Rapid Assessment of Current Livestock Market Information Systems in the Highland Regions of Ethiopia

VOLUME I

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The opinions expressed in this report are those of the authors alone and do not necessarily imply the views of Global Livestock Collaborative Research Program or Texas A&M University
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LIST OF ABBREVIATIONS AND ACRONYMS

AMIP  Agricultural Marketing Improvement Project
A/LMIS  Agriculture or Livestock Market Information System
ALRMP  Arid Land Resource Management Project
BCS  Body Condition Scoring
(BoTI)  Bureau of Trade and Industry
CPD  Cooperative Promotion Department
CSA  Central Statistical Authority
DPPB  Disaster Prevention and Preparedness Bureau
EGTE  Ethiopian Grain Trade Enterprises
EU  European Union
FAO  Food and Agriculture Organization
GADO  Gondar Agriculture Development Office
GL-CRSP  Global Livestock Collaborative Research Support Program
ICT  Information Communication Technology
IFAD  International Fund for Agriculture Development
ILDP  Integrated Livestock Development Project
ILRI  International Livestock Research Institute
LINKS  Livestock Information Network and Knowledge System
LFMD  Livestock and Fish Marketing Department
LMA  Livestock Marketing Authority
LMIS  Livestock Market Information System
LRAHD  Livestock Resource and Animal Health Department
MDB-LU  Marketing Development Bureau Livestock Unit
MoARD  Ministry of Agriculture and Rural Development
NGO  Non-Governmental Organization
RAMIU  Regional Agricultural Marketing and Information Unit
SADO  Sodo Agriculture Development Office
SC  Steering Committee
SMS  Short Message Service
SNNPR  Southern Nations and Nationalities People’s Region
SPS-LMM  Sanitary and Phyto-Sanitary Standards Livestock Meat Marketing
STI  Southern Tier Initiatives
TAMPA  Tigray Agriculture Marketing and Promotion Agency
TAES  Texas Agricultural Experiment Station
TC  Technical Committee
TRADB  Tigray Rural and Agricultural Development Bureau
TLMP  Tanzania Livestock Marketing Project
ToT  Terms of Trade
USAID  United State Agency for International Development
UNICEF  United Nations Children’s Fund
WB  World Bank
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EXECUTIVE SUMMARY

The lack of properly functioning markets has been pointed out as one of the key issues underlying the recurrent food crisis in Ethiopia and in other countries in the Eastern Africa region. Many issues and constraints also need to be tackled to create an efficient livestock marketing system. The absence of livestock market information is one of such constraints facing livestock producers in Ethiopia in their efforts to earn a fair return from the sale of their livestock. Access to market information enables these producers to seek out and compare the information available for different market outlets to realize the full potential profit by getting the best prices.

A Livestock Market Information System (LMIS) is a continuing and interacting structure of people, equipment and procedures to gather, sort, analyze, evaluate, and distribute pertinent, timely and accurate livestock market information for use by various market participants to improve their marketing decisions. As such, livestock marketing information is needed to improve decision making at all levels in the livestock industry and to enhance the competitive position of the Ethiopian livestock industry in international markets. Relevant Livestock Market Information affords policy makers and traders with knowledge about prices of livestock, supply and other relevant information they need to make rational production and marketing decisions to facilitate and to contribute to Ethiopia’s transition to a fully functioning market economy.

The Sanitary and Phyto-sanitary Standards and Livestock and Meat Marketing (SPS-LMM) program led by Texas Agricultural Experiment Station has commissioned this assessment of livestock market information systems in the highland regions of Ethiopia. The main objective of the study was to gain an insight into the existing livestock market information systems to help identify problems and opportunities towards the development of a unified national livestock market information system that builds upon what has already been put in place in the pastoral regions as a result of the recent programs carried out by the Ministry of Agriculture and Rural Development, Livestock Information Network and Knowledge System of the Global Livestock Collaborative Research Support Program (LINKS/GLCRSP) and various Non-Governmental Organizations.

The assessment was carried out by LINKS/GL-CRSP led by Texas Agricultural Experiment Station, Texas A&M University. The LINKS team conducted a fieldwork assessment in SNNPR, Amhara, Tigray and Oromiya Regions in the period between May 24 to June 15, 2006 using structured interviews with key
informants including information providers at the key government offices, with traders and grass root level livestock keepers. The findings of the study are expected to help the Ministry of Agriculture and Rural Development fine-tune and improve ongoing efforts in the implementation of a standard LMIS in the country. Some of the specific objectives included:

- Assessing the current situation of livestock market information services in the highland regions of Ethiopia.
- Evaluating the current strengths and limitations in the provision of livestock market information at the national and regional levels and identification of best practices.
- Generation of new ideas and information to design a standard and need-driven LMIS.
- Identification and assessment of the information needs of the current and potential end-users of livestock market information and whether or not these needs are being met now and by whom.
- Provision of new ideas for the improvement of existing livestock market information products to respond better to the needs of these users.
- Gathering of information about any existing institutional and legal frameworks for the generation of livestock market information at the various levels of the government institutions.
- Understanding the barriers that limit effective implementation of LMIS in order to ignite a process towards the development and institutionalization of a National Livestock Market Information System.

MAIN FINDINGS AND CONCLUSIONS

1. Significant overlaps and duplication of activities exist among the services that collect livestock market information at every level of the government (Districts, Zones, Regions and the Federal level). Moreover, there are weak institutional linkages, lack of effective collaboration and coordination and poor working relationship among stakeholders and institutions involved in LMIS.

2. The recent emergence of new Agricultural Marketing Agencies in the Regions, which among other things will coordinate the livestock market information system at the regional level, is a healthy development. It is an indicator of growing recognition of the importance of market development and linking producers to markets.

3. Key organizations currently involved in livestock market information in the highland regions include: Bureau of Agriculture and Rural Development (Livestock Department), Disaster Prevention and Preparedness Bureau, Agricultural Marketing Agencies (new development), Bureau of Trade and Industry, and to a lesser extent the Central Statistical Authority (CSA).

4. Most of the organizations are collecting not only livestock market information but also information on other agricultural products such as
cereals and crops the latter of which in most cases is the primary information collected.

5. Livestock market prices are based on animal type, breed, class, sex and body condition apart from supply and demand.

6. Too much information is just collected and stored in raw format at government offices in hard copies and it is not clear to most government officers why they are collecting this information. The information is not analyzed and packaged for dissemination to the desired beneficiaries.

7. Long delays exist in data transmission from the markets to the government offices.

8. Unless donor funded, livestock market monitoring (and other agricultural market data collection in general) is not a primary task and priority for many of the market monitors and their respective organizations.

9. Frequent government bureau restructuring has caused losses in institutional memory as staffs are reallocated from one unit to another.

10. There exists a significantly high turnover rate of market monitors and experts mostly due to restructuring within the government offices.

11. Lack of standards for data collection even within the same bureaus appears to be a significant challenge for the data collection processes.

12. Most of the traders interviewed were in favor of the idea of creating a uniform, reliable LMIS and have indicated a willingness to pay minimal fees for the service provided as long as it is regular and on a near real-time basis.

13. In most of the highland market transactions, buyers and sellers deal directly with each other without the involvement of brokers. This makes the provision of market information to the producers particularly beneficial in order to level the playing field.

14. Most of the traders and producers interviewed indicated that they would like to receive market information not only about the local markets but also about far-off central and terminal markets in the country.

15. There is a lack of strong and coordinated traders and civil society organizations as strong mutual interest groups to support LMIS. There are emerging cooperatives and associations throughout the country that could become a force to reckon with if their capacity and organizational skills are improved.
RECOMMENDATIONS FOR THE DEVELOPMENT OF A NATIONAL LIVESTOCK MARKET INFORMATION SYSTEM

General Recommendations
Despite all the problems mentioned above, it was apparent from the rapid assessment conducted in the highland regions that a livestock marketing information system should be a feasible and a worthwhile investment given the increasing demand to provide near-real time market information to end users. This is more so because the producers in the highlands deal directly with the traders without the involvement of brokers or middlemen as is the case in the pastoral regions where informed brokers bargain on behalf of producers to get a fair price for their livestock.

1. Market information will remain a public asset in Ethiopia for quite some time. Federal and regional governments must make efforts to make freer the access to it, enabling a shared development, interrelated and standardized for both public and private entities that use it. This information is an important element for the country, becoming a basis for stimulating trade and economic growth, encouraging public and private investment and consequently generating economic and social development. In the long term, subsequent offshoots in the private sector will occur when specific niche market needs have to be met and entrepreneur individuals may follow the models applied in the developed countries and take this free public information, add value to it and sell it to serve the specific niche demand.

2. Initially, federal and regional governments must invest in the development, implementation, application and use of LMIS. These agencies must make contributions to the budgets of the agencies which gather LMI, in order to produce, maintain and publish market information. This will be necessary to sustain development in the country and contribute towards a continuous improvement of the standards and lives of the people of the country.

3. Market information is a resource which should be used by governmental authority’s at all administrative levels, to make decisions that benefit the population and the country at large; being properly informed would assist these authorities to generate the tools for reducing poverty by determining the unmet needs of the people that need to be resolved. Awareness creation about LMI should thus be a precondition for efficient use and application of market information.

4. Goodwill, appreciation and capacity-building seem to be the only investments required in the short-term to promote the capacities of market technicians and professionals. The survey carried out pointed to the fact that most of these technicians are just asking for an appreciation of their efforts.

5. Educational authorities should include market information curricula in the course design at institutions of higher learning to ensure that the future generations understand, use and learn to manage market information to the
benefit of the society they work in, its role in poverty reduction, and its ability to generate societal benefits that will improve the quality of life of the populace.

6. It is vital that the country works on the creation of a legal framework which supports the work on LMI development within government departments (both at regional and federal level), in order for them to obtain the institutional backing that brings federal and or regional budgetary commitment among others.

7. **Sustainability of LMIS:** All local key institutions at the various levels of the government must be involved in the planning, development and deployment phases of the LMIS program to ensure their ownership of the service and to be able to perhaps provide the necessary resources to increase efficiency of the system and to insure the sustainability and viability of livestock market information system. Some limited donor support and technical assistance might be needed in the initial phases of the program. Willingness on the part of the government to support LMIS at the policy level is crucial to the success and sustainability of National LMIS. Concerted efforts should be made to design a simple but useful system that could be managed within the regular budget allocations of the government agencies that have the mandate for operating the system.

8. **Implementation Policy Framework:** It is apparent from the assessment that issues of livestock market information cut across many programs and institutions. As such it is evident that no single institutions can be self-sufficient to handle the whole system by itself. However, a single institution needs to be identified as the lead organization for the overall coordination of the LMIS program at all levels. A clear national policy framework is a prerequisite to facilitate harmonization, cooperation and coordination among the various organizations. The policy framework is necessary to maximize mutual benefits and reduce unnecessary duplication of efforts for the implementation of a holistic and coherent program. A set of principles, guidelines and procedures that will be needed to formulated to foster development and implementation of a coherent and need-driven information program.

9. **Institutional framework for the implementation of National Livestock market Information:** New regional agricultural marketing agencies are emerging in most of the highland regions and seem to offer the potential to be the regional homes for the livestock information system. The Agricultural Input and Marketing will be the ideal coordinator at the federal level. In fact, some of the regional agencies have already taken leading coordination roles in the implementation of livestock market information at the regional level. They would need to set up steering and technical committees composed of the major actors (agricultural and rural development, trade and industry bureaus, radio networks etc.) to coordinate in order to avoid duplication of efforts and resources. These agencies would need some technical backstopping and guidance in the preparation of technical and
policy guidelines from the federal government and NGOs for the implementation of efficient National LMIS.

10. **IFAD Agricultural Marketing Improvement Program (AMIP):** The AMIP is being implemented in six regions in the country with a mandate that appears to offer a potential to be a springboard for promoting the development of a LMIS in the country.

11. **Need Driven LMIS:** Ministry of Agriculture and Rural Development, NGOs and donor agencies should work together to create a need-driven LMIS that serves producers, traders and policy makers. The system needs to have the freedom and the capacity to respond flexibly over time to private-sector needs.

12. **Design of National LMIS:** High priority should be given to solving the institutional problem facing the livestock market information systems at the woreda level and local markets where data collection is initiated. The current data collection formats are very time consuming and would need to be reviewed and redesigned for information collected to be more useful. A national livestock market information system should ultimately cover both domestic and international price information.

13. **Capacity building:** Significant efforts should be made to enhance the institutional capacity of the woredas both in terms of human development and equipment to ensure collection and delivery of information on a timely basis to all market participants. Careful recruitment and appropriate training will be needed to build a strong technical team. These staff should be given the task of market monitoring as their priority. The promotion of training and capacity building for local stakeholder’s particularly major managers and practitioners of LMIS is crucial. Management and technical committees representing these stakeholders with expertise and perspectives from both the public and private sectors will need to be set up to promote a transparent image and instill team commitment.

14. **Standardization of LMIS:** A national LMIS requires standardization of at least data-formats to allow easy comparison of prices. There is a real and expressed need to standardize the livestock market data collection in the country to allow for comparability among various regions. It would be prudent to build on the experience and the integrated format and design that came out of USAID Southern Tier Initiative of MoARD and LINKS GLCRSP projects.

15. **Scope of Coverage:** The scope of the data collection activities in the highlands need to be limited at the beginning to a small number of vital markets in each of the regions and expanding to other markets once a reliable system has been stabilized and as resources allow.

16. **Improving distribution and dissemination of livestock market information:** The impact of the Livestock Market Information System will ultimately be determined by the extent to which producers, livestock traders and policy makers utilize the information generated to aid their decision processes. Currently, dissemination appears to be the weakest link in the whole process of livestock market information. A proactive approach
will be needed to improve targeted channeling of the LMIS. The challenge would be in finding ways to improve access of the market information to rural communities. The increasing coverage of the mobile-phone network, regional FM radio stations and the GovNet (formerly Woredanet) seem to hold promise to improve this situation. Traders are already ahead of the game in exploiting mobile telephone technology to keep them updated on both local and terminal markets.

17. **Relevant Content is the key to increased use:** Lack of understanding of the client’s specific information needs, and poor system design could lead to the failure of the LMIS. Information generated needs to be commercially useful, relevant, regular, reliable and on a near real time basis to satisfy the needs of the users.

18. **Integrated Agricultural Market Information System:** Making the present livestock market information system stable and exploring possibilities of linking it to other key agricultural produce markets in the country such as grain market is crucial.

19. **Enhanced use of ICTs:** The use of modern ICTs in LMIS is quicker and cost effective to be able to transfer information on a near real time i.e. Fax, e-mail, online, Internet and phone. Using the modern ICTs eliminates the chances of loosing information as it goes straight to the rightful inbox, web portal, fax machine or telephone as required, unlike the ordinary postal communication delivery system, which can easily face information loses or misdirection and distortion. The amount of field and desk work required to produce livestock market information could be reduced through automation of data collection, processing and dissemination using a software/hardware architecture that makes use of the state-of-the-art telecommunication technologies.
1 INTRODUCTION

1.1 OVERVIEW AND JUSTIFICATION

The dominant livestock market participants in Eastern Africa consist of producers, middlemen, traders, and butchers. Detailed descriptions of market actors, marketing channels and the relative share of the profit margin of each of the actors in Kenya and Ethiopia were reported by Njiru (1983), Bailey et al. (1999) and Aklilu (2002). Reliable market information also helps traders by reducing transaction costs, allowing them to locate markets that they would not otherwise have found to conclude more profitable deals. It is obvious that traders (vis a vis producers) in Ethiopia as well as in many of the countries in the region have a “competitive edge” resulting from their superior market information access which can only be eliminated by establishing a transparent national and public Livestock Market Information System that provides the information generated to the remote pastoral and livestock producers in order to level the “playing field” (Holzman and Kulibaba, 1995). This is necessary in order to assure a broad sharing of the benefits of market development interventions being pursued by the countries in the Eastern Africa region so that not just the traders benefit. Usually markets are supposed to be efficient if all available information is reflected in current market prices (Fama, 1991). Therefore, livestock marketing information system is needed in Eastern Africa to improve decision making at all levels in the livestock sector to improve the market efficiency and the competitive position of the livestock industry not only in local markets but also in international markets (Kohls and Uhl, 1990).

A viable livestock marketing information system is a mechanism through which collection, analysis and dissemination of information can be organized and systematized. Regular, timely and accurate livestock market information is an essential ingredient in creating a transparent livestock market that levels the playing field to allow each of the actors in the market to make an informed decision and facilitate livestock marketing activities.

Livestock marketing information is crucial in Ethiopia, as in other countries, to improve decision making at all levels in the livestock industry and the competitive position of the Ethiopian livestock industry in local and in international markets. Recent years have seen an increased interest in the provision of market information in Ethiopia. Various government agencies and non-governmental organizations in the country collect price information sometimes in the same market in different formats and for different purposes mostly for their own sectoral use and is not disseminated to the public or shared with others.
The Livestock Information Network and Knowledge System (LINKS/GLCRSP) project implemented by Texas A&M University and the Livestock Market Information System project of the USAID funded Southern Tier program led by the Department of Livestock and Fish Marketing of the Ministry of Agriculture and Rural Development have been involved in the development and implementation of Livestock Market Information System in the pastoral regions of Ethiopia. The two programs conducted a workshop in August 2005 to review the progress made towards the development of a Livestock Market Information System in Ethiopia and to share information on the methodologies and formats employed by both in order to establish a shared understanding of the mechanisms and approaches that the current LMIS information can be optimized to satisfy the information needs of the livestock industry. The stimulus behind the workshop has been the realization of the need for a unified National Livestock Market Information System and the fact that the system put in place by the LINKS/GLCRSP TAMU and the information communication infrastructure identified have become stable enough to serve as the backbone for the implementation of such a national system. The workshop resulted in the integration of the activities of LFMD/MoARD and LINKS/CLCRSP TAMU experiences and the adoption of a unified format for the implementation of livestock market information system in the pastoral regions as a precursor towards a national system.

The SPS_LMM project led by TAES/TEXAS has recently commissioned a study on livestock market information assessment in the highland regions of Ethiopia with the objective of gaining an insight into the existing livestock market information systems given that the activities of LFMD/MoARD and LINKS/GLCRSP focused on the lowland regions (pastoral regions) of the country. The goal of this assessment was to gather information about any existing livestock market information systems and services at the various levels of the government and to help identify problems and opportunities to contribute towards the development of a unified national livestock market information system that builds upon what has already been achieved in the pastoral regions. The findings of the study were presented in a national consultative forum to get feedback and consensus on key issues regarding Livestock Market Information System in order to chart the way forward for a National LMIS.

1.2 OBJECTIVES OF THE ASSESSMENT STUDY

The main aim of the study was to gather rapid qualitative information that helps the Ministry of Agriculture and Rural Development fine-tune and improve ongoing efforts in the implementation of a standard National Livestock Market Information System. The specific objectives of the assessment included:
• Assess the current situation of livestock market information services in Ethiopia
• Evaluate the current strengths and limitations in the provision of Livestock Market Information.
• Gather information about any existing institutional and legal framework for the generation of livestock market information at the various levels of the government.
• Identify best practices for the design of a standard, sustainable and need-driven Livestock Market Information System.
• Identify and assess the information needs of the current and potential end-users of livestock market information and whether or not these needs are being met.
• Provide new ideas for the improvement of existing (if any) livestock market information products to better respond to the needs of these users.
• Gather information about any existing institutional and legal framework for the generation of livestock market information at the various levels of the government.

1.3 REVIEW OF LITERATURE

The majority of the limited livestock marketing development efforts in the Eastern Africa region in the past focused on infrastructure developments, such as construction of holding pens, weighing scales and availability of water and feed. Not much attention has been paid to timely availability of livestock marketing information and market information systems. A marketing information system is a continuing and interacting structure of people, equipment and procedures designed to gather, sort, analyze, evaluate, and distribute pertinent, timely and accurate information for use by marketing decision makers to improve their marketing planning, implementation, and control (FAO, 1997). A review of the literature indicates that no systematic national livestock market information systems has ever been implemented for any of the countries in the Eastern Africa region, except to a limited extent in Tanzania. In Tanzania a Livestock Marketing Information Service was established in 1988 by the Marketing Development Bureau Livestock Unit (MDB-LU). The system was based on the Tanzania livestock grading system that was developed in late 1970’s by Texas A&M University (MALD, 1989). The MDB established the marketing information system under the World Bank/FAO Trust Fund Program. The central information system was installed in Dar es Salaam where a computer data management system was developed to handle the flow, process and dissemination of the information. Four major secondary livestock markets in the country were monitored initially but the system was extended in later years to fourteen other primary markets in major livestock keeping areas in the country. Data collection was done through a network of market
reporters who were government employees from key livestock markets. The information collected included age, breed, grades, volume, and highest and lowest prices. The data was beamed through local 2-way communication radios on daily basis and summed up weekly in the form of local newspapers, radio calls and hard copies relayed to a central processing unit in Dar es Salaam (Mlotte, personal information, 2005).

Irregular and sporadic livestock market data collections have been going on in many of these countries for a long time primarily as components of development projects such as the Arid Land Resource Management Project (ALRMP) in Kenya, Tanzania Livestock Marketing Project (TLMP) in Tanzania and in government ministries and by NGOs (CARE-Ethopia) in Ethiopia. LINKS GLCRSP livestock market information initiatives in 2003 in Ethiopia and Kenya and later in Tanzania implemented by Texas A&M University and the USAID funded pilot Livestock Marketing Information System (LMIS) in parts of central and Southern Ethiopia implemented by the Livestock and Fish Marketing Department of the Ministry of Agriculture and Rural Development were some of the first attempts to develop unified systems in the region. The LINKS LMIS system was later harmonized with that of the ministry in Ethiopia as well as with other key appropriate institutions in Kenya, and Tanzania to lead towards the development of new regional and national Livestock Market Information Systems. These new efforts laid the foundation for the deployment of an innovative information and communication system to provide livestock price/volume data on a regular basis to a wide array of users in the region, predominantly in the pastoral areas.

There is apparently a general agreement among livestock development practitioners and researchers that livestock marketing information influences decisions to dispose of livestock not only for local consumption, but also through the market chain. The latter avails opportunities for livestock keepers to generate income to meet the exigencies of pastoral livestock households and in the process contribute to poverty reduction and improved livelihoods (Mahmoud, 2001; Agref, 2004). The effectiveness of livestock market information is measured primarily in terms of its responsiveness to the information needs of producers and traders to make timely informed decisions (Aklilu, 2002). It has been reported also that market information reduces risks in marketing (Bailey et al. 1999). Therefore, the biggest challenge is simply deploying a reliable LMIS that is sustainable and ensures data accuracy, completeness, timeliness, and cost-effectiveness. In the past, LMIS were dependent upon external funding and therefore collapsed the moment such support came to an end, necessitating the need to start over when new support was found.

A key issue is the extent to which local producers receive livestock information, whether they use it or not and if they do, whether this impacts their marketing behavior (McPeak, 2003). Access to information varies
depending upon a number of factors including 1) distance to markets; 2) cost of collecting and analyzing the data 3) cost of disseminating the information; 4) availability, access, and cost of information form other sources and 5) communication infrastructure. The utility of information is expressed in how it aids decision making. As owners and primary livestock sellers, pastoralists are almost always spatially separated from one another and from the markets, while middlemen and traders tend to coalesce and form strong networks through which information is easily shared, often to the exclusion of the producers. On the one hand, such networks (Bailey et al., 1999) are often defined by certain characteristics including ethnicity, clan, or some other social affinity which encourage cooperation among parties separated by space but on the other hand they may create barriers to entry for new participants. The skewed access to livestock market information means that livestock owners have little or no knowledge of prevailing prices in different regions and as such they are unable to fetch the best possible prices for their livestock (Mukhebi, 1999). This lack of information also excludes East African pastoralists from domestic and international markets.

Governments, NGOs and international agencies within the Eastern Africa region have recognized the need for the development of Livestock Market Information Systems. As such, some of the countries have recently sought donor support to embark on new livestock market initiatives and to revitalize existing livestock marketing programs. The biggest obstacle to a successful LMIS seems to be finding appropriate means to collect livestock data from the remote rural markets as well as from secondary and terminal markets, analyze the data and disseminate the information to the rural communities in a timely manner to support decisions related to marketing, trade and food security issues (Kohls and Uhl, 1990). Recent advances in information and telecommunication technologies afforded an opportunity to assist livestock producers, development practitioners, researchers and policy makers to access regular livestock market information. One such technology is the use of cell phone Short Messaging Service (SMS) which is currently being used for various markets in Kenya and Tanzania to report and disseminate livestock price information to the potential beneficiaries as a result of the expanding coverage of mobile phone services in the remote pastoral regions of Eastern Africa. Various other means of data reporting, analysis and dissemination are also being tested by LINKS in countries such as Ethiopia where the SMS coverage is currently limited. These include semi automated and coded on-line data entry and reporting systems.

There is a need for a Livestock Market Information System that generates and disseminates accurate and timely market information about a broader variety of markets to a greater number of market participants to make markets more transparent (Schubert, 1993). While there is almost a consensus on need for market information, most of the MIS tried so far did not survive beyond donor funding. The Food and Agriculture Organization (FAO) of the United Nations
conducted almost a worldwide review of the subject (FAO) which revealed that although a vast number of countries operate some sort of MIS, very few of them collect commercially useful information. Most of them were found to be nothing more than irregular data collection exercises with no practical values. Therefore, these failures were to a large extent attributed to lack of understanding of the client’s specific information needs, poor system design and resources limitations on the part of the government agencies to continue to run the system efficiently after initial projects investment funds stopped. In the latter securing the political support of the policy makers who allocate resources becomes an important issue for sustainability. In some circles it was argued that letting the private sector run MIS and charging fees will lead to the development of sustainable systems. However, it must be borne in mind that the majority of small holder producers in developing countries such as Ethiopia will not be able to participate in this process. Hence, the traders who already have an advantage in accessing market information compared to producers will stand to gain more from such a situation exacerbating the efforts with regard to leveling the playing field

In recent years, the Ethiopian Grain Trading Enterprise (EGTE) has been conducting an extensive and systematic grain price monitoring in Ethiopia (Tschirley et. al., 1995) focusing only on grain. However, the use of the information generated is mostly limited to EGTE itself, with minimum analysis and dissemination to the public. Similarly decision makers both from the government and donor agencies face inadequate access to timely and accurate grain and livestock market information needed to aid in decision-making. In the case of livestock, the few projects that had livestock market price information components in the past indicated a slow and staggered performance due to inflexible system designs that failed to adjust to the changing demands of its beneficiaries. The problem was compounded by the lack of suitable communication infrastructure with only limited coverage of analog telephones and fax facilities which entailed prolonged delays to connectivity, high running costs, less public sector participation and suspicion of potential information users of public institutions (Kebede et al., 1988). Given these major constraints, formal livestock price information has been confined to project areas, restricting availability and access to those outside the project areas. Few of the livestock market’s actors receive price information in selected markets through telephone, friends, middlemen, or by visiting the markets themselves. This arrangement has made the search for price information more costly and subject to distortion, casting doubts on its authenticity. However, the few who manage to access and get the current livestock price information, albeit at considerable effort and time, are clearly at a competitive advantage compared to the rest who either receive the information at later times or not at all. Information gaps always existed between livestock producers, traders and end product users and from this gap traders and to a less extent middlemen are among those who benefited more from the arrangement (Little, 1992). Thus, pastoral producers and consumers
are always disadvantaged in accessing formal livestock price information, causing them to bear the brunt of the cost attached to their transactions. However, it is important to point out that as a coping mechanism to mitigate the information gap, different pastoral producers and local traders have relied on traditional information systems that are more tailored to their norms, traditions and cultures. The large-scale livestock traders still tend to exploit livestock trade opportunities by using both formal and informal system to obtain price information. This structure gives traders the ability to compare prices, trade volumes and trade flows at local markets with those of overseas.

In recent years, several government agencies and non-governmental organizations have started to collect livestock market price information in different parts of Ethiopia for different purposes mostly notably for their own sectoral use and is not shared with others. This information is used for specific reports on economic analysis or as an early warning indicator for food security or as in most cases not used at all. The sporadic pieces of livestock market information that get out to the public are treated with suspicion with regard to its accuracy. Therefore, there is little reliable information available to producers to make decisions regarding where, when and whether to sell animals.

The most recent LMIS project in Ethiopia was implemented by the Livestock and Fish Marketing Department (LFMD) in the Ministry of Agriculture and Rural Development (MoARD). It was a pilot project funded by USAID under its Southern Tier Initiatives (STI). In the initial project proposal, the project intended to implement LMIS in selected market sites in the Oromiya region along Moyale Addis Ababa road, including some markets in Addis Ababa itself. The project was later narrowed down to the markets in the Oromiya region and Addis Ababa area. A local consultant was hired to design the information system and train project staff to implement it. Soon after, livestock market price and volume data collection and transmission from seven markets in Oromiya region and Addis Ababa commenced by faxing data collected to LFMD on weekly basis. The responsibility for the initial audits of the accuracy of the data collected by market monitors was given to the district livestock offices in the regional pastoral commissions. A copy of the data was faxed to LFMD where the data was entered into a standalone Microsoft Access database. A weekly summary report was generated for each market and faxed back to each market site for dissemination and for broadcasting through the national radio in national and local languages.

Accuracy, regularity and relevance are some of the key ingredients of any LMIS, which to a large extent determine its acceptance and its chances for adoption by the users of the information. A review of the recent USAID LFMD-LMIS indicated that the system faced some periodic disruption and problems due to:

1. Delays in receiving funds initially from the project donor to start up the project in time.
2. Difficulties in the management and timely accounting of the funds once transferred to the districts and expended. This created further delays for LFMD to obtain advances for the allotted quarterly funds from USAID.

3. Lack of clear line of authority of the LFMD Federal project officers and the district officers in the regions, which were responsible for the data collection, given the nature of decentralization of administration in the country.

4. Staff turnover and continuous re-structuring in the agricultural district offices during the project period resulting in irregularity of data collection. Moreover reorganizations in the former Livestock Marketing Authority (LMA) created periods of uncertainties in the project implementation.

5. Rigidity of the LMIS database to accommodate other markets except those initially included by the consultancy.

6. There is a relatively long duration from the time data is collected to the time the information reaches the end user if at all due to limitations in the communication tools used (reports, fax, audio).

7. High maintenance cost due to the large number of personnel involved.

These constraints were exacerbated by the limited availability of communication facilities in most of the remote areas in the regions inhabited by the pastoral communities. Pastoral livestock producers and traders are both frustrated and removed from the flow of information required to make market decisions, particularly information on price signals which is non-existent (Jensen et al., 2002).
2. METHODS

2.1 INTRODUCTION

The study was carried out by a three member team from LINKS GLCRSP and a national socio-economist consultant. The team employed a variety of techniques to assess existing livestock information systems in the highland regions of the county. These included a series of discussions and interviews held with key relevant government officials, regional, zonal and district agricultural and livestock staff, livestock trade cooperatives, traders and focus groups representing a wide range of stakeholders including key informants representing livestock producers selected mainly for their experience and traditional authority. The consultations covered both users and providers of information. This was supplemented with field visits to key markets in selected zones and districts in the highland regions of SNNPR, Amhara, Tigray and Oromiya (Fig. 1).

2.2 DATA COLLECTION

The interviews conducted were semi-structured aimed to ascertain what type of information systems or databases existed within each institution, and a checklist of topic areas was used to guide the discussion (see Appendix. 3) This included questions on the type of data collected, the processing and management of information, analyses undertaken and how information was disseminated. In addition, secondary sources from previous studies on livestock market information system in Ethiopia and government documents provided benchmark information for the study. These include reports on previous assessments of agricultural market information systems including livestock.

This was supplemented with quick reviews of both grey and electronic literatures to produce a final report. The report findings were presented at the national LMIS consultation workshop held in September 2006 attended by all of the key stakeholders to verify that their concerns had been effectively incorporated in the study results.

This assessment was sponsored by the SPS LMM and carried out by LINKS GLCRSP team with the help of a National independent consultant. The purpose of this report is to provide a rapid assessment of the existing Livestock Market Information Services and systems in the Highland Regions of Ethiopia and the institutional capacity towards a Unified National Livestock Market Information System. The report was used as a background for discussions at the national LMIS strategy workshop (22nd-23rd, September 2006)
2.3 DATA ANALYSIS

The analysis process included summarizing the key points on thoughts and ideas shared at each session following discussions as salient themes of these discussions begin to emerge. The next step was to analyze the contents of the points with the aim of looking for trends and patterns that reappear within either a single interview or among various interview groups. The key was to find the big ideas/issues and look for trends or ideas that cut across the entire discussion and that are relevant to the LMIS needs assessment.
3  LIVESTOCK MARKETING OPERATIONS: CHANNELS, TRADERS, PRODUCERS, PRICES AND LIVESTOCK FLOWS IN THE HIGHLANDS OF ETHIOPIA

3.1 NATURE OF LIVESTOCK SUPPLY AND TYPES OF MARKET

As in the case of crop production, livestock production in the Ethiopian Highlands is dominated by small-holder livestock keepers. It is mainly characterized by production of small holders production directed at self sustenance. Livestock are reared for reproduction, production, traction power, transportation, and means of saving and strategy of survival. The large majority of Ethiopian farmers do not produce for market but supply to the market either for food security or fulfillment of economic, social and legal obligations.

Livestock from the villages are normally trekked to the primary (collection) markets by their producers and sold to consumers or traders who move them to the larger markets.

Livestock markets in the highlands serve as a source and medium of livestock trade/ exchange. The places for livestock exchange can generally be divided into four types: (farm gate, primary market, secondary market and tertiary/terminal markets). The primary market serves as a collection ground for larger markets or a medium of farmers’ livestock exchange for reproduction. While secondary markets serve as a means of larger collection ground for export/ and supply of local bigger town consumers, the tertiary markets serve as supply of export markets or domestic meat producing industries and large butcheries.

In view of this categorization, the visited sample highland markets of Bati, Gondar, Adigudem, Bale Robe and Wolayta Sodo can largely be taken as secondary markets because these are more of collection places to supply other larger markets (to processing industries, export markets, large butcheries and consumers). Since the livestock markets like Awassa supply to the consumers of the town and the local meat processing industry, it can reasonably be categorized as a tertiary/terminal market. However, it must be understood that it is difficult to give clear demarcation on the categorization of these markets because they also play the role of collecting livestock from their immediate locality and exchanging for reproduction purposes with the local farmers.
3.1.1 Some Characteristics of Sampled Livestock Markets

The visited markets, which were typical of most of the markets in the region, lack basic infrastructure such as water, feeding troughs, shelter adequately partitioned for various animal kinds, offices for tax collectors (except Adigudem in Tigray) among others. The Awassa livestock market is about 2000-meters square, has poor drainage and wooden fence, somehow partitioned for cattle, shoats and equines. Wolayta Sodo livestock market has an area of one hectare, is reasonably fenced (wood) but located on very steep terrain. The Gondar/Azezo livestock markets are open markets with estimated areas of 1-2 hectares and extreme problems of sloppiness and water logging respectively (shoats are on the other hand usually marketed everywhere by the roadside). The Bati livestock market is reasonably fenced (wood) but located on a steep slope terrain. It is not also partitioned and does not seem to be conducive for standing livestock - particularly for extended periods of time.

In the visited five markets, it was observed that peak livestock were supplied to the market mainly during the month of September (27.5%) and the months of April (16.5%) and December (16.5%), periods which coincide with the new year festivities, increased demand for grain (for food security during the rainy season) and occurrence of weddings during these periods. Table 1 summarizes the various characteristics of the sample markets visited.
## Livestock Market Characterization

<table>
<thead>
<tr>
<th>No.</th>
<th>Characters</th>
<th>Awasa</th>
<th>Wolya Sode</th>
<th>Gonder</th>
<th>Adigudo</th>
<th>Bati</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Type of Market</td>
<td>Secondary/terminal</td>
<td>Secondary</td>
<td>Secondary</td>
<td>Secondary</td>
<td>Secondary</td>
</tr>
<tr>
<td></td>
<td>Available infrastructure</td>
<td>3 separate pens for cattle, sheep, and equines with an area of 2000 m².</td>
<td>Only fence in one type with an estimated area of 1 Ha.</td>
<td>Open field of 1 Ha at exterior town location for cattle and equines. Sheep and goats are sold everywhere in the town by the roadside. The same is true for Azezo.</td>
<td>Well-fenced with stone. Has estimated area of 2 Ha. Cattle, sheep, and equines are marketed. Has well-built office in the compound.</td>
<td>Well-fenced with wood, extremely slopy terrain, has estimated area of 3 Has. Sheep, cattle, and equines are marketed.</td>
</tr>
<tr>
<td>2</td>
<td>Market Days</td>
<td>Thursday and Monday</td>
<td>Friday for male cattle while Saturday is for sheep and cattle</td>
<td>Monday-Friday about 100 cattle. Major market is on Saturday with about 1000 cattle.</td>
<td>Only Saturday</td>
<td>Largest market day is Monday and it is for cattle, sheep, and camels. Smallest market day is Sunday and meant for sheep market.</td>
</tr>
<tr>
<td>3</td>
<td>Traded animals and volume of livestock</td>
<td>Cattle - 200, Sheep - 100, Equines - 50</td>
<td>Cattle - 200, Sheep - 200</td>
<td>Cattle, sheep, equines</td>
<td>Cattle - 500, sheep - 200, camels - 50</td>
<td>Cattle - 800, sheep - 1150, camels - 300</td>
</tr>
<tr>
<td>4</td>
<td>Index Animal</td>
<td>Different types of male matured cattle</td>
<td>Male cattle and sheep</td>
<td>Male matured cattle</td>
<td>Male Raya cattle and sheep</td>
<td>Mature male Afar breed cattle, and camels.</td>
</tr>
<tr>
<td>5</td>
<td>Supply and demand satisfaction</td>
<td>Supply is below demand because Melge Wondo Meat Processing demands a lot sharing the market.</td>
<td>Below because the local community is culturally heavy meat consumer</td>
<td>Supply is above the demand and transports to the Metema Export Market.</td>
<td>Supply is above demand</td>
<td>Volume of supply is less than the demand because it supplies to AA, local processing plant, Djibouti, Adigudo, Gender, and Mekele.</td>
</tr>
<tr>
<td>6</td>
<td>Peak livestock supply seasons</td>
<td>September, December, April</td>
<td>July, August, September, December</td>
<td>December, January, April, and September</td>
<td>April, May, June, and September</td>
<td>September, October and November. However the supply doesn’t reduce that big in the area for Kalu and Afar.</td>
</tr>
<tr>
<td>7</td>
<td>Dominant players in the market</td>
<td>Small traders</td>
<td>Private traders,</td>
<td>Trader association, brokers, producers, cooperatives, agents</td>
<td>Brokers, traders.</td>
<td>Traders and brokers. Brokers play mainly the role of interpreting.</td>
</tr>
<tr>
<td>8</td>
<td>Origin of livestock for the market</td>
<td>Wolayta, Arsi Negelle, Shahsemene and Arsi</td>
<td>Humbo, Boditi, Bele, Duna</td>
<td>Chiga, Yifag, Wegera, Debre Tabor</td>
<td>Raya, Waja, Kobo, Mohoni, Kukufu, Bati</td>
<td>Were Babu, Surrounding the Kalu/Peasant Association, Afar</td>
</tr>
<tr>
<td>9</td>
<td>Destination of livestock / outflow from the market</td>
<td>Mainly for local consumption and local processing plant</td>
<td>It is only seasonal outflow (July and August) to A.A.</td>
<td>To Metema, The Sudan</td>
<td>Mekete, Adigrat, Temben, Hawzen</td>
<td>Dese, Woldiya, Mekele, Addis Ababa, Gondar, Djibouti, Kombolcha.</td>
</tr>
<tr>
<td>10</td>
<td>Origin of Livestock Traders</td>
<td>Only from Awasa</td>
<td>Meki, Gonder, Gojam, Awasa AA, Traders are mainly from outside.</td>
<td>Gender, Debre Tabor, Gaynt</td>
<td>Mekete, Adigrat, and Hawzen</td>
<td>From the local area, Dese, Addis Ababa, Woldiya, Kombolcha.</td>
</tr>
<tr>
<td>11</td>
<td>Orientation of the market</td>
<td>Local consumption</td>
<td>Local consumption</td>
<td>Local consumption and export to The Sudan to the Sudan</td>
<td>Local consumption, but informal export is also reported</td>
<td>Local consumption, export to Djibouti, supply to processing plant and to central AAA market.</td>
</tr>
<tr>
<td>12</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Table 1: Characterization of Select Highland Livestock Markets**
3.2 LIVESTOCK TRADERS AND CHANNELS

Most of the livestock traders interviewed were adult men (except two women, one in Lante and another in Gondar). Most of these traders had low educational background with only a few having completed a high school education. The traders were usually from the surrounding localities with the language of communication in the primary and secondary markets principally being the local language. In larger markets like Dhera, Adama and Addis Ababa, the traders belonged to diverse ethnic backgrounds.

As is the case for most markets, the livestock traders belong to three strata: small, medium and large scale traders depending on the level of transactions they operated. The small traders are those who collect livestock from feeder markets and at farm-gates usually with a capacity of 2-5 cattle and or 5-10 shoats to sell in the primary markets. The medium livestock traders purchased between 10-20 livestock (a full truck/ shipment of shoats) from small traders and producers to supply to the secondary markets. The large scale livestock traders supplied processing factories, some terminal markets and export markets.

The role and degree of involvement of brokers in livestock marketing in the highland regions differs from place to place. In general their role is much more limited in comparison to the lowland regions. Brokers in places like Bale Robe and Bati play the role of facilitation while in places like Awassa, Gondar and Arba Minch they have a relatively more influential role in the marketing process. Such is the case when there are outside traders from distant areas intending to buy a substantial number of animals and are not very familiar with the local markets and culture. The role of the brokers in such cases is to assist and facilitate the outsider buyers to communicate better with the locals in order to more efficiently connect the sellers and the traders.

The assessment team did not come across any regulations or restrictions governing livestock trade and that may prevent any livestock trader from buying or selling from a specific location or type of livestock. The movement of animals is mostly dependent on the relative number of livestock, place of concentration of consumers, proximity and convenience to export markets, and the distance to processing facilities. Livestock traders are guided in their marketing operations by the profit margin they anticipate to get from a particular market.
4 CURRENT STATUS OF LIVESTOCK/AGRICULTURAL MARKET INFORMATION SYSTEMS IN THE HIGHLANDS OF ETHIOPIA

4.1 CURRENT STATUS OF LIVESTOCK MARKET INFORMATION SYSTEMS IN THE HIGHLANDS

Relevant and accurate livestock market information is an essential ingredient in the process of increasing the bargaining power of livestock producers in the highland areas as well as in other parts of the country and in creating a market transparency that allows each of the actors in the market to make an informed decision. Livestock in the highland regions of Ethiopia are sold through eyeballing between the seller (trader) and the buyer (producer). The role of brokers is very limited to facilitation and counseling for the traders external to a particular market place and traders who are not yet familiar with the local situation. Presently, traders through networking and better access to communication technology have an advantage over the livestock producers in obtaining market information.

The existing livestock market information systems in the highlands differ slightly among themselves in their level of development. Almost all of the Livestock Market Information Systems in the highland regions surveyed are currently funded and run through government agencies, except for the case of Disaster Prevention and Preparedness Bureaus (DPPBs) and Tigray regional state. DPPBs gets some limited financial support from the United Nations Children's Fund (UNICEF) to facilitate collection of market information in SNNPR for example while Tigray has an independent EU sponsored marketing agency, TAMPA.

It is essential to point out that most of the institutions interviewed during the study collect not only livestock market information but also a host of cereal and horticultural market information. One of the characteristics of the market monitoring programs in the highlands is the multitude of institutions involved in this activity with significant overlaps in resources and time. It was found out that at times three or more departments from the same bureau were collecting market data from the same markets in different formats. Livestock market information is usually collected by Agricultural Development Officers or Market Experts at the woreda level. The typical market monitor has an educational level varying from high school certificate to diploma and to a limited extent a university degree. These market monitors have other official responsibilities and duties at their places of work and in fact, market monitoring is not their
priority activity in most cases. Market monitoring is conducted during specific market days, which varies from location to location but happens to fall on weekends most instances. Given that the monitors are not paid any financial incentive or overtime to collect market data during weekend assignments, it is very common to find disruptions and irregularities in market data collection. At present, the weekend data collection activity places huge challenges in stability and regularity of market monitoring. This compounded by the fact that almost all of the regions reported a high turnover rate for the market monitors/staff, partly attributed to frequent restructuring within the institutions involved in livestock market monitoring program, places a huge challenge on regular livestock market data collection activity.

There is literally none or minimal use of modern information and communication technology in the process of collection and transmission of market information. The data is collected and recorded on hard copy data format sheets at the woreda then sent to the regions where it is summarized and eventually passed to the federal agencies—all in hardcopy format.

Users of market information were interviewed about access to, frequency and type of data, impacts, their interest and willingness to pay for regular and relevant livestock market information. The livestock market information providers, on the other hand, were interviewed about their awareness on existence of market information service, data collection, processing, analysis dissemination, challenges, and ways of improving the current LMIS. In addition to that, selected members of the community (elders/traders/farmers, etc.) were interviewed on how the informal (if any) livestock market information networks in their society function (practices, adequacy and flows in traditional setting, etc.). Finally, visits were made to some selected livestock markets to gather key characteristics and grasp a better understanding of the marketing system in each region. The results of the assessment study are presented by region below.

### 4.1.1 SNNP REGION

The key informants and focus groups in SNNPR included:
1. Disaster Prevention and Preparedness Bureau (DPPB), Awassa
2. Agricultural Marketing Agency, Awassa
3. Cooperative Department, Awassa
4. Livestock Resource and Animal Health Department, Awassa
5. Focus group of traders, Awassa livestock market
6. Agricultural Development Office, Gamogofa
7. Agricultural Development Office, Sodo
8. Agricultural Development Office, Arba Minch
9. Farmers focus group in Wolayta Sodo rural area
10. Traders in Wolayta Livestock Market
11. Livestock traders, Lante market near Arba Minch
The survey of this region revealed that most of the institutions in the region involved in market information services collect not only livestock market information but also information about other agricultural commodities such as crops and grain in most of the 104 districts in the region. The type of information collected is mostly prices and volumes for the case of livestock. The Bureau of Agriculture and Rural Development is the most important institution among the market information providers in the region. However, there are significant overlaps, and duplication of efforts and resources among the departments within the bureau in the collection of market data. Moreover, there is very little effort to disseminate this information to the public sector and most of the information collected was reported to be used for internal policy decision making. As such the information is collected at the district level, collated at the zonal level and submitted to the respective regional offices which in turn pass it on to the respective offices at the federal level. It was not clear during the discussions in the regions how the information is used at the federal level or at any level for that matter.

a) Data Collection: Type, Frequency and Scope

The key institutions that are involved in collection of agricultural market information in general and livestock market information in particular include:

**Bureau of Agriculture and Rural Development:** There are two departments within the bureau that are collecting livestock market information. These include: Cooperatives Promotion and Agricultural Input Department and Livestock Resources and Animal Health Department. Currently both of these departments are monitoring all the markets in all of the 104 woredas in the region.

- **Livestock Resources and Animal Health Department** is one of the key institutions involved in livestock market information. This department is collecting market data from all the woredas in the region. Their rationale for data collection was reported as “to provide producers access to market information in order to increase their bargaining power”. The livestock market data is collected weekly at the woreda level but reported to the regional office on a monthly basis. The department reported that there are plans to pick a select number of representative markets from each zone for regular monitoring instead of all the markets due to limitations in capacity and funding. The department is also trying to enter into partnership with municipalities to get them involved in livestock market data collection since they already have staff deployed in all of the market to collect tax.

- **Cooperatives Promotion and Agricultural Input Department** is a newly created department. Formerly known as the Cooperatives Bureau it has been reconstituted as a department within the Bureau of Agriculture and Rural Development. The department collects some limited market data in
some woredas with the objective of helping cooperatives/producers in increasing their bargaining power. The livestock market data is collected on a monthly basis.

**Agricultural Market Agency**
The Agricultural Marketing Agency in the SNNPR is a relatively new institution. It used to be Agricultural Export Promotion Agency and was reconstituted in 2005 to become Agricultural Marketing Agency. Most of the activities of the agency have so far focused on organizing office space and realigning staff in the zones and woredas to its new structure and objectives. It is expected to take the lead in the overall agricultural marketing development in the region including infrastructure development, information, promotion and research.

**Disaster Prevention and Preparedness Bureau**
The Disaster Prevention and Preparedness Bureau (DPPB) collects agricultural and livestock market data. It seems to be one of the most efficient institutions in terms of data regularity and quality. This may be partly due to the fact that DPPB draws some funding support from UNICEF to support activities such as market monitors transportation and allowances. The Disaster Prevention and Preparedness Bureau is currently focusing on collecting agricultural market data from 70 key markets in the region. The data is collected in the woreda markets on a weekly basis and submitted to the region on a monthly basis. The market information is principally targeted towards early warning applications. Occasionally, during times of drought and other emergencies, specific markets are monitored by collecting agricultural market information on a more frequent basis to track terms of trade.

**Small Trade and Industry Bureau**
The office of trade and industry is also collecting agricultural market data focusing mostly on cereals and industrial consumer goods in 12 markets in the region.

**b) Data Analysis**

There is hardly any analysis undertaken on the livestock market data by any of the institutions in the SNNPR except for the case of DPPB. The Federal Disaster Prevention and Preparedness Bureau does have software to analyze terms of trade. The DPPB offices are also better equipped in terms of computers and software. Otherwise the other agencies collect livestock market data and submit the same in hard copy formats to the region where the data from the various woredas is summarized and compiled before being forwarded to the respective federal agencies.
c) Dissemination of Livestock Market Information
There is hardly any dissemination of livestock market information done by any of the above mentioned institutions involved in livestock market information. The Cooperative Promotion Department is currently through Radio Fana and FM Sidama radio stations (in Sidama and Amharic Languages) disseminating coffee price information.
It is worth noting that there are many different languages in the SNNPR something that can pose a challenge in trying to come up with a common language to disseminate livestock market (or any other) information across the entire region.

d) Key Findings and Challenges
- There is significant overlap and duplicity in the activities of the livestock market information sector among organizations involved in LMIS at every level of the government in SNNPR
- Many organizations collect market data without a clear understanding of the purpose of collection
- Livestock market monitoring is not a priority activity for many of the organizations
- Delays in data collection seem to be the norm rather than the exception
- There are very few if any organization collecting only livestock market information. Most often they collect both cereal and livestock market information.
- The Agency for Agricultural Marketing was recently established with the objective of creating an efficient agricultural marketing system through development of a marketing strategy for the region, provision of technical support to stakeholders and linking producers to markets.
- Producers are interested in getting much more information other than information on livestock markets only; they are interested also in information on livestock diseases, fertilizer prices etc.
- Traders indicated their willingness to pay for regular, accurate and timely livestock market information.
- The language of dissemination of market information might present a challenge in SNNPR given the diversity of languages spoken in the region.
- Expensive internet connection fees were mentioned as an impediment to the timely delivery and dissemination of livestock market information
- There seems to be some lack of trust that needs to be overcome with regard to the formal market information system. This was gathered from the reaction of some elders who indicated they had experienced unreliability in coffee prices information broadcast which in most cases did not match real prices on the ground.
- In all cases, unless donor funded, MIS activities are being seen as tangential activity with insufficient budget allocations which struggle to deliver reliable information.
Minimum use of Information and Communication Technologies was observed both for data collection and transmission in most of SNNPR woredas. Some of the most important markets in this region included Awassa, Malge Wondo, Arba Minch and Boditi.

4.1.2 AMHARA REGION

Discussions and interviews were conducted with producer focus groups and key informants representing various regional government offices, traders and producer associations and non-governmental organizations in the Amhara region. These included:

1. East Gojjam Agriculture and Natural Resource Office - Debre Markos.
2. Cooperative Promotion Agency - Agriculture and Natural Resource Bureau - Bahir Dar
3. Fasil Livestock Fattening and Exporting Cooperative - Dembia woreda, Gondar zone
4. A livestock exporter in Gondar.
6. Integrated Livestock Development Project (an NGO) - Gondar.
8. Fattening farm owner and a small livestock trader - Debre Markos.

As was the case in other regions, there are significant overlaps among the institutions collecting marketing information in Amhara. There is very little effort to disseminate information collected back to users. There is a significant amount of trade between the Amhara region of Ethiopia and Sudan through the border town of Metema. Consequently, there were many small scale fattening programs to supply that market both through cooperatives and individual farmers. There is a tremendous need for market information by these small fattening programs both about the surrounding local markets (where they source the animals for fattening) and about the export cross-border market (where they sell the final fattened product).

a) Data Collection: Type, Frequency and Geographic Scope

The key institutions that are involved in agricultural market information data collection include:

Agriculture and Rural Development Bureau

There does not seem to be clear guidelines for the livestock market monitoring program in the region at present and if such guidelines exist, it didn’t seem to have been communicated to some of zonal and woreda offices visited. The formal livestock market information activity of the Bureau does not seem to have been very active for the past two years, despite a strong interest to get it back on track. A business process reengineering (BPR) was going on at the time.
of the study and there were proposals on the table to create a Regional Agricultural Marketing and Information Unit (RAMIU) within the bureau. In spite of all of this, there are still some woredas Agricultural and Rural Development Offices of the region collecting market information. The East Gojam zonal office of the bureau is collecting data from 14 markets. The data is collected biweekly at the woreda level and transmitted to the zone on a monthly basis. The zone in turn compiles this information and sends it to the Regional Agricultural and Rural Development Bureau on a quarterly basis. The rationale provided for the quarterly reporting to the region was that livestock (and other) prices do not change much over that time frame. It is the opinion of the study team that the lack of change may have to do with either a lack of adequate training for the monitors or the poor design of the current system in which various livestock categories and grades are lumped together. From the experience of the Pilot LMIS (LINKS), the livestock have to be categorized into homogenous units of breed, age/sex, and grade to be able to detect distinct differentiation in prices.

Disaster Prevention and Preparedness Bureau
The Disaster Prevention and Preparedness Bureau (DPPB) in some of the zones visited is relying on the data collected by the Agriculture and Rural Development Bureau. The DPPB compiles this information, conducts quality checking and performs some limited analysis before submitting it to the Regional Drought Prevention and Preparedness Agency. It was not possible to ascertain whether this was the case for all of the Disaster Prevention and Preparedness Offices throughout the region.

Cooperative Promotion Department
The Cooperative Promotion Department (CPD) is currently monitoring all of the 106 woreda capital markets in the region. The data is mostly intended for cooperatives to aid them in decision making regarding when and where to sell their animals. However, this data is inadequate at best and lacks consistency.

Bureau of Trade and Industry
The Bureau of Trade and Industry collects weekly agricultural commodity market prices including meat. The Bureau focuses on 12 key markets and the information generated is broadcast through radio the same week. The focus however is on commodity items and industrial products such as sugar, tea etc.

Central Statistical Authority
The Central Statistics Authority (CSA) collects intermittent sample data on livestock including market information on key animal types. The information on livestock prices is subsequently simply published on CSA quarterly bulletins.

Integrated Livestock Development Project
The Integrated Livestock Development Project (ILDP) is a donor funded project based in Gondar, that works on various livestock issues including livestock
market information generation and dissemination. The project previously collected livestock market data with the objective of providing market information to livestock cooperatives and associations with whom they worked. Presently, the project focuses on seven cooperatives and provides them with market information mainly about Metema cross border market. The project leaders felt that the implementation and running of a formal livestock market information system was a tedious process that was better left to their cooperative client. Most importantly, they had issues with the amount of time it took for the data to be collected, to the time it was analyzed and finally made available to the intended target beneficiaries by which time the information had lost much of its value. Consequently, the project opted for providing the market information to a few of the cooperatives by telephone.

**Agricultural and Rural Development Office-Bati in Collaboration with the Livestock Information Network and Knowledge System (LINKS)**

The Agricultural and Rural Development Office at Bati Zone in the Amhara Region is collecting livestock market data in collaboration with the Livestock Information Network and Knowledge System (LINKS) project of the USAID funded GL-CRSP program. Information goes into a central web based database system and disseminated via the internet. The system seems to work very well and is very superior to what has been observed in the rest of the regions representing a well thought-out scientific methodology and process, from collection, transmission, analysis and storage to dissemination of livestock market information. The only weakness seemed to lie with dissemination which was largely done via the internet and email which are media not readily accessible to majority of the population. The projects however indicated that they were in the process of exploring various avenues for dissemination of this information by working with local partners and institutions to get the information out through radios, bulletin boards, and community information centers among others.

**b) Data Analysis, Transmission and Dissemination**

There are no advanced analyses done by any of the institutions involved in livestock market information apart from the Bati market whose data analysis is done automatically via LINKS project web portal. The data collected by Bati Agriculture and Rural Development Office is submitted through the LINKS website portal with automated built-in analysis which allows the users to generate both tables and graphs. Most of the other markets only calculate averages either using hand-held calculators or Microsoft Excel. An excellent opportunity exists for the dissemination of livestock market information in Amhara region via radio because the majority of the people in the region speak Amharic. Currently, there are very few regular dissemination efforts of the livestock market information in the region. Information generated from a limited number of markets by the Bureau of Trade and Industry (BoTI) is broadcast through several Amharic radio programs including Radio Fana and FM Bahir Dar. It was also reported that some investors and
traders contact the BoTI office from time to time to request livestock market information. Development agents also occasionally disseminate livestock market data through direct contacts with the producers and traders.

c) Information Users

Most of the livestock market information that is collected by the various government agencies and NGOs is not widely available to the users. Traders and small producers have expressed their lack of trust in some of the existing formal livestock market information system. The majority of the available livestock market information is more often than not outdated and is not commercially useful, they said. For their needs to be satisfied, they indicated that the market information needs to be relevant, regular, reliable and on a near real-time basis. In fact, users, most notably the traders and trader/farmer associations, indicated that they would even be willing to pay for such information since they are currently still spending resources to telephone and send scouts to distant markets to gather market information. It became apparent that the current livestock market information is of little commercial value (and of limited coverage in terms of markets monitored). There was a lot of interest on information not only about the local markets but also from distant and terminal markets including Addis Ababa and other major markets in the country.

d) Key Findings and Challenges

- Information providers in Amhara are fragmented with different institutions collecting livestock market information without adequate coordination and with poor dissemination mechanisms.
- Information is available to the public in some areas only upon request and it is mainly the traders that make use of it.
- It was apparent that the government market information data collectors did not have an appreciation for the reasons why they were collecting this information (no one had taken the responsibility to explain this to them) and most were undertaking this activity as a routine responsibility, - which in many cases brought about a defeatist mind-set among these monitors and for them therefore, it did not matter whichever way whether they collected this information or not.
- There is one dominant language in the Amhara region (Amharic) which could facilitate extensive dissemination efforts via radio.
- The institutions involved in livestock market information in some of the zones in the region have realized that duplication of efforts is going on and began coordinating data collection activities among them by letting one organization handle the market monitoring. Such is the case between the Zonal Agricultural Office and the DPPO at Debre Markos where the zonal agriculture office collects livestock market data and other early warning information in collaboration with (and sometime on behalf of) the DPPO.
- Livestock market information is predominantly disseminated via informal channels. However, it is being broadcast on a weekly basis based on
information obtained by Handcraft and Small Enterprise Development Department of the BoTI for a few key livestock markets.

- Monitors are trained on data collection and reporting formats at the regional level. Given the high turnover rate of these monitors, and the complexity of arranging new trainings at the regional headquarters every few months, most new monitors often have to start collecting data without adequate training.
- Information users have shown little interest for the current formal livestock market information due to the fact that the information is mostly outdated with minimal commercial value and limited geographic scope.
- The cross border market between Ethiopia and Sudan at Metema is one of the most vibrant and important markets for livestock export in the Amhara Region. Livestock market information from Metema is currently on high demand. Cooperatives, farmer/trader associations and traders have developed a network to receive market information through agents/friends mostly via cell-phones. This group of individuals indicated they were ready to pay for accurate, reliable and timely market information.
- The emerging small scale fattening cooperatives and associations expressed a need for information also on diseases, livestock medicine and fodder prices along with livestock market information.
- Some of the most important markets in the region include Bati, Dejen, Debre Markos, Gondar and Fogera.

4.1.3 TIGRAY REGION

The key stakeholders - both users and providers of information - interviewed in Tigray region comprised the following:

- Marketing Department of the Tigray Rural and Agricultural Development Bureau (TRADB), Mekele.
- Tigray Agricultural Marketing Promotion Agency (TAMPA) in Mekele,
- Trade Industry and Transport Bureau in Mekele.

Tigray region demonstrated one of the most organized market information systems in comparison to the experiences of the rest of the country. The Tigray Rural and Agricultural Development Bureau’s Marketing Department (TRADB) and Tigray Agricultural Marketing Promotion Agency (TAMPA) were the key agencies spearheading collection, documentation, analysis and dissemination of fundamental market data and market information. TRADB is responsible for the collection of market information while TAMPA enters this information into a database, analyses it and disseminates this information through a bi-weekly newsletter and also forwards the same to the local radio station “dimsi-woyane”. The two agencies together with several other related institutions had teamed up and formed a steering committee that was responsible and leading
the market information activities in the region. The initiative is in its pilot phase of development and funded in part by the European Union (EU) with TAMPA as the lead agency. The TAMPA led market information system is run efficiently. The current thrust of market information system was principally on staple cereal products and livestock market information but has not yet been incorporated into the system. While resources have been made available for the market information system through the EU, there is no guarantee that such resources will always be available and attention is being paid to ensuring sustainability of the service through both cost reduction, e.g. through integration of TRADB staff in data collection activities and through lobbying the radio stations to drop charging for broadcast of market information and consider the service a public one.

a) Data Collection: Type, Frequency and Geographic Scope

**Market Information Project Steering Committee**

In Tigray, a Market Information Project Steering Committee led by TAMPA is established for the coordination and implementation of the project. The committee consists of members from each of the following stakeholder organizations/ agencies:

a) Tigray Agricultural Marketing Promotion Agency (TAMPA)
b) Tigray Rural and Agricultural Development Bureau’s Marketing Department
c) *Dimsi Woyane* Radio station
d) Trade Industry and Transport Bureau
e) Disaster Prevention and Preparedness Bureau (DPPB)
f) Cooperative Department
g) Mekelle University
h) Central Statistical Authority (CSA)

TAMPA took a lead in organizing this committee upon setting up the market information service in order to achieve maximum institutional level involvement and participatory approach. TAMPA’s strategy in organizing this committee was to involve all stakeholders and entrench ownership and not replace/replicate any of the institutions/activities respectively. The involvement of these institutions also ensures representation to the grassroots’ level where these institutions are represented. This team represents organizations that are either currently in some way collecting market information or may have a vested interest in the activity. Among the organizations, the Bureau of Trade Industry and Transport collects a wide range of information on a monthly basis but mostly concentrates on industrial products. There is no information on livestock market information; but there is coverage of meat prices and other products such as hides and skins, eggs etc. Disaster Prevention and Preparedness Bureau (DPPB) collects food security related market information on a regular basis. This information however, is hardly targeted towards producers or traders. The radio stations are
incorporated in the committee to provide them with an appreciation of their role in disseminating the information to a larger populace and hopefully make them realize that this needs to be a public service for which they need not charge. Mekelle University and Central Statistical Authority (CSA) have a vested interest in using the market information in a number of ways including research, forecasts, etc.

The team meets monthly on a regular basis and if required, at the request of TAMPA. The committee provides advice and recommendations for execution of the project. Within the framework of the project, it provides a forum for discussion and making recommendations on common market information related issues.

Marketing Department of the Tigray Rural and Agricultural Development Bureau (TRADB) and Tigray Agricultural Marketing Promotion Agency (TAMPA)

The Marketing Department of the TRADB collected for 34 Tigray districts markets for an extended period of time on a wide range of market information. The data collected included information about livestock characteristics, prices and supply statistics. However, the quality, reliability and consistency of collection of this information as in most other regions left a lot to be desired while very little of this information collected was disseminated in any useful form. With the establishment of TAMPA the data collection was trimmed to 10 centralized and representative markets. With the concentration of the market data collection activities in these few markets the quality of information substantially improved. Data collection is now still done by the same officers from TRADB for the selected 10 markets. The monitors have been trained on standardized procedure for market data collection. As a motivation, they are also being paid a “top-up” cash incentive by TAMPA above of their salaries for collecting this market information. Market data is collected and then transmitted the following day to TAMPA offices. The system seems to have paid off and there is now reliable, regular and consistent information collection from these 10 markets.

Market information including commodity market prices, crop conditions and transport costs is now being collected using a modified version of the form originally used by the TRADB. The data is collected weekly by the district market information officers and sent out once a week to TAMPA offices in Mekelle using a combination fax and/or hard-copy hand delivery methods. In addition to the standard measures of prices and volumes for key grains and cereal products, other information collected include weekly commodity prices of industrial products. Unfortunately, livestock market information is currently not included in the system. The coordinator of the market information system project attributed this lack of livestock market information to their institution’s inability to arrive at a standardized format and means of grading animals across the 10 markets they were monitoring. The lack of livestock
market information is a major gap to an otherwise reasonably well organized market information system.

TAMPA is responsible for receiving, documenting and processing the market information from the field sites. Data cleaning and simple analysis, for example, of comparison and contrast of data across two weeks is performed at the TAMPA offices before the information relayed for dissemination. The FAO MSAccess-based version of the FAO-AgriMarket software for Market Information Services system is used to store and provide basic analysis of this data. TAMPA has adequate computer and technical capacity to undertake this activity and also has access to the internet via a broadband internet access. Dissemination is done via radio and other means of communication such as the bi-weekly newsletter and principally targets a wide spectrum of clients ranging from producers/farmers, traders, NGOS, planning and policy officers. The newsletter targets policy makers and government and non-governmental institutions while the most consumer/farmer-relevant market information is provided by a local radio station, “dimsi-woyane” and Radio Fana both of which report market information in the local Tigrinya language every week throughout the region. The most important target users of market information are cooperatives (numbering almost 300) and farmers’ unions (about 20 of them). This was a case clearly acknowledged at the design phase of the TAMPA project. Farmers tend to use local price broadcasts as a check on the prices they receive and, more importantly, as an aid to negotiation with traders on the following day. A small number of farmers and commercial small-scale traders are benefiting from these broadcasts. TAMPA has also established a listening group with a small number of farmers who listen to the price broadcasts on a regular basis and provide feedback on the service.

The reporting covers prices of a list of a significant number of products which the radio slot reports within a window of limited time span that is inadequate to report all the information desired by TAMPA. Since TAMPA has to pay for broadcast air-time, the content of broadcast information is under continuous review to attempt to achieve the most optimum combination of content that fits within the time slot. TAMPA is currently working with the radios stations, which are part of a steering committee on market information system, to find ways to sponsor the market information broadcast program.

b) Challenges
Although the model adopted by the TAMPA seems far superior to the rest of the market information systems in other regions of Ethiopia, the initiative suffers from some common problems. First of which there is no clear and reliable means of transmitting information from the data collectors to TAMPA in Mekelle. While some market officers have access to faxes and fax the market information to the headquarters with minimal delay, some of the monitors still have to find ways to physically deliver the hard-copy data sheets (by and large
using public transport) to TAMPA office or a central location in Mekelle (restaurant) from where TAMPA picks it up. This system is fraught with uncertainties ranging from delays to losses of the paper copies somewhere between the location of origin and the destination. Secondly, TAMPA and TRADB are currently not collecting livestock market information as they do not have the trained monitors for this activity. They have suffered from a lack of standardization in collecting animal information for different breeds, grades, classes etc. Furthermore, they expressed numerous obstacles in attempting to impart upon the monitors uniform understanding for concepts (e.g. local measurement) and standard expressions (e.g., red teff). Currently, the system’s coverage of the region is limited to only ten markets; meanwhile the opportunity to develop a reliable and timely market data transmission is constrained by the fact that different markets have different ICT capacities and furthermore, the radio stations do not currently consider the broadcasting of livestock market information as a public service. While not fully covered by sponsorship, the radios are charging for the dissemination service at prevailing expensive commercial market rates. Finally, the programme seemed to result from the individual initiative and enthusiasm of the TAMPA managers and donor support and can therefore not be considered to be fully institutionalized yet in any way within the government.

Nevertheless, an important positive aspect of the TAMPA market information service is that it provides timely reliable weekly market information for the products it collects (even though this lacks information on livestock). In fact, it was reported that the market officers have inculcated a sense of ownership and responsibility that whenever their respective markets fail to make it to radio broadcasts in any one week due to negligence on their parts, there exists social pressure to feel responsible for their actions. The official steps to improve market information system in Tigray spearheaded by the initiatives of TAMPA are commendable and should provide pioneering approach to other parts of the country.

c) Key issues:
- In Tigray region, cooperatives (approx. 300) and unions (approx. 20) are currently the most significant users of the market information system and provide a large grassroots’ client base which could play a critical role both in facilitation of market information collection and dissemination.
- Agriculture Market Information Steering Committee consisting of stakeholders in the market information sector is a unique praiseworthy effort that introduces participatory approach in the development of a market information system that can potentially achieve maximum levels of institutional level involvement and entrench ownership.
- TAMPA currently coordinates a very organized and successful agricultural market information system. The caveat is that the system lacks livestock market information. Nevertheless, other regions can borrow a leaf and endeavor to replicate the approach by developing the service provided by
TAMPA. This is not to say that regions wishing to establish such a service should use it as wholesome model but they can consider modifying its components to fit with their specific needs.

- During initiation phases in establishing the TAMPA-led market information system considerable research was conducted into the operations of the marketing system and into the needs of potential market information users. As a result of this research a service has been developed which places emphasis on reaching the farmers/producers at the grassroots’ levels. As a consequence, there is evidence farmers are tuning in to listen to the market information broadcasts on a regular basis and greatly appreciate them (pers. comm.) and have even embraced the formation of listening groups among them in six districts where these have been established by TAMPA. Prior research like the one carried out here need to precede implementation of any market information system.

- The lack of second tier administrative unit (zone) in Tigray Region seems to have removed one level of bureaucracy. Subsequently the common problems of delay in transmitting information from the district level to the regional headquarters have been curtailed.

- The key markets for Livestock in Tigray reported are Hawzen, Mohoni and Adigudem livestock markets

4.1.4 OROMIYA REGION

The regional institutions and individuals consulted and involved in Livestock Market Information activities in Oromiya region included the following:

- Zonal administration offices of Arsi and Bale - (Robe and Assella towns), respectively
- Agriculture Development Office- Bale town
- District Disaster Prevention and Preparedness Office- Bale Robe
- Bureau of Trade and Industry -Bale Robe
- Livestock traders- Robe
- A community elder and religious leader- Bale Robe
- A former Sinana Livestock Market Information Expert- Bale Robe
- Zonal Agriculture Office -Asella
- Asella woreda current and former Livestock Market Information Experts
- Former-livestock traders in Gonde Village of Asella woreda

Similar to those findings in Amhara and SNNPR, Oromiya region also revealed a situation where livestock market information is being collected by Disaster Prevention and Preparedness Bureau, Bureau of Agriculture and Rural Development, Bureau of Trade and Industry and Bureau of Cooperative Promotion Agency. Again all the above bureaus collected the information using
different formats specifically designed to meet their needs and rarely focused on trade/producers.

The major sources of livestock in Asella district are Aella and Golja livestock markets while in Robe district, Ali, Gasera, Melyou, Bidre, Haro and Oda livestock markets (most of these are primary markets with inadequate market infrastructure; watering points, feed lots, paddocks etc). These markets serve Shashemene, Dera and Adama secondary market. They are also extremely important to export abattoirs in and around Adama, Debre-zeit, Mojo and Addis Ababa.

There was clear indication that the formal market information collected on price, volume and animal type etc. from these markets did not reach traders and or abattoirs that sourced livestock from these markets. Most of the market information sources were purely agents (middlemen/women) and relatives that mostly get prices from second-hand/informal sources. Formal information collected by government institution is mostly stored in offices in hardcopies.

a) Data Collection: Type, Frequency and Geographic Scope
Apart from the Disaster Prevention and Preparedness Bureau, Bureau Agriculture and Rural Development, Bureau of Trade and Industry and Bureau of Cooperative Promotion Agency, not many other institutions in the Oromiya region are involved in livestock market data collection. An exception is the Oromiya pastoral development commission that had a strong implementation role in the region of a former LMIS project executed by federal government’s Department of Livestock, Fish and Marketing. The project was mainly operating in pastoral areas of Oromyia region specifically Borena zone, Addis Ababa, and Wenago in SNNPR. In the highland region of the Oromiya, most institutions focus on the collection of grain prices on a weekly basis, a similar frequency to that of the former LMIS project. The region’s DPPB and DPPO offices principally collect livestock information for the purpose of food security and early warning activities.

The frequency of data collection in the region differs from bureau to bureau and office to office. For instance Bale Agricultural Development Office (BADO) collects market data on a weekly basis while Asella Agriculture Development Office (TADO) collects market information twice a week. Bale and Asella districts are approximately 225 kilometers apart.

The frequency of staff turnover and time allotted for data collection also influences the frequency of market data collection. For instance, staff turnover in Bale district was higher than Asella district due to the fact that Bale staff took market data collection as additional task on top of their main duties while Asella market monitors were assigned to collect market data on a full time basis.
b) Data Analysis
There is hardly any analysis done on livestock market data by any institutions in the Oromiya region. Carbon copies of the livestock market data collected from the districts are compiled and submitted in a hard copy to the regional headquarters where the data from the various districts are compiled and summarized before it is sent to the respective federal agencies. Simple calculators are used in case there is a need to perform simple arithmetic. No further analyses are conducted on the data at any level of the regional government agencies.

c) Dissemination of Livestock Market Information
Similarly, and like the other regions visited, livestock market information is rarely disseminated by any of the above mentioned institutions that are involved with livestock market information activities except DPPB that uses the information for food security interventions and making food aid appeals during bad years. The Federal Disaster Prevention and Preparedness does have software to analyze terms of trade among other food security related indices. The DPPB offices are also better equipped in terms of computers and software than any of the other offices in the region.
If at all there is any market information dissemination (e.g. cereal and commodities), the language in use is Afaan Oromo which is the dominant language of the region (slight differences in dialect exists depending on locality/dominant ethnic groups). Afaan Oromo is also broadcast in all the existing national and private radio stations in the country.

d) Key Findings and Challenges
- There is significant overlap and duplication of activities among organizations involved in LMIS at every level of the government in Oromiya region
- Many organizations collect data without a purposeful goal and mostly just as a routine activity; the information thence usually ends up being stored in files.
- Livestock market monitoring is not a priority activity for many of the organizations
- Delays in data collection and transmission seem to be the norm rather than the exception
- There is hardly any organization collecting just livestock market information. Most frequently they also collect cereal market information among others.
- Agricultural Marketing Promotion Agency was recently established with the objective of creating an efficient agricultural marketing system in the region. They are currently working on developing a marketing strategy, providing technical support to stakeholders and linking producers to markets in the region.
• Producers are interested in getting more information than just about livestock markets; they need information also on livestock diseases, fertilizer price etc.
• Price decisions are made based on eyeballing and making physical judgment of the animal body condition and transactions done through negotiation between the buyers and sellers. The role of middlemen is limited to consensus building and translation between the buyers and sellers and only when invited by the two transacting parties.
• Traders indicated their willingness to pay for regular, accurate and timely (preferably weekly basis) livestock market information.
• Afaan Oromo is the most dominant language spoken in the region. This point’s to a potential of ease in radio dissemination.
• Market information is disseminated to NGOs, fatteners, investors, livestock traders and government institutions on request. Due to the increasing number of livestock sector investment, regional agricultural offices reported a growing interest in livestock market information.
• Inadequate and expensive internet connection fees were mentioned as impediments to the timely delivery and dissemination of livestock market information.
• In all cases, unless donor funded, MIS activities were undertaken as a secondary activity with insufficient budget allocations. Apart from DPPB, all current market data collection activities in Oromiya region are purely funded by the regional government.
• Mobile phone coverage covers all major zonal headquarters of Oromiya and some of the traders interviewed during the assessment indicated that mobile phone service has assisted them in acquiring market information much more rapidly, and in making informed decisions thereby according them a decent living.
• There was very minimal use of information and communication technology for either data collection or dissemination in most of the Oromiya woredas.
• The key markets for livestock in Oromiya are Robe, Dheera, Qore, Adama, Addis Ababa and Yabello.

4.2 INFORMAL LIVESTOCK MARKET INFORMATION SYSTEMS
From the foregoing, it appears that there exists a paucity of formal market information systems and modes of transmission of market information in the highlands. Informal network among farmers and traders provides enormous amounts of information to an array of contacts and provide an alternative system in dissemination efforts of market information. Through this informal network or system of information sharing, farmers and traders and others contact each other directly to gather information needed to manage their marketing decisions. Although informal, this mode is relatively sophisticated and frequently used by farmers and traders. Often these consultations with
other actors lead to successful transmission of information. It could not conclusively be derived from the study interviews alone whether the informal price discovery mechanisms adequately addressed users’ need. Half of the interviewees indicated the information was inadequate because of subjectivity of judgment and differences in the understanding of individuals while the other half intimated that the information was adequate for their uses because it was readily available, given there were no alternatives.

The major findings of this study were as follows:

1. The communication between farmers is both frequent and relatively spontaneous and sincere. The information is, however, mostly unreliable, non-standardized and dated, lacking historical memory among other weaknesses. Furthermore, the information is generally limited to a single or very small number of markets. Visiting far away markets for price discovery involves significant costs and finally rural farmers, traders, and consumers cannot access information in more sophisticated ways such as using telephony, contributing to unequal and inequitable distribution of information.

2. The principal mode of this communication is by direct word-of-mouth contact between the actors; farmers vs farmers and traders vs traders, but newer technologies like radio are significant secondary sources of information in some areas.

3. Individuals devoted substantial amount of time responding to others requests for information.

4. Community affinity, familial relationships and shared community activities formed the key factors for most farmers in choosing whom to contact for market information. Examples are community activities such as: *idirs*, funerals, *dabo, tazia* (evening stays to condole the deceased), *borde/tela/arake/tej* drinking activities/bars, weddings, *christina*, religious holidays gathering and praying visits, *hora* (relatively long grazing stay area), collective *chat* chewing, market visits, and marriage visits are among the many activities.

### 4.2.1 Policy implications

As the foregoing indicates, the network of farmers is a significant resource for the community, particularly to the extent that it facilitates the diffusion of new ideas. The informal network among most farmers appears to be a critical element in the price discovery process, which may be further enhanced as follows:

- **Acknowledge and encourage the network of communication among farmers.** While this network probably cannot replace more formal channels of communication, it is nonetheless a key component of the dissemination process that should complement the latter.
- **Provide resources to key organizations providing formal information to provide entry into this informal network to support their dissemination**
activities. Supporting this network could prove most beneficial to the community and government marketing agencies alike.

- Choose areas for pilot market information systems and dissemination demonstration projects on the basis of a communities’ prominence in the informal communication network.
- Continue efforts to make formal and informal methods work synergistically. Survey results suggest that the community information centers and bulletin boards could play a significant role in enhancing the community communication network.

While this study was just a rapid rural appraisal, results indicate that a lack of alternative formal means of price discovery/dissemination indicates that many farmers had very little information so they resort to the only available source of information--the informal means. Quoting a farmer interviewed at Adigudem market in Tigray who posited “If informal LMI had been adequate, I couldn’t have come for the eighth time to the market to buy a heifer - and even today, I didn’t get what I wanted”, one can conclude that the informal market information system is inadequate for this farmer’s needs.

Access to information varied across traders in most markets visited even though in all regions visited they had much better information than farmers/producers and are thereby in a stronger negotiating position. They gathered this information via a trader to trader network, based on mutual trust and by personal visits to markets and also largely through telephone communication. Traders who gathered market information through telephone calls or personal market visits however kept that information to themselves, or within their small trading network, since sharing the information would have allowed others to take advantage of (and thereby reduce or eliminate) profit opportunities of the trader.

Finally, it may be useful to conduct studies of the relationship between the formal means of dissemination and the informal market information network and see how the two would benefit from each other.
5 CURRENT NEEDS FOR LIVESTOCK MARKET INFORMATION SYSTEMS IN THE HIGHLANDS OF ETHIOPIA

This section considers some of the unique livestock market information data needs and priorities for the various institutions and actors in the highlands of Ethiopia. The livestock market information needs of producers, traders, as well as early warning and policy experts are presented here.

5.1 POLICY INFORMATION NEEDS

Public sector officials and policy analysts (including academics) have the greatest demand for analytical content for livestock market information. Timely, regular and reliable livestock market information can provide an organizational, administrative, and informational foundation upon which to build a broader system of market research. A MIS provides a means of facilitating informed policy decision making and enhancing the livelihoods of livestock producers and market agents.

Most of the public sector officials interviewed indicated that they primarily require reliable, timely retrospective (quarterly and annually) information on livestock market prices, meat prices and supply conditions.

In Ethiopia, where government is actively involved in famine early warning and relief, it also has need for the kind of timely retrospective information and price forecasts information.

5.2 FARMERS AND PRODUCERS INFORMATION NEEDS

It is well known that when market information on prices and supplies of livestock and objective standards for selling and buying animals are not available, the purchase price of an animal will reflect not only the bargaining skills of both buyer and seller but also the buyer’s preference for the characteristics of the animal.

Most farmers frequently arrive at the market without a firm idea of the price that they will receive in that market, or prices they might receive in other markets. They would mostly gather this information as they were traveling to (and usually only for) the local market from other farmers/people who had already been to the market for that day and will along the way obtain the most current information about prices. This implies that irrespective of what the
prices were at the market these farmers went to the market anyway and did not make judgment on whether to go to the market based on advance intelligence that would have offered the most benefit/profit. At the same time few other farmers reported that they gathered market intelligence a day or several days before-hand from their neighbors who had been to the markets before venturing into the marketplace. They got to know from them the current situation at the market including other information such as agricultural inputs, cereal prices etc.

Inadequate flow of market information on prices, levels of supply and demand - needed to make informed trade decisions was seen as an impediment to ability to make good marketing decisions. This was due to the fact that even though most farmers gathered information from other farmers who had been to the market on that specific, most of them hardly changed their selling intentions and proceeded to the market irrespective of what the prevailing market prices were. This implies that this informal means of collecting information even though adequate in bringing transparency in the short-term, does very little to offer longer term planning benefits as it does little to influence the selling patterns of the farmers well in advance. Thus farmers went to the market only with short-term (one or two day) windows of information on prevailing market information. Providing farmers with price information in a timely manner and on a regular basis can significantly increase their bargaining position and ability to make good marketing decisions.

Farmers interviewed indicated that the priority information they desired was about prices in the local, neighboring and larger markets (especially Addis Ababa Market). They indicated that with this type of information they are better able to bargain with local traders and force them to pay prices more in line with prevailing prices in the other markets. The farmers also required information on a regular basis and complained about a dearth of reliable and regular information about market prices to help them determine when to sell. Most expressed a desire to engage in proactive market participation if they had reliable prior information about market prices weeks and even months in advance to enable them to make selling and buying decisions well in advance and, thereby make the most profitable marketing decisions. Most of the farmers also further indicated that they required information to be packaged in localized languages and also required information about prices of cereals, farm inputs, pesticides etc.

5.3 TRADERS INFORMATION NEEDS

In the highlands of Ethiopia, brokers had minimal influence in transactions and activities at the marketplace as far as livestock marketing activities was concerned. This is in sharp contrast to most of the lowland regions of the Ethiopia where brokers and traders have a prominent role in the exchange of
livestock between producers and buyers. Traders and farmers use brokers only in very few transactions in villages and primary markets and mostly in special cases when there were outside players from distant areas intending to engage in buying a substantial head of stock at the local markets. In essence, most of these “brokers” only acted as intermediaries. The role of the intermediaries in the marketing chain was to assist the outsider buyer to shorten the time spent in searching for a seller with the types of animals the buyer wants.

Access to information varied across traders in most markets visited even though in all regions visited they had much better information than farmers/producers and are thereby in a stronger negotiating position. They gathered this information via a trader to trader network based on mutual trust and by personal visits to markets and also largely through telephone communication. The trader-to-trader mode of passing market information appeared to work effectively well for well established and richer traders who could afford to send scouting traders to other markets to gather this information or who work in collaboration with other traders from whom they supply/receive livestock information.

Most of the traders interviewed indicated that they primarily want timely and reliable current information on livestock prices and stock levels (e.g., market prices for the day or at least one day old) that will help them make buy/sell decisions. Price information was the most important, but information on types, grades and number of animals in the market was also important for these traders. Most traders required information on price because this was the type of information that would assist them to engage in spatial arbitrage and thereby increase their profit margins. By being able to find information on markets where prices were lower, they would be able to buy low and sell high in locations where prices are better. When the traders did not have access to livestock market information they were not able to easily know prices and flows in markets outside of their own. This limited their ability to send animals to unknown markets thus limiting their scope of spatial or temporal arbitrage. The well-off traders are able to respond much more rapidly to profit-making opportunities than were the less informed small scale traders. Information on stock levels was also crucial for traders to be able to determine where there was adequate supply at a distant marketplace to justify trucking costs to those markets.

Most of the traders interviewed were involved and benefited from intra and inter-district livestock trade and obtained information on prices about other markets on regular basis markets two to three times a week from their sources in those markets. Providing broad access to market information can definitely level the playing field and allow more traders to compete on an equal basis.
5.4 EARLY WARNING AND FOOD SECURITY INFORMATION NEEDS

Livestock market information is also an important component of early warning systems for food security as it can assist in identifying areas of possible shortage and can highlight whether prices are above or below normal seasonal trends. Market information is important both for agencies' own food aid distribution purposes and to convince donors of the need for requested amounts of food aid. Livestock market information can also be crucial in determining the impact of food aid distributions on local market price distortions for both crop and livestock prices.

Early warning and food security officers interviewed indicated that they primarily want timely retrospective information (weekly, one month old, quarterly and annually) across a whole spectrum of factors such as price, market supply, breeds, animal body condition, disease incidences etc. Early warning and food security groups also indicated they would benefit most from market analyses, especially regarding seasonal price patterns, supply trends and terms of trade. This also includes outlook type information on future supply conditions as it relates to price movements over several months.

Government and Non-Governmental Organizations (NGOs) involved in food aid distribution and broader famine early warning and relief operations have a need for outlook information to help them plan their activities. Forecasts are important, and price forecasts one or two months beforehand can be especially useful. By monitoring the livestock prices, particularly after the plowing period when farmers in the highlands take their animals to the markets and prices slump in comparison to cereal prices, decision makers and food aid donors and distributors can target and mobilize their relief efforts to satisfy unmet needs and avoid exploitation of small scale farmers by unscrupulous traders. Other key analysis that the food security agencies expressed particular interest in was the tracking of Terms of Trade (ToT). Terms of trade measures the rate of exchange of a set of good (e.g. livestock) or service for another (e.g. cereals) when two individuals trade with each other. If cereal prices rise faster than livestock prices, the terms of trade have deteriorated. A greater number of livestock heads has to be sold to finance a given amount of cereal goods and products. When livestock prices fall farmers face the problem of having to sell many more animals to pay for a given volume of cereal/food products. The worsening in the terms of trade will adversely affect food security and living standards for farmers in terms of food availability, access and utilization. To assess which changes are normal and which are due to a hazard or a chronic crisis, food security agencies such as DPPA require regular, retrospective price information to determine both the ToT and status of food security. Timely retrospective information (e.g., prices and stock flows last week, or over the past several weeks) can also be very useful in adjusting their on-going field activities of relief agencies.

Three early warning and emergency relief groups interviewed expressed a need for improved and consistent livestock market information. Almost all the government departments interviewed expressed disappointment with the
current systems in which they had little faith due to unreliability and inconsistency in data collection among other factors.
6 RECOMMENDATIONS FOR A NATIONAL LIVESTOCK MARKETING INFORMATION SYSTEM

6.1 INTRODUCTION

Based on the assessment findings in the Ethiopian highlands and the experiences of the pastoral regions, the most common problems existing in livestock market information systems in Ethiopia are as follows:

- There is a relatively long duration from the time data is collected to the time the information reaches the end user.
- Most of the data collected are reported without any analysis and comparison to long-term trends.
- There is lack of cooperation and data sharing among institutions collecting data. In many cases, the data are collected are localized with pretty limited geographic coverage.
- Substantial errors and omissions are made during data collection, processing, transmission and dissemination due to limitations of the tools used (had copy reports, fax, ordinary telephone calls etc).
- Occurrence of high civil servants’ staff turnover, and a lack of institutional ownership of the LMIS
- Limited and lack of internet vis-a-vis cell phone service integration
- Limited private sector involvement in information collection and dissemination.

Despite all the problems mentioned above, it was apparent from the rapid assessment conducted in the highland regions that a livestock marketing information system should be a feasible and a worthwhile investment given the increasing demand to provide near-real time market information to end users. This is more so because the producers deals directly with the traders without the involvement of brokers or middleman compared to the pastoral regions where informed brokers bargain on behalf of producers to get a fair price for their livestock. To ensure viability of information exchange, the challenge remains to be setting up a simple, workable, need-based system for data collection and analysis through user friendly information delivery mechanisms. The realization of such a system requires investments in social capital at the individual trader and institutional level to complement the financial, human, and physical investments and facilitate building of trust between key market actors. The trust and social networks have been found to play a key role in sharing and exchanging information on livestock markets and prices. To avoid duplication in data collection which is currently rampant in the highland regions as well as in other parts of the country, it makes sense to establish a coordinated effort with the aim of minimizing cost and necessity of having more than one system collecting the same information. The overarching goal...
of such a collaborative effort would be to provide a one-stop-shop of a comprehensive market information network which ensures the following:

1. Establishment of market information management frameworks for timely collection and dissemination of information in the country.
2. Facilitation of flow of timely, regular, relevant and reliable livestock market information to producers, traders and consumers.
3. Reduction of the amount of field and deskwork required to produce livestock market information through automation of data collection, processing and dissemination using state-of-the-art telecommunication technologies.
4. Improvement of the quality, usefulness and availability of livestock market information at all levels of the system.
5. Deployment of flexible combination of information, communication and analytical tools that will raise the value of marketing information.

The Key issues in the design of a LMIS include the following:

6.1.1 Identification of collaborating institutions at the national, regional and district levels

The key is to identify in each of the regions in the country an institution or institutions with a mandate for livestock information issues. The different partners/collaborators both from public and private sectors need to work with these particular institutions in order to develop their capacity and assist in making the implementation of LMIS more feasible. At present the Agricultural Information Unit of the Ministry of Agriculture and Rural Development currently seems be the appropriate home of national LMIS in partnership with the nascent Agricultural Marketing Agencies in the various regions and districts. The National LMIS would also need to work with NGOs and universities both domestic and international to incorporate experiences from the field into the system and to alleviate some of the challenges faced by the unit and make LMIS work for small-scale producers, pastoralists, brokers, traders and policy makers. Given the challenges for sustainability, in the long term, opportunities for generating private sector resources to sustain the system will have to be explored and tested.

6.1.2 Selection of livestock markets and monitors

The selection of livestock markets to be included in the LMIS network is one of the fundamental issues faced by the program, particularly in the initial stages.
The identification and final selection of the markets will have to be conducted in close consultation with representatives from the variety of public and private institutions involved as well the potential users of the information to be generated at all levels of the government. Some of the main considerations for inclusion of markets into the system include: The relative importance of a market in the overall livestock marketing chain in the country/region/district, its proximity to high livestock density areas among other factors. However the primary emphasis needs to be the availability of affordable, appropriate and sustainable communication infrastructure to report and disseminate data on a near real time basis. Consequently the majority of the markets selected would be secondary markets (regional) and some terminal markets (national). These markets would more likely have access to either Internet or mobile phone services or both and few others with a potential to receive the service coverage in some near future. The system should be scalable with the ability to expand as ICT infrastructure coverage grows.

Livestock market monitors are currently appointed mostly by the agricultural district offices. However, market monitoring constitutes only a small component of their overall responsibilities and is not even a priority for the most cases. Most of them also serve as district agricultural/livestock officers. Market monitors should be adequately trained in the use of livestock market data collection formats and be provided with guidance on efficient ways of approaching sellers, brokers and traders to collect reliable data in a reasonable amount of time. The supervisors of the monitors should also trained for each market to be able to oversee the quality of the data being collected. Market monitoring should be taken more seriously than it is now if the LMIS has to succeed.

6.2 INSTITUTIONAL FRAMEWORK FOR POLICY IMPLEMENTATION

The most sensible institutional setting for an LMIS will vary from region to region. In some, it may be preferable to utilize the agricultural bureau because such services tend to have in place a network of trained data collectors while in others the newly formed marketing agencies may be more relevant because they have resources earmarked for this activity. Agricultural bureaus have extensive field networks, but from the foregoing we see that staff in these institutions may neither be well qualified for market information-collection work nor be particularly motivated to do it. The current organizational structure and capacity of LMIS implementation needs to be updated to adapt to the current realities.

The assessment findings indicate that different regions might eventually settle on using different structures to implement their own development priorities. Implementing LMIS will need to accommodate region-specific needs especially on which institutions should own the system or partner with or collaborate with
federal and/or external institutions. For instance Tigray and SNNPR have independent marketing agencies while Oromiya has a newly founded Agricultural Output Marketing Agency that does not have an operational structure in place yet at the woreda and Kebele levels. Dissimilar to these instances, there does not exist an independent marketing agency in Amhara region. Agricultural inputs promotion section in the Bureau of Agriculture and Rural Development is handling the exercise of collecting grain price information for the region. Collection of livestock prices are meant only for analyzing terms of trade and as an indicator for food insecurity.

The Department of Livestock and Fish Marketing in the Ministry of Agriculture and Rural Development at the federal level is (by the time this was undertaken) undergoing restructuring. This study recommends that there should be one responsible institution at the federal level that coordinates and holds accountable the regional agencies.

For successful implementation of the Policy Framework, three Institutional level elements should be considered:

i. Coordination
ii. Action Plans
iii. Monitoring, Evaluation and Review

6.2.1 Coordination

- **National Level: National LMIS Coordinating Agency**

Given the diversity in institutions at the regional level that are involved in market information services, successful implementation of a MIS policy at the federal level will require the constitution of a National A/LMIS Coordinating Agency representing the different stakeholders to coordinate A/LMIS activities. The Agency should be charged with:

a. Acting as the lead coordinating agency in the implementation of the A/LMIS development objectives
b. Fostering co-ordination of A/LMIS data collection initiatives in each of the regions in the country
c. Acting as a repository of A/LMIS standards, protocols and regulations for documentation related working solutions
d. Ascertaining the operational status and standards of LMIS in the regions through regular surveys
e. Ensuring periodic review of the A/LMIS to match the rapidly changing needs of farmers, traders and policymakers and take advantage of the dynamic growth in ICT technologies in the country.
f. Establish mechanisms for collaboration with the regional implementing bodies, policy and regulatory bodies

g. Ensure lower level coordination in implementing the policy, in line with the decentralization policy

- **Various Government Bureaus and Development Institutions**

An integrated Agricultural Market Information System as well as the necessary technologies required to run the system cuts across multiple bureaus and other development institutions. The bureaus and institutions will be expected to:

a. Integrate MIS as a core and not supplemental activity

b. Initiate the necessary processes, procedures, and institutional arrangements for effective implementation of their relevant components of a MIS policy.

**6.2 Action Plans**

The institutions involved in implementation will develop Action Plans for implementing the National LMIS Policy. Each of them will design action plans for implementation of the relevant sections of the policy. Together this will form the National Agricultural/Livestock Market Information System Action Plan. It will be integrated into the national budget process for support by the government through the national coordinating agency.

**6.2.3 Monitoring, Evaluation and Review**

The National LMIS Coordinating Agency will ensure that the LMIS Policy is regularly reviewed and its implementation is continuously monitored and assessed. Furthermore, a mechanism will be developed for evaluating the impact of the National ICT LMIS on the growth of the economy, reduction in poverty and any other relevant indicators.

**6.3 LIVESTOCK MARKET INFORMATION SYSTEM DESIGN**

**6.3.1 Type and Frequency of Market Data collected**

Livestock prices and volumes should be collected through interviews with traders during peak market day for selected markets once a week. Average prices of at least 5 samples by animal kind, breed, class/sex and grade need to be recorded on a weekly basis along with the total volumes of livestock (offered) by animal kind coming to the market. The number of animals sold is
important piece information but has been found to be very difficult and time consuming particularly in big secondary and terminal markets compounded by the poor level of infrastructure development in many markets lacking basic amenities such as a fence. This is also in line with the combined experience of both LINKS GLCRSP project and the Ministry of Agriculture and Rural Development.

6.3.2 Livestock Market Data Collection

The livestock price data collection formats ought to contain the following elements: country, market and monitor’s names, date of data collection, animal kind, class, breed, grade and price range. The format also allows recording of livestock volume by animal kind and breed (see Table 2 example). Such a system accommodates major domestic livestock in Ethiopia (cattle, sheep, goats, camel and donkeys). The various market participants interviewed during the assessment have confirmed the importance of the parameters mentioned above as key determinants of the price of the animal i.e. animal kind, class/sex, breed and grade.

Apart from the LINKS systems, most of the current systems only record major livestock kinds (cattle, camel, sheep and goats), but miss to collect information on breeds, classes and grades that are also important factors in determining animal prices. Any proposed system should be flexible enough to be able to accommodate any additional kinds of livestock that might be of interest to the potential users of the system.

The grading system proposed here blends together traditional visual assessment of body condition (fatness) and scientific body condition scoring for any given breed and class of an animal. The proposed grading system is based on a scale of 1 to 4 depending on visual assessment of the body condition of the animals (Table 3), which is basically a shortened version of the widely used 1 to 9 body scoring system developed by Nicholson and Butterworth (1986) for the African zebu cattle. The grading system allows for the breakdown of each of the major livestock breeds and types into more uniform groups to reduce heterogeneity within breeds and classes and reflect meaningful differences in expected market prices. This grading system is systematically applicable to all the other animal kinds including: Sheep, goats and camel.
Table 2 Livestock Market Information Collection Format

<table>
<thead>
<tr>
<th>Country</th>
<th>Market Name</th>
<th>Monitor’s Name</th>
<th>Date (MM/DD/YY)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Animal Type</th>
<th>Class /Sex</th>
<th>Grade</th>
<th>Breed and Price Range</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Breed (A)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1</td>
<td></td>
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<tr>
<td></td>
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<tr>
<td></td>
<td></td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mature Male (&gt;4 Years)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Young Male (&gt;2&lt;4 Years)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Cattle</td>
<td></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Immature Male (&lt;2 Years)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
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<td>2</td>
<td></td>
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<td>4</td>
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</tr>
<tr>
<td></td>
<td>Mature Female (&gt;4 Years)</td>
<td>1</td>
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<td>2</td>
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<tr>
<td></td>
<td>Young Male (&gt;2&lt;4 Years)</td>
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</tr>
<tr>
<td></td>
<td>Immature Female (&lt;2 Years)</td>
<td>1</td>
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<td></td>
<td></td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Volume</th>
<th>Type/Kind</th>
<th>Breed</th>
<th>Volume Number</th>
<th>Volume % by Breed</th>
<th>Total Volume offered</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td>B</td>
<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>C</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grade</td>
<td>Condition</td>
<td>Body Condition Score *</td>
<td>Descriptions</td>
<td></td>
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<tr>
<td>-------</td>
<td>-----------</td>
<td>------------------------</td>
<td>--------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Fat</td>
<td>&gt; 7</td>
<td>This grade ranges from animals that are smooth and well covered, but fat deposits are not marked where dorsal spines can be felt with firm pressure and transverse processes cannot be seen or felt to animals with heavy deposits of fat clearly visible on tail-head, brisket with dorsal spines, ribs, hooks and pins fully covered and cannot be felt even with firm pressure.</td>
<td></td>
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</tr>
<tr>
<td>2</td>
<td>Moderate</td>
<td>5 - 7</td>
<td>This grade ranges from animals with ribs usually visible, little fat cover, dorsal spines barely visible to animals with smooth and well covered; dorsal spines cannot be seen, but are easily felt.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Thin</td>
<td>3- 4.9</td>
<td>These grades ranges from animals with individual dorsal spines pointed to the touch; hips, pins, tail-head and ribs are prominent to animals with transverse processes visible, usually individually. Ribs, hips and pins clearly visible. Muscle mass between hooks and pins slightly concave.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Emaciated</td>
<td>&lt; 3</td>
<td>Marked emaciation with Transverse processes projecting prominently and where neural spines appear sharply.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Adapted and modified from Nicholson and Butterworth (1986)

Table 3: Animal Grades and Related Body Condition Scores

6.3.3 Data Entry, Analysis and Information Dissemination

Data entry has to be done using various means depending on what is most feasible in terms of ICT for each market locality. These include the use of mobile phone system’s Short Message System text (SMS) feature, e-mail, online or just verbal via radio or phone or in writing via fax and then entered directly into a computer via a secured internet web portal feature. The data can also be entered or acquired anywhere in the region where internet facilities are available. Data collected from various markets can be stored in the server recently set up at the Ministry of Agriculture and Rural Development. The server provides data collection, built-in analysis and information dissemination services. The build-in analysis system allows for the
retrieval of information, not only raw data, for any particular market and date to ensure prompt delivery of reports to users. More advanced automated analysis are being planned as the system matures and accumulates enough data.

The improved and more advanced analysis and communication flow mentioned above is designed to augment the traditional word of mouth for a wider dissemination of market information. Various information and communications media are being used depending on the level of ICT infrastructure development for each location including: fax, monthly/quarterly/annual bulletins, daily newspapers, newsletters, radio and television, including WorldSpace satellite radio system, e-mail, Internet Websites, and cellular (mobile) telephones. Print and voice media is being used on a limited scale in many parts of the country due to the excessive cost required by broadcasting institutions that do not seem to regard livestock information a public service. More efforts by concerned institutions will be needed to change the status quo. This could be achieved by mobilizing the communities of the potential beneficiaries to exert pressure on their regional and federal government for the access to radio and television services at least for a reasonable and sustainable price as a public good particularly through the public owned media.

6.4 GEOGRAPHIC SCOPE

6.4.1 Current Coverage of Existing Systems

Because of differing requirements and uses of most of the agencies collecting livestock marketing information, the scope for data collection is mostly limited and focused to specific thematic and geographical areas. Needs are diverse and each data collection system is geared to meet only the needs of its institution. It thus is of very minimal use to a broad spectrum of users. This results in an environment where there is duplication of effort. The lack of data collection standards, and therefore of comparability across systems, hinders sharing) of information (at least in a timely fashion, and long delays between collection and the availability of useful decision aids. For instance, since DPPA’s primary focus is on food security and emergency intervention, they have focused their livestock market information data collection activities in geographical districts that are highly vulnerable and food insecure while areas that are not deemed to be food insecure are not covered at all. Such a system may, therefore, provide adequate information for food aid and relief activities but would not provide sufficient geographical coverage for other purposes such as trade.
6.4.2 Proposed Coverage for Ethiopian Highlands LMIS

Consistent with the proposed objective for the LMIS of serving private marketing agents first (farmers, traders, and consumers), government policy makers second, and famine early warning and relief agencies (public sector and NGOs) third, we propose that the Ethiopian Highlands LMIS cover a select limited number of vital markets in each region and that it focuses only on a few “reference markets”, markets that can do the job well and deliver accurate, timely and reliable livestock market information.

It is recommended, however, that the initial phase of the development of a LMIS be more limited in scope, covering a limited number of markets. Based on the lessons learned and the limited capacity (manpower, technical and infrastructural) observed during the study of the various institutions charged with the responsibility of collecting market information, the LMIS should cover this limited number of core livestock markets for each region and could then be broadened both geographically and substantively, involving both additional markets and additional types of information and analyses.

In deciding which markets to collect data from during the initial phase, a trade off is made between the limited capacity and resource availability and failure to collect information from a large number of smaller markets that has the potential to vastly improve farmers’ marketing decisions. Limiting the number of markets that data is collected should not, however, limit the extent of dissemination of livestock market information to smaller markets. Information about key markets in the region is bound to benefit both traders and producers at smaller markets. Knowledge about larger market prices can particularly be beneficial to farmers and improve the latter’s bargaining position with traders.

The focus should, therefore be concentrated on collection of quality information from a small number (three to five) of “reference” markets per region and effectively disseminating this information extensively across the region. A benefit of such a strategy is that a greater number of people can be reached by an effective dissemination strategy which distributes quality reliable data and which not only improves faith in the LMIS earlier on in the project but also ascertains that there exists transparency in marketing transactions thereby benefiting all market participants.

Covering a limited number of important markets can help promote flows to these markets as well as increase competitiveness and integration with smaller markets. This encourages farmers in small markets to market their stocks in larger markets, as well as encouraging traders in smaller markets to travel to larger markets. This increases rapid movement from the small markets. Based on an assessment of the key markets per region and a trade-off between coverage of a larger number of markets versus quality and reliable data, the following markets per region are suggested for monitoring during an initial project phase.
These few markets are some of the important markets in the four regions where the assessment was conducted. Their selection is in line with the recommendation given from the interviews during the assessment.

### 6.5 CONCLUSION

The objectives set forth by Livestock Information Network and Knowledge System (LINKS) project are consistent with the development goals in the pastoral areas identified by national policymakers and other Development actors in the region. The livestock information system proposed by the project is likely to have a wide application over the pastoral regions in East Africa and has a great potential to influence a broader and equitable development agenda in the region.
Given the high dependency of pastoral family livelihood on cash income from the sale of livestock and livestock products, development of livestock marketing in pastoral areas has been identified as a priority by both national governments and donors. The dissemination of reliable and relevant market information system creates transparency in the marketing system and provides a basis for the Pastoralists to make good marketing decisions. An extensive examination of a cross-section of livestock market development activities in Eastern Africa revealed a dearth of viable livestock market information system to support decision making of traders, Pastoralists and policy makers. Provision of a more holistic set of information on both livestock markets/trade, forage conditions, disease incidence, water stability, potential conflict and imposition of quarantine and other livestock policy related information will provide a more information rich environment for multiple-scale, decision making in the region.

The LINKS project will continue to work in close collaboration with the national institutions in East Africa to insure their ownership of the project activities and programs. Local involvement by key institutions has been emphasized early on in the planning, development and deployment phases of the program. LINKS will continue to devote a substantial amount of time and resources to capacity development and institutionalization. The impact of this project will ultimately be determined by the extent to which pastoral communities, livestock traders and policy makers utilize the information system generated to aid their decision processes.

The practical implications of the Livestock Information Network and Knowledge System are as follows:

1. Development of national clearing houses that coordinate and provide commercially useful and transparent livestock price information on a timely basis to all parties
2. Increased livestock off-take and associated economic and environmental benefits
3. Encouragement of the private sector to own and sustain the livestock information system
4. Increased awareness of the pastoralists and small traders on market opportunities and emerging constraints to help minimize the risks associated with livestock rearing and marketing
5. Improved livestock policy formulation by policy makers, as the operations and functionalities of the markets are better understood.
7 FINDINGS, CONCLUSIONS, RECOMMENDATIONS AND WAY FORWARD

7.1 SUMMARY

Lack of properly functioning markets has been pointed out as one of the key issues underlying the recurrent food crisis in Ethiopia and in other countries in the eastern Africa region. Theoretically, the availability of market information should encourage new entrants into the marketing system. Market information has the potential to bring a lot of dynamism to the agricultural market system and can have a very big impact on both trade and food security. There may be regions in the country where there are surpluses while at the same time other areas are experiencing deficits; there may also be areas where prices are rising while they are collapsing in another all due to lack of market coordination resulting from a lack of information. Market information can assist farmers in negotiations with traders and improve the former’s terms of trade. In the longer term it should also provide farmers with the opportunity to plan and diversify their production in line with market demand and to schedule deliveries to the market at times when returns are most rewarding. Beyond immediate market actors, this transparency also benefits policymakers, public food aid agencies, international buyers and service providers such as transporters, insurers, and banks. Market information can also be valuable input into early warning systems by highlighting food shortages which are reflected by higher prices and can also assist government planners in developing an understanding of the ways markets work.

As a result of lack of organized livestock market information system at different levels of government and private sector structures in Ethiopia, informal institutions (brokers, social networks and traders associations) are playing intermediary roles in bringing an understanding between sellers and buyers. Under such circumstances, a purchase price of an animal is not only determined by the bargaining skills of sellers but also buyer’s preferences. In the process of searching for an animal with preferred characteristics, negotiations, payments and transfer of ownership is a time consuming process, fraught with inefficiencies and transaction failures (Williams, T. O., Spycher, B. and Okike, I. 2003, PP.42).

This study was commissioned to carry out an assessment on the livestock market information systems (current and previous) in the highland regions of Ethiopia in order to provide a context within which implementation of a formal National Livestock Market Information System in the country would be based and targeted towards improving market efficiency and the welfare of those
who depend on the livestock sector for their livelihoods. The main findings of the study are as follows:

### 7.2 FINDINGS AND CONCLUSIONS

1. There are significant overlaps and duplication of activities among the services that collect livestock market information at every level of the government (Districts, Zones, Regions and the Federal level). Moreover, there are weak institutional linkages, lack of effective collaboration and coordination and poor working relationships among stakeholders and institutions involved in LMIS.

2. The recent emergence of new Agricultural Marketing Agencies in the Regions, which among other things will coordinate the livestock market information system at the regional level, is healthy development. It is an indicator of growing recognition of the importance of market development and linking producers to the markets.

3. Key organizations currently involved in livestock market information in the highland regions include: Bureau of Agriculture and Rural Development (Livestock Department), Disaster Preparedness and Prevention Bureau, Agricultural Marketing Agencies (new development), Bureau of Trade and Industry, and to a lesser extent the Central Statistical Authority (CSA).

4. Most of the organizations are collecting not only livestock market information but also other agricultural products such as cereals and crops the latter of which in most cases is the primary information collected.

5. Livestock market prices are based on animal type, breed, class, sex and body condition apart from supply and demand.

6. Too much information is just collected and stored in raw format at government offices in hard copies, and it is not clear to most government officers why they are collecting this information. The information is not analyzed and packaged for dissemination to the desired beneficiaries.

7. Long delays exist in data transmission from the markets to the government offices.

8. Unless donor funded, livestock market monitoring (and other agricultural market data collection in general) is not a primary task and priority for many of the market monitors and their respective organizations.

9. Frequent government bureau restructuring has caused losses in institutional memories as staffs are reallocated from one unit to another.

10. There exists a significantly high turnover rate of market monitors and experts mostly due to restructuring within the government offices.

11. Lack of standards for data collection even within the same bureaus appears to be a significant challenge for the data collection processes.

12. Most of the traders interviewed were in favor of the idea of creating a uniform, reliable LMIS and have indicated a willingness to pay minimal fees for the service provided as long as it is regular and on a near real-time basis.
13. In most of the highland market transactions, buyers and sellers deal directly with each other without the involvement of brokers. This makes the provision of market information to the producers particularly beneficial in order to level the playing field.

14. Most of the traders and producers interviewed indicated that they would like to receive market information not only about the local markets but also about far-off central and terminal markets in the country.

15. There is a lack of strong and coordinated traders and civil society organizations as a strong mutual interest group to support LMIS. There are emerging cooperatives and associations throughout the country that could become a force to reckon with if their capacity and organizational skills are improved.

7.3 RECOMMENDATIONS

7.3.1 General Recommendations

1. Market information will remain a public asset in Ethiopia for quite some time. Federal and regional governments must make efforts to make freer the access to it, enabling a shared development, interrelated and standardized for both public and private entities that use it. This information is an important element for the country, becoming a basis for stimulating trade and economic growth, encouraging public and private investment and consequently generating economic and social development. In the long term, subsequent off-shoots in the private sector will occur when specific niche market needs have to be met and entrepreneuring individuals may follow the models applied in the developed countries and take this free public information, add value to it and sell it to serve the specific niche demand.

2. Initially, federal and regional governments must invest in the development, implementation, application and use of LMIS, consequently making contributions to the budgets of the agencies which gather LMI, in order to produce, maintain and publish market information that sustains development in the country, and oriented towards a continuous improvement of the standards and lives of the people of the country.

3. Market information is a resource which should be used by governmental authorities at all administrative levels, to make decisions that benefit the population and the country at large. Being properly informed would assist these authorities to generate the tools necessary for reducing poverty by determining the unmet needs of the people that must be resolved. Awareness creation about LMI should thus be a precondition for efficient use and application of market information.

4. Goodwill, appreciation and capacity-building seem to be the only investments required in the short-term to promote the capacities of market technicians and professionals. The survey carried out pointed to the fact
that most of these technicians are just asking for an appreciation of their efforts.

5. Educational authorities should include market information curricula in the course design at institutions of higher learning to ensure that the future generations understand, use and learn to manage market information to the benefit of the society they work in, its role in poverty reduction, and its ability to generate societal benefits that will improve the quality of life of the populous.

6. It is vital that the country works on the creation of a legal framework which supports the work on LMI development within government departments (both at regional and federal level), in order for them to obtain the institutional backing that brings federal and/or regional budgetary commitment among others.

7.3.2 Overall Recommendations

1. Institutional and policy framework for the implementation of National Livestock Market Information System: The following issues need to be addressed to be able to develop an efficient and integrated LMIS:

   a) **Standardization of LMIS**: A national LMIS requires standardization of at least data-formats to allow easy comparison of prices. There is a real and expressed need to standardize the livestock market data collection in the country to allow for comparability among various regions. It would be prudent to build on the experience and the integrated format and design that came out of USAID Southern Tier Initiative of MoARD and LINKS GLCRSP projects.

   b) **Scope of coverage** The scope of the data collection activities in the highlands need to be limited at the beginning to a small number of “reference” markets in each of the regions and then expanding to other markets once a reliable system has been stabilized and as resources allow.

   c) **Identification of a lead organization and an institutional home**: Newly formed regional agricultural marketing agencies in the highland regions offer a great potential to be the regional custodians for the livestock information system. The Agricultural Information Unit at the Ministry of Agriculture and Rural Development is a potential national home and the coordinator of the system with necessary political backing. In fact, some of the regional agencies have already taken leading coordination roles in the implementation of livestock market information at the regional level. They might need to set up steering and technical committees composed of the major actors (agricultural and rural development, trade and industry bureaus, radio networks etc.) to coordinate in order to avoid duplication of efforts and resources. These agencies would need
some technical backstopping and guidance in the preparation of technical and policy guidelines from the federal government and NGOs for the implementation of an efficient National Livestock Market Information System. The formation of two committees to support and manage the program will greatly improve the efficiency of the LMIS. The formation of a Steering Committee (SC) and a Technical Committee (TC) is indispensable. The SC will and should consist of senior representatives from the various ministries involved in livestock market monitoring at the woreda, regional and federal levels to ensure the smooth operation of the system, specifically with regard to regular collection of data and flow of information. The TC will focus on operational issues, and will be comprised of representatives of institutions involved in the collection or use of livestock market information. Both committees have to be set up soon before the implementation of the LMIS program to create effective linkage in order to improve collaboration and coordination among the network of persons and institutions involved in collection of livestock market information. The IFAD Agricultural Marketing Improvement project (AMIP) Project which is being implemented in almost all regions in the country. It has a mandate that appears to offer a potential to be a springboard for promoting the development of a national LMIS in the country.

**d) Creation of effective collaboration and coordination among various organizations and institutions involved in LMIS.** This is needed to avoid overlaps and duplication of activities. It is apparent from the assessment that issues of livestock market information cut across many programs and institutions. As such it is evident that no single institution can be self-sufficient to handle the whole system by itself. However, a single institution needs to be identified as the lead organization for the overall coordination of the LMIS program at all levels. A clear national policy framework is a prerequisite to facilitate harmonization, cooperation and coordination among the various organizations. The policy framework is necessary to maximize mutual benefits and reduce unnecessary duplication of efforts for the implementation of a holistic and coherent program. It must have a set of principles, guidelines and procedures that to formulate, foster development and implementation of a coherent and need-driven livestock market information program.

**2. An appropriate design of National LMIS needs to be put in place:** High priority should be given to solving the institutional problem facing the livestock market information systems at the woreda level and local markets where data collection is initiated. The current data collection formats are very time consuming and would need to be reviewed and redesigned for information collected to be useful. A national livestock market information system should ultimately cover both domestic price information and international price information. The relevance of the content to intended
clients is key to increased use. Lack of understanding of the client’s specific information needs, and a poor system design could lead to the failure of the LMIS. Information generated needs to be commercially useful, relevant, regular, reliable and on a near real time basis to satisfy the needs of the users. The LMIS should be need driven and flexible to cater to the needs of the users over time. Given the irregular and outdated information currently generated and the haphazard nature of the operation of the existing programs, most users have lost confidence in these programs. There is an urgent need to build and restore confidence in the livestock market information system. This can be achieved to a large extent by making sure to deliver actionable and timely trade-promoting information to traders, policy makers, producers and producer organizations. The Ministry of Agriculture and Rural Development, NGOs and donor agencies should work together to create a demand-driven livestock market information system that serves producers, traders and policy makers. The system needs to have the freedom and the capacity to respond flexibly over time to private-sector needs to enhance the sustainability of LMIS. All Local key institutions at the various levels of the government must be involved in the planning, development and deployment phases of the LMIS program to insure their ownership of the service and to be able to perhaps provide the necessary resources to increase efficiency of the system and to insure the sustainability and viability of livestock market information system. Some limited donor support and technical assistance might be needed in the initial phases of the program. Willingness on the part of the government to support MIS at the policy level is crucial to the success and sustainability of a National LMIS. Every effort should be made to design a simple but useful system that could be managed within the normal budget allocations of the government agencies that have the mandate for operating the system.

3. **Capacity-building activities need to be integrated into all phases of the LMIS implementation including**: collection, management, analyses, dissemination and utilization of information. Priority must be given to develop capacity of the LMIS at all levels of the government from woreda to the federal institutions. Every effort should be made to increase the institutional capacity particularly at the woredas both in terms of human development and equipment to ensure delivery of information on a timely basis to all market participants. Careful recruitment and appropriate training will be needed to build a strong technical team. These staff should be given the task of market monitoring as their priority. The promotion of training and capacity building for local stakeholders’ particularly major managers and practitioners of LMIS is crucial. Management and technical committees representing these stakeholders with expertise and perspectives from both the public and private sectors will need to be set up to promote a transparent image and instill team commitment. Capacity building should not be limited to government organizations only. It should be extended to other market participants, particularly wherever there is a need that has been expressed. The nascent livestock fattening and
marketing cooperative and associations have expressed such a need with the ultimate goal of increasing their bargaining powers, achieving economies of scale and thereby reducing transaction costs. In addition to that, most of the marketing groups and producers lack the knowledge and skills in marketing which is a one of the constraints that adversely affects their overall marketing ability. Therefore in order to improve this situation tremendous efforts have to be exerted in this regard, with capacity building going beyond market monitoring/reporting and incorporating business skills among the producers.

4. **The distribution and dissemination of livestock market information need to be greatly improved:** The capacity of the government institutions to gather and disseminate livestock market information needs to be strengthened. In fact, the impact of the Livestock Market Information System will ultimately be determined by the extent to which producers, livestock traders and policy makers utilize the information generated to aid their decision processes. Currently, dissemination appears to be the weakest link in the whole process of livestock market information. A proactive approach will be needed to improve targeted channeling of the LMIS. The challenge would be in finding ways to improve access of the market information to rural communities. The increasing coverage of the mobile-phone network, regional FM radio stations and the GovNet (formerly woredanet) seem to hold promise to improve this situation. Traders are already ahead of the game in exploiting mobile telephone technology to keep them updated on both local and terminal markets.

5. **There is a need for an Integrated Agricultural Market Information System.** It was found out that most of the institutions currently involved in livestock market information are also collecting grain market data. Therefore, while making the present livestock market information system stable is crucial, it is also important to start exploring possibilities of linking it to other key agricultural produce markets in the country as the ultimate goal in the long-term.

6. **It is critical that organizations involved in LMIS make more use of the state of the art ICTs:** The use of modern ICTs (i.e. Fax, e-mail, online, Internet and phone) in LMIS is a quick and cost effective way to transfer information on a near real time basis. Using the modern ICTs eliminates the chances of losing information as it goes straight to the rightful inbox, web portal, fax machine or telephone as required, unlike the ordinary postal communication delivery system, which can easily face information loses or misdirection and distortion. The amount of field and desk work required to produce livestock market information could be greatly reduced through automation programming, processing and dissemination using a software/hardware architecture that makes use of the state-of-the-art telecommunication technologies. At present most of the livestock market information services are using hard copies to report information which might explain the delays and the lack of feedback to the market participants.
7.4 WAY FORWARD

Based on the findings of the study which were presented in a consultation workshop at Nazaret, Ethiopia where participants from both public and private sectors actively debated on the preceding recommendations regarding the implementation of a national LMIS, the following consensus issues emerged on modalities for moving forward:

- The newly established Agricultural Information Unit of the Ministry of Agriculture and Rural Development is the suggested appropriate home for a national LMIS and should take the lead (in collaboration with regional, private sector, NGO institutions) in the development and implementation of a national AMIS. The workshop participants however noted that the human and physical capacity of the unit would require improvement in order to address the task of coordinating a relevant, useful and reliable integrated national Agricultural Market Information System.

- Development of National Agricultural/Livestock Market Information policies, strategies and guideline manual is critical to lay down the framework, regulations, procedures and working mechanisms for implementation of a national LMIS. This will strengthen functional partnerships with the regional governments and multiple agencies within and outside the government, clarifying roles and responsibilities of all these stakeholders in the implementation of a national LMIS.

- The workshop participants endorsed the conclusions of the three working groups formed at the workshop and enclosed in the workshop proceedings with this document (See Appendix. I)

- The workshop participants expressed the need to ensure follow-up to the recommendations of the workshop and to foster partnerships among stakeholders towards the implementation of the national LMIS.

- The workshop participants endorsed the immediate initiation of a lean market information system in the highland regions of Ethiopia.
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