminated through other formal sources?

3. How do the farming/marketing households use different MI sources?

4. What are the major problems observed in relation to availability and provision of MI service?

5. How can the extension line be exploited with regards to provision of improved MI?

6. What are the strengths and weaknesses of the MI provided using the local radio?

7. What can be done further to improve the MI program broadcasted on radio? (mark the suggestions as LI (less important), I (important), and VI (very important))

1.2.4 Interview guide used for data collection from *wereda* price data collectors (at *wereda* level)

Among other general data requirements the following specific questions will be asked:

1. What process do you go to take commodity prices?

- How many times a day do you ask prices?

- Are the hours used for asking prices uniform? If so which hours?

- What other procedures do you follow?

- How do you compromise variation in the quality of commodity referring to a certain average price?

- What do you do (the process) to collect wholesale price data?

2. If there is significant variation between lowest and highest price within a day (and within few hours) what do you do other than giving the average price? Do you think it is sufficient giving average price in such situation?

3. Record the latest one month data - how the lowest, the highest, and the average price data are computed/obtained. (use separate paper, if required)

Month _____

	Commodity	Lowest price	Highest price	Average price

4. What MI do you collect other than price data?

5. Have you ever had training related to MIS (Yes/No)? If 'Yes' where was it, the duration, when, and its adequacy?

6. What problems do you face to accomplish your duties?

7. If you ever had negative reactions from consumers, farming households, or traders, what are they?

8. If you ever had experienced discrepancy between data collected and disseminated, explain.

9. What are the problems of obtaining accurate data?

10. Are there possibilities of improving the accuracy and overall quality of data?

1. Yes, 2. No (circle the answer)

11. If 'Yes' how? (use additional paper, if required)

12. What do you recommend to improve the quality of the service? (mark the recommendations as LI (less important), I (important), and VI (very important))

1.2.5 Interview guide used for data collection at Data Processing (Regional Level)

1. What market information type are received and processed? And what are the contents of the processed data output you produce?

2. What kind of format do you use to collect market data? (copy the format is possible)

3. What are the schedules of receiving, processing and disseminating market data/information?

4. Punctuality of data sending and receiving schedules:

- a. Explain the delay of data you experienced (delay of data by number of days, percent of total data, and by probability of occurrence)

- b. How do rate the occurrence data delay

1. Very High, 2. High, 3. Medium, 4. Low, 5. Very Low.

5. Are the processed data stored properly? (Explain including its management)

6. What about the storage and management of the raw data?

7. How many years of a) raw data and b) processed data are available?

8. What is the area coverage of stored information, by type?

9. How do beneficiaries able to access to such stored information;

10. What problems do you face during receiving raw market data, during processing, storing, and sending to radio station for broadcast?

11. If there are planned activities to improve the raw market data receiving, processing, and sending to the radio, what are they?

[illegible]

12. If you have any suggestion, recommendations, and general remark, what are they?
(mark the remarks, suggestions and recommendations as LI-less important, I-important, and VI-very important)

[illegible]

1. Do you receive processed information timely or not?

[illegible]

SN	Source of processed MI	Schedule of		
		Receiving	Checking (if any)	Broadcasting
1				
2				

This image shows a single sheet of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page. There are approximately 20 lines visible. The paper appears to be a standard notebook page or a sheet of stationery.

4. How do you rate the occurrence processed data delay?

a) Very High, b) High, c) Medium, d) Low, e) Very Low.

5. If there were occurrences of interrupting or delaying the program why?

6. What will happen to the schedule of market information broadcasting program, say, if there is a delay of 30 -60 minutes due to complete technical interruption?

7. If there were occurrences of escaping the program of broadcasting what were the reasons?

8. Were there instances of beneficiaries visiting the radio station for referring the quoted market information? If 'Yes', explain.

9. Is there is any program for dealing with such types of demands/requests from beneficiaries? (Explain)

10. Has there been any sort of complain from beneficiaries and other stakeholders related to the transmitted market information?

11. Have you had any important comments from different people regarding the usefulness of the broadcasted market information? Explain.

12. What overall suggestions do you have to improve the market information service broadcasted on local radio? (mark the suggestions as LI-less important, I-important, and VI-very important)

1.3 Interview Guide Planned for Discussing with Wholesalers

Questionnaire ID	
Interviewer name	
Date	

1	Wereda	
2	Wholesalers Name	
3	Age	
4	Sex	
5	Education	

6. What kind of wholesaler are you?
 1. Collecting, 2. Distributing, 3. Both
7. What commodity types?

8. What MI types are you interested?

9. What is the marketing channel of the commodity you are dealing with?

10. Is the marketing channel same through out the year or vary (has seasonality variation)? If so, how and why vary from season to season?

11. Which area's (weredas'/Regions') MI are you interested?

12. All questions on the utility of market information (From question 22-69, on the household questionnaire)