PROJECT GCP/GLO/208/BMG

« CountrySTAT FOR SUB-SAHARAN AFRICA »

PANORAMA REPORT I

E T H I O P I A

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

Addis Ababa, May 2011

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Prepared

by

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ACRONYMS

ASSRC	Agricultural Statistics Sector Review Committee
CPI	Consumer Price Index
CSA	Central Statistics Agency (formerly Central Statistics Authority)
CSO	Central Statistics Office
CV	Coefficient of Variation
BoA	Bureau of Agriculture
DA	Development Agent
DDI	Data Documentation Initiative
DQAF	Data Quality Assessment Framework
DQAF-E	Data Quality Assessment Framework for Ethiopia
EA	Enumeration Area
EARO	Ethiopian Agricultural Research Organization
EASE	Ethiopian Agricultural Sample Enumeration
FAO/UN	Food and Agriculture Organization of the United Nations
GPS	Global Positioning System
HICE	Household Income, Consumption and Expenditure
IHSN	International Household Survey Network
LFS	Labour Force Survey
MoA	Ministry of Agriculture
MoFED	Ministry of Finance and Economic Development
MoWRE	Ministry of Water Resources and Energy
MTSP	Medium Term Statistical Programme
NGO	Non-governmental Organization
NIHSP	National Integrated Household Survey Program
NMA	National Meteorology Agency
NMSA	National Meteorology Services Agency
NSDS	National Statistical Development Strategy
NSS	National Statistical System
PSU	Primary Sampling Units
PPS	Probabilities Proportional to Size
RIHSP	Rural Integrated Household Survey Program
SNNPR	Southern Nations and Nationalities Peoples Region
SU	Sampling Units
SSU	Secondary Sampling Units
UNDP	United Nations Development Program
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
WAN	Wide Area Network
WB	World Bank
WFP	World Food Programme
WMs	Welfare Monitoring Survey

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Annexes

1. The National Statistical System

Ethiopia has a long history of planning and conducting socio-economic and demographic sample surveys on a wider scale. In this connection, especially in the last ten years, the government of Ethiopia has allocated a progressively significant budget for implementing these statistical plans. This was operationally possible due to the establishment of a properly functioning statistical system in the country, under the National Integrated Household Survey Programme (NIHSP) by the Central Statistical Agency (CSA). Moreover, in order to address the problems of the national statistical system through a more comprehensive approach, the Medium Term Statistical Programme (MTSP), from 2003/04 – 2007/08, was set up and implemented. Anew Five Year National Statistical Development Strategy (NSDS) has also been set up and is currently under implementation.

In order to provide a framework for strengthening the National Statistical System (NSS)and to reinforce the coordinating role of the CSA, the design of this five year National Statistical Development Strategy (NSDS) was decided by the Statistical Council of the country. This National Statistical Strategy is expected to provide a road map for building capacity and work programmes across the whole National Statistical System to meet prioritized data-user needs, and will serve as a framework for harnessing resources to support the said statistical strategic development.

The new National Statistical Development Strategy for the country covers the period 2009/10 – 2013/14. This statistical development strategy differs in content, scope and coverage from the already completed MTSP. The new NSDS provides the country with a strategy for strengthening statistical capacity across the entire National Statistical System. The new NSDS document examines the likely problems in implementing the new statistical development strategy and the outcomes of the past MTSP, and then provides information on the strategic themes and prioritized work programme to be addressed during the five years' implementation period.

Accordingly, a number of system-wide improvements are included in the new strategy, such as the coordination role of the CSA, ethical quality standards and classifications. Improvements in economic establishment surveys and household surveys are also carefully designed. A more comprehensive use of new technologies than ever before will improve the quality and timeliness of surveys, censuses and data from administrative sources that are properly designed to be implemented before the end of the NSDS plan period.

1.1 Legal Framework and Statistical Advisory Body

The current statistical law was passed on 20 April 2005, and is cited as the Central Statistics Agency Establishment Proclamation No. 442/2005. This established the CSA as an autonomous federal agency having its own personality. The Authority is responsible to the Minister of Finance and Economic Development (MoFED). It must have its headquarters in Addis Ababa but may have branch offices elsewhere in the country.

The CSA has two objectives. Firstly, to collect, process, analyse and disseminate statistical data; and, secondly, to provide technical guidance and assistance to government agencies and institutions in building administrative systems and registers. This includes building capacity and providing directives for database creation and proper management of administrative records. The CSA is reporting to the Minister of Finance and Economic Development. The Minister recommends the General Manager and Deputy General Managers to the Prime Minister who appoints them. Other employees are appointed according to the civil service regulations applicable to the general public service.

The statistical Council members are also appointed by the Minister in consultation with the Director General of the CSA and the Statistical Council must meet at least once a year. The Minister is the chairperson and other members comprise government officials from federal, regional and city administrations.

The annual work programme is prepared by the CSA and submitted to the Minister by the Director General. The Statistical Council then approves the programme. The CSA has the authority to prescribe the system for the collection, compilation, classification and flow of statistical data: determine the type and particulars of statistical data to be collected and the period of collection; and monitor the execution of the same. This gives the CSA authority to develop an NSDS and to develop common standards. The CSA's powers rely primarily on cooperation between data producers in the National Statistical System, but may be enforced by proclamation or regulation.

The law does not prescribe the responsibilities of other agencies in the National Statistical System (NSS). However, the CSA does have the authority to issue and follow up the implementation of programmes and directives with a view to improving the country's statistical system and to avoid duplication of efforts in statistical activities and to design and monitor the implementation of statistical recording and reporting systems to be followed by government agencies or institutions or other organizations. The Council may also issue directives on the improvement of the National Statistical System.

Other government agencies are also obligated to supply information and data to the CSA. This gives a devolved, but rather voluntary, flavour to the wider National Statistical System. The Act in use does not obligate the other statistical agencies to submit their statistics to the CSA for quality endorsement. This strategy will address measures to the quality assurance of official statistics in the country; to ensure that data quality standards are maintained and that competing and contradictory statistical estimates are minimized. This is essential to maintaining trust in official statistics among data users and improves coordination and synergy within the national statistical system.

1.2 Structure of the National Statistical System (NSS)

The National Statistical System is very complex in Ethiopia. As part of the NSDS preparatory process, the CSA has collected details of all data producers and publications currently in use. There are more than 40 organizations currently participating in the NSS (see Annex I).

1.3 Quality Assessment of the National Statistical System

The main activity of the CSA is conducting, processing and publishing the results of surveys and censuses. These are in the form of both household and enterprise surveys. It also has a major role to play in providing vital statistical infrastructure in the form of sampling frames, maps, geo-informational data, statistical techniques and standards. Other producers in the NSS produce statistics that are a by-product of their mandates, although, in the case of MoFED, it produces national accounts and other statistical analyses as an activity. The CSA is the only statistics producer in the system whose statistics are neutral, in that they do not refer to the CSA's own performance in the delivery of its services or functions.

As part of the development of the NSDS, the sector working group teams were asked to carry out a quality assessment of 24 statistical domains. The teams used a light version of the IMF's Data Quality Assessment Framework (DQAF). This is the international standard for data quality assessment, although regional groupings and individual countries apply variants of this system.

The tool used was the IMF's Data Quality Assessment Framework (DQAF). This was developed by PARIS21 as Indicators of Statistical Capacity Building that use the scoring method and benchmark descriptions. Other quality frameworks exist which have strong similarities to the DQAF: one is in use by the European Union member states; South Africa has recently developed its own SASQAF.

It should be noted that the teams did not carry out a full DQAF. This normally requires several weeks of work by a specialist team of experts. The quality assessment carried out was an indicative exercise to enable some quality issues to be raised as part of the NSDS process, and to sensitize NSS partners to the full range of quality issues and the need for quality assessment in Ethiopia.

Not all statistics in Ethiopia are produced by the CSA. The majority of statistical publications in Ethiopia are the sole responsibility of the CSA. The application of quality standards to all statistical collections is important if users are to trust the data. This is not to say that statistics are untrustworthy in Ethiopia but, as with every quality standard, its application builds trust and confidence among consumers.

The results of the light DQAF exercise have been compiled and a mean score derived for each element. These mean scores are shown in the Table given below. The table also shows the full range of elements which are involved in statistical quality assessments.

While the users' workshop had some serious doubts about the quality assessment process that took place, and called for the preparation of an Ethiopian data quality assessment standard, the results do indicate some common weaknesses in statistics. Looking across the mean scores of all the statistical domains, the serviceability of statistics is the weakest of the five sections: this includes the timeliness of data, user consultation processes, frequency of measurement and the way in which data are integrated into the policy process. The accessibility of data is also rather weak, with just 10 of the 24 domains in the wider NSS claiming that metadata were available, and only half of the domains using internet dissemination for some of its series.

The DQAF covers a wide range of issues, which go beyond the methodological considerations of data collections. It includes the legal basis for collection, the resources available for the work, the serviceability and accessibility of the data and the way in which the data are disseminated. Although the CSA routinely publishes its methodologies, the full range of DQAF elements is not reported on.
Each element in the DQAF is given a score from 1 to 4 as follows, and scores are based on benchmark descriptions. The meaning of the scoring is as follows:

- 4 = current practices generally meet or achieve the objectives of DQAF internationally accepted practices without any significant deficiencies;
- 3 = some deficiencies, but these are not seen as sufficient to raise doubts about the authorities' ability to observe the DQAF practices;
- 2 = significant departures, and the authorities will have to take significant action to achieve observance;
- 1 = most DQAF practices are not met.

Statistical quality assessment by element		
0	**Prerequisites of quality**	
0.1	Collection of information and preservation of quality guaranteed by law and effective	**3.0**
0.2	Effective coordination of statistics	**2.9**
0.3	Staff level and expertise adequacy	**2.7**
0.4	Buildings, equipment and internet support adequacy	**2.6**
0.5	Planning, monitoring and evaluation mechanisms implemented	**2.8**
0.6	Organizational focus on quality	**2.7**
1	**Assurance of integrity**	
1.1	Independence of statistical operations	**2.8**
1.2	Culture of professional and ethical standards	**2.7**
2	**Methodological soundness**	
2.1	International/regional standards implemented	**2.8**
3	**Accuracy and reliability**	
3.1	Adequacy of source data	**2.8**
3.2	Response monitoring	**2.7**
3.3	Validation of administrative data	**2.8**
3.4	Validation of data sources and of intermediate and final outputs	**2.6**
4	**Serviceability**	
4.1	User consultation	**2.5**
4.2	Timeliness of statistical outputs	**2.3**
4.3	Periodicity of statistical outputs	**2.5**
4.4	Integration of statistical outputs into the policy process	**2.4**
5	**Accessibility**	
5.1	Effectiveness of dissemination	**2.6**
5.2	Updated metadata	**2.5**

2. National Strategy for the Developments of Statistics

The National Statistical Development Strategy (NSDS) for Ethiopia, as stated above, covers the period 2009/10 to 2013/14. It follows on from the Medium Term Statistical Programme (MTSP) for the Central Statistical Agency that ended in 2008, but it differs in scope. The NSDS covers statistical development in the entire statistical system, not just that of the CSA.

The main objectives of the NSDS are, among others, formulating a framework strategy and work programme for the whole national statistical system of the country for the next five years. Preparations for the NSDS started early in 2008 with the formation of sector working groups which were charged with determining the gaps in national statistics. The gaps identified by sector working groups were extensive and insufficiently prioritized for immediate use. Their work was further refined by asking key statistical user organizations to identify their three priorities for improvement, and to identify three, new, unmet data needs. In addition, each statistical domain was subjected to a light data quality assessment, using a simplified version of the IMF's Data Quality Assessment Framework (DQAF). This assessment was carried out by the sector working groups, and applied to all sectoral data in each of the 24 statistical domains that were grouped for this purpose. These assessments were used to consider data quality problems, and informed discussion at the NSDS Stakeholders Workshop held in October 2008. The stakeholders workshop considered the priority data gaps and the quality issues, and made recommendations for the NSDS. The recommendations were of three types: filling urgent data gaps, solving data quality problems and coordinating the National Statistical System (NSS).

To gain a better understanding of the likely problems in implementing an NSDS, the outcomes of the MTSP were examined. The major reasons for non-implementation of some of the plan's objectives were said to be capacity constraints and decisions made after the publication of the MTSP not giving statistical activities a sufficiently high priority.

The recommendations from the stakeholders' workshop gave rise to six Strategic Themes for the NSDS. The Themes are briefly described below.

2.1 Strategic Theme 1: Implementation of the Statistics Law

The first theme relates to the coordination of the National Statistical System, and requires the establishment of an NSS coordination unit in the CSA. The sub-themes are:

- 2.1.1 The establishment of an NSS methodological and support unit in the CSA for quality assessment and NSS capacity building.
- 2.1.2 The development of common standards, classifications & definitions for the NSS for consideration by the Council as legal decrees for official statistics.
- 2.1.3 The introduction of memoranda of understanding between the CSA and its NSS partners.
- 2.1.4 The coordination of donor relations and statistical initiatives in the NSS.

Accordingly, a new directorate, namely, the National Statistical Coordination, Standards and Quality Assurance Directorate, has been established at the CSA. The unit will manage the development of common standards, classifications and definitions; negotiate service level agreements between each NSS partner and the CSA; agree any support to be given to the partner by the CSA; and manage the data quality assessment process.

2.2 Strategic Theme 2: Develop data quality procedures

The stakeholders' workshop agreed that data quality standards appropriate to the National Statistical System of the country should be developed. The standards would go beyond methodological considerations and involve the full range of data quality assessment framework (DQAF) elements. Quality assessments would be the responsibility of the special NSS coordination unit located at the CSA, reporting directly to one of the Deputy Director Generals. Each statistical data collection should be quality assessed periodically, according to a pre-determined timetable. The results should be made available and an improvement programme agreed. Members of the quality assessment panels may include experts in the subject matter from academia or research institutions, as well as suitably qualified professionals from relevant ministries and agencies, trained in the use of the quality assessment framework. To aid quality improvements and adherence to the statistical standards, ministry/agency statistical units should be established in each NSS partner.

Sub-themes

- 2.2.1 Developing a data quality assessment framework for Ethiopia (DQAF-E)
- 2.2.2 The development and support of ministry/agency statistical units in NSS partners
- 2.2.3 The strengthening of an NSS quality and support unit in the CSA for quality assessment and NSS capacity building

2.3 Strategic Theme 3: Enhance advocacy and use of statistics

The NSDS preparatory process highlighted problems in stakeholders' knowledge of the availability of statistics. More publicity for statistical products is required, dissemination calendars should be made available for major NSS products, and statistical releases should be accompanied by press conferences to raise the users' awareness of statistical products. Access and use of data should be enhanced by a common website for the NSS that provides a one-stop-shop to users, and more training given to users. The training would include hands-on support to use survey databases and software.

Sub-themes

- 2.3.1 Developing an appropriate shared website for the NSS
- 2.3.2 Improving statistical launch procedures and press relations
- 2.3.3 Training for data users including the media
- 2.3.4 Establishing regular consultations with data users

2.4 Strategic Theme 4: Methodological improvements & statistical modernization

These areas of data priorities for NSS emerged from the stakeholder consultations. Not only were data gaps identified, but also issues emerged relating to the duplication of effort in surveys, and the need to rationalise the survey programme. The gaps which were agreed as priorities were for statistics relating to the environment and commercial farming; non-sedentary populations about whom little data are available; and for a range of price and economic statistics, particularly the construction sector and import and export indices. Improvements in the business register and integrating register data sources are recommended as a first step, as is developing modeling techniques for difficult sectors. Improving demographic projections at a lower level and vital registration are a priority for NSS partners who need accurate denominators in order to express statistics obtained from registers and administrative records as ratios or percentages.

The agricultural and population censuses would continue to be conducted on a 10 yearly cycle. Sample survey programmes would continue on a cycle similar to the MTNSP, but the contents of the Household Income, Consumption and Expenditure (HICE), Welfare Monitoring Survey (WMS), Labour Force Survey (LFS) and other surveys would be rationalized and expanded to include more information about the informal sector, cottage industries and small-scale farming of spices and vegetable crops.

Sub-themes

- 2.4.1 Rationalise the household survey programme and its interface with improving routine systems
- 2.4.2 Agriculture & environment statistics - improve methodology and expand coverage to commercial farms, non-sedentary populations and to environmental affairs and natural resources
- 2.4.3 Continue to undertake agricultural censuses to maintain the basis for agricultural sampling and to provide robust agricultural estimates periodically
- 2.4.4 Welfare measurement - improve methodology, consider a modular approach and expand coverage
- 2.4.5 Improve business register and integrate data sources
- 2.4.6 Develop import / export indices
- 2.4.7 Demographic projections, vital events and improved tourism information

2.5 Strategic Theme 5: Capacity developments in the NSS

New investments will be required in the statistical system to cope with the increased demand for statistics, and to promote greater use of statistics in policy development and monitoring. Development of analytical skills is required, as too little analysis of the existing statistical data is taking place. This is due, in part, to lack of analytical skills, knowledge of the databases and analytical software.

The supply of trained statistical staff will need to be increased, as staff retention is becoming problematic. ICT staff are particularly difficult to appoint and retain in the government service, and they are essential to upgrading and improving statistics in ministries/agencies statistical units. The problems of staff retention should be researched, and a paper submitted to the

Statistical Council recommending a retention package, involving their conditions of service and appointment procedures. In addition, continuous upgrading of skills is important, and training can act as an incentive to staff to remain within the government service. A full training needs analysis of the NSS will be required, and an in-service training programme put in place.

Due to the high turnover of staff, knowledge management is vital. Systems are required to document fully the statistical value chain and to maintain up-to-date metadata. This will ensure continuity even when staff move on from their current positions.

Technological improvements can vastly improve data quality, timeliness and accessibility. A programme of technological improvement is proposed, including computer assisted data capture and improving networking in the NSS. Satellite imagery has proved to be helpful in improving statistical activities.

The physical environment in the CSA is not conducive to modern technological application and efficient management. Additional space and better facilities will be required to provide for improved user access to NSS resources, for in-service training and for improved team working. The current configuration also hampers the installation of technological improvements. New or refurbished buildings will be required for the CSA's operations.

Sub-themes

- 2.5.1 Development of analytical skills in the NSS
- 2.5.2 Increasing the supply of statisticians and associated ICT staff
- 2.5.3 In-service training and knowledge management in the NSS
- 2.5.4 Strengthening the statistical associations and a professional body for NSS staff
- 2.5.5 Technological requirements
- 2.5.6 Improvement of the buildings and physical work environment for statistics

2.6 Strategic Theme 6: Relationship of NSDS to the Monitoring and Evaluation of PASDEP and other interventions

The process of defining official statistics is an important consideration requiring constant review. The NSDS is concerned with regular sustainable statistics and ad hoc statistical activities that fall outside the remit of official statistics. While ad hoc surveys are outside the remit of the NSDS, they may still be published by government bodies, and development partners should be alerted about the CSA's role in coordinating statistics and commenting on statistical quality. It is important that all research of a statistical nature is included on the NSS website. The policy needs of statistics should be under regular review to ensure that priority needs are met and changing priorities catered for.

Sub-themes

- 2.6.1 Remit of the NSDS for official statistics
- 2.6.2 Adequacy of NSDS statistics to populate monitoring systems in the PASDEP
- 2.6.3 Process for quality assurance of monitoring and evaluation surveys

2.7 System wide improvements

A number of system-wide improvements are included in the strategy. These include coordination of all official statistics, the establishment of ethical and quality standards, and the agreement of common classifications and definitions for the NSS. A data quality assessment framework for Ethiopia (DQAF-E) will be developed and agreed with stakeholders. The framework will be fully tested, staffed and funded before being submitted to the Statistical Council for approval as a legally valid instrument.

Improvements are needed in the business register, which will form the basis for better data collection in economic statistics. Modeling for difficult industries data collection will be introduced and training in these techniques will be needed for members of the NSS.

Household surveys will be better integrated and more carefully designed to include users' needs in the minimum number of surveys. The introduction of new technologies will be tested to improve the quality of fieldwork and to reduce time taken for data capture and editing. Informal sector and detailed labour force information will be collected more regularly and systematically, and be included in the Welfare Monitoring Survey / Household Income and Expenditure Consumption Survey (WMS/HICE) series. A modular survey programme will be considered.

The technological improvements including Global Positioning System (GPS), Ultra-Mobile Portable Computer (UMPCs), satellite imagery, and Computer Aided Telephone Interview (CATI) techniques are planned to be introduced and strengthened. All the CSA regional offices should be networked before the end of the plan period.

Development partners will be requested to support the NSDS in a manner that meets the principles of the Paris Declaration. To promote donor harmonization and alignment, a donor committee for statistics is recommended, and, to ease negotiations and reporting arrangements, common systems should be agreed.

3. Reference Situation for the Food and Agricultural Statistics

3.1 Overview

Prior to 1980, several governmental and non-governmental agencies were collecting agricultural data mainly to satisfy their needs. However, majority of data on agriculture were collected by the Ministry of Agriculture. According to unpublished written documents, the ministry of agriculture was pioneer to conduct nation-wide agricultural sample surveys, as a matter of this fact; the ministry conducted six nation-wide agricultural sample surveys during 1974-1979. However, the scope and coverage of these surveys were limited and couldn't fully provide the required data for use as an input for short and/or long term planning in agriculture. There was no permanent system of data collection in the country, the government resources were not optimally utilized, as the statistical activities of different Agencies including the Ministry of Agriculture were not well coordinated.

Towards alleviating the problems mentioned and use the scarce resource optimally as well as to pave the way for the system that will bring about the collection, summarization and dissemination of comprehensive, and reliable data, regarding the agricultural sector of the country, the UNDP/FAO project 'Integrated System of food and agriculture Statistics' which was located at the CSA (the then CSO), was initiated in July, 1980. Since then various socioeconomic surveys have been conducted. Among those surveys Crop Production Forecast. Post harvest, Crop production, Livestock and Price sample surveys were the major ones. Those surveys included in the integrated system, use the same master sample, standard statistical concepts and definitions. All aspects relating to planning, field organization, methodology, training, data collection, field supervision and data processing were fully coordinated, in such a way that the scarce resources would be utilized efficiently and effectively.

Consequently, beginning from1980, the Central Statistical Agency has been conducting Agricultural Sample Surveys on annual basis except for the years 1992 and 1993 in which the agricultural sample surveys were interrupted due to the full engagement of the agency in undertaking the preparatory activities and the actual operation of the 1994 Population and Housing Census launched for the second time in the country. However, right after the Census, i.e. in the year 1995, the agency resumed conducting the annual agricultural sample surveys on annual basis and from then onwards the surveys had never been interrupted, rather going strong through involving improvements in their coverage and data collection methodologies etc.

3.2 Legal Framework and Food and Agriculture Statistical Advisory Bodies

Food and Agriculture Statistics is collected, compiled, analyzed and disseminated by the CSA under the mandates given to the Agency through the "Central Statistics Agency Establishment Proclamation No. 442/2005". The other objective of the Agency cited in the Proclamation is to provide technical guidance and assistance to government agencies and institutions in their endeavor to establish administrative recording, registration and reporting systems; and build the capacity required for providing directives and consultations in database creation and development of administrative records and registration systems.

Secondly, a National Statistical Council has been established under the chairperson of the Minister of the Ministry of Finance and Economic Development of Ethiopia with members from the Federal Ministries including the Ministry of Agriculture, the Regional States and City Administrations. The Statistical Council has the following powers and duties:

- to approve the national statistical program proposed by the Agency;
- to review the implementation of national statistical programs;
- to approve suitable strategies in the creation and maintenance of statistical databases;
- to issue directives on the improvement of the national statistical system including capacity building of institutions and human resources development; and
- to establish sub-committees as may be necessary.

3.3 Structure of the Food and Agriculture Statistics System

Ethiopia's economy is predominantly agrarian and the majority of the population in the country is engaged in agriculture. In this respect, the collection of reliable, comprehensive and timely statistical information on agriculture is very essential. In Ethiopia the major producer of statistics on Agriculture and Food is the Central Statistics Agency, though there are agencies and non-government organizations that produce data from small surveys and administrative records. The CSA conducts large annual sample surveys covering all parts of the country. And there are 25 Statistical Branch Offices, under the CSA, that are involved in carrying out agricultural surveys and other surveys related to other sectors.

3.4 Annual Agricultural Sample Surveys

3.4.1 Objectives of the Annual Agricultural Sample Surveys

The general objectives of the annual agricultural sample surveys conducted by the CSA is to collect basic quantitative information on the nation's agricultural sector that is essential for development planning and socio-economic policy formulations which includes estimates of total cultivated land, production and yield of major crops, quantity of farm inputs utilized, number of livestock and poultry by type, breed, purpose, sex, age , beehive population , honey production and other items of interest.

In addition, in a country with dominating agrarian economy like Ethiopia, alleviating food security is one of the most important objectives to be attained by the agriculture system. However, the agriculture system in Ethiopia is dominated by rain fed agriculture, where the performance of the sector is highly dependent on the timely on set, duration, amount and distribution of rainfall that makes the system highly vulnerable to drought and other natural calamities.

Thus, in Ethiopia, assessing total food supplies and providing timely early warning signals to the emerging difficulties due to drought and other natural calamities are and remain to be the primary objectives of the efforts to be made annually by the government and the concerned non-government organizations. Towards this end, many factors need to be taken into consideration. Among these factors, obtaining reliable and timely pre-harvest forecast estimates of food crop production is of paramount importance. Hence, compiling reliable, accurate and timely provision of crop production forecast estimates for ultimate users should get prior consideration. In order to take all the necessary and appropriate measures in administering exports or imports, management of stocks and distribution of food to deficit regions, regulation of price control during periods of surplus or deficit…etc. have to be given due attention.

To satisfy the aforementioned data demand, the Central Statistical Agency has been conducting Agricultural Sample Surveys on annual basis since 1980-1981 (1973 E.C.) to produce some of the statistical data that can be used in planning and policy making activities. The survey was interrupted in 1992-1993 (1985 E.C.) and 1993-1994 (1986 E.C.) because during these two years the CSA was fully engaged in undertaking the preparatory activities for the 1994 Population and Housing Census. However, after, undertaking the 1994 Population and Housing Census, the annual agricultural survey was resumed in 1994-1995 (1987 E.C.), and has been conducted since then.

The Natural Resources and Environment Statistics Directorate of the CSA is responsible for the production of agricultural statistics and details of the annual surveys and the 2001/01 Agricultural Sample Enumeration are given below.

3.4.2 The "Belg" Agricultural Sample Surveys

A major characteristic of Ethiopian agriculture is the existence of two well-known crop production seasons referred to as the "Meher" (or Main) and "Belg" (short rain) Seasons. The generally accepted definition of the Meher season is that of the long rainy season, which normally occurs from June to September. The Belg season most often refers to the short but timely rainy season which normally occurs from February to May, but in limited areas of the country. Generally, the Meher season rainy period provides ideal growing conditions for the longer maturing crops. The planting and harvesting of Meher season crops can extend to December or January in some areas. Most of the time holders rely on short maturing crops for planting during the Belg rainy period and harvest of the crops in June or July.

To help clarify the two crop seasons, the following definition has been in use:

Belg Season Crops are defined as any crops that are harvested during the months of March to August, while the crops that are harvested during the period from September to February are considered Meher (or main) Season crops.

Hence, the objectives of the Belg Season Sample Surveys are to produce basic quantitative information on crop land area, production and yield of major Belg season crops, as well as providing quantitative information on the extent and use of different farm management practices on Belg season crops such as fertilized crop land, area and quantity of fertilizer used by crop and fertilizer type, irrigated crop land area, area under improved seed, pesticide treated cropland area etc.

The adequate and timely supply of this information to ultimate users is therefore, important for use as a primary input in the process of policy formulation, designing developmental agricultural projects and programmes.

3.4.3 Livestock Sample Surveys

Ethiopia is believed to have the largest livestock population in Africa. This livestock sector has been contributing considerable portion to the economy of the country, and still promising to rally round the economic development of the country. It is eminent that livestock products and by-products in the form of meat, milk, honey, eggs, cheese, and butter supply etc. provide mainly the needed animal protein that contributes to the improvement of the nutritional status of the people. Livestock also plays an important role in providing export commodities, such as live animals, hides, and skins to earn foreign exchanges to the country. On the other hand, draught animals provide power for the cultivation of the smallholdings and for crop threshing virtually all over the country and are also essential modes of transport to take holders and their families long-distances, to convey their agricultural products to the market places and bring back their domestic necessities. Livestock as well confer a certain degree of security in times of crop failure, as they are a "near-cash" capital stock. Furthermore, livestock provides farmyard manure that is commonly applied to improve soil fertility and also used as a source of energy.

Due to the very important role that the livestock sector plays in the economy of the country, formulation of development plan regarding the sector is indispensable. It is therefore imperative that livestock development plans and policies should be formulated on the basis of reliable statistical data, and hence, timely and accurate livestock data are required for the formulation, implementation, monitoring, and evaluation of development plans and programs in the sector. These livestock data can be generated mainly using surveys and censuses. In this regard, subsequent surveys and a solitary agricultural census have been carried out by the Central Statistical Agency (CSA) to make the data on livestock available. Hence annual livestock surveys have been conducted to produce these same data so as to keep hold of continuity and update users.

Estimates of the livestock survey include cattle, sheep, goats, draught animals (horses, mules, donkeys and camels), poultry and beehives were made based on the information obtained from the holders within the sampled agricultural households in rural sedentary areas of the country.

Objective of the surveys

The general objective of the livestock surveys is to produce data that could be used for development planning and policy formulation regarding the sector, and the specific objectives are to purvey quantitative information on the size and characteristics of livestock in rural sedentary areas at zonal level. In order to meet these objectives, data on: livestock number by type, age, sex, purpose and breed; livestock products particularly milk, egg, and honey; livestock diseases and vaccination; and animal feed are collected from sampled agricultural households in rural sedentary areas.

3.4.4   Crop Production Forecast Sample Surveys

In a country with dominating agrarian economy like Ethiopia, alleviating food security is one of the most important objectives to be attained by the agriculture system. However, the agriculture system in Ethiopia is dominated by rain fed agriculture, where the performance of the sector is highly dependant on the timely onset, duration, amount and distribution of rainfall that makes the sector highly vulnerable to drought and other natural calamities.

Thus in Ethiopia, assessing total food supplies and providing timely early warning signals to the emerging difficulties due to drought and other natural calamities are and remain to be the primary objectives of the efforts to be made annually by the government and concerned stakeholders. To this effect, many factors need to be taken into account. Among these factors, obtaining reliable and timely pre-harvest forecast estimates of food crop production is of paramount importance. Hence, compiling reliable, accurate and timely quantitative crop production forecast estimates for users should get prior consideration so that the government and concerned stakeholders could use the estimates to plan in advance and take all the necessary and appropriate measures in administering exports or imports, management of stocks and distribution to deficit regions, regulation of price control at surplus or deficit harvest, among others.

A forecast of crop production can, therefore, be defined as a statement of the most probable production of crop, which is to be obtained (expected) from the coming harvest, based on reasonable expectations of the crop growing conditions that prevail from sowing till the time of harvest.

Stakeholders involved in providing data on condition factors

To obtain reliable and accurate crop production forecast estimates the following major stakeholders are interviewed during data collection of condition factors:

- Holders in the sampled agricultural households
- Development agents
- Chairpersons of peasant associations
- Community leader
- Skilled professionals assigned by the CSA who provide technical assistance and help in collecting data on condition factors

Objective of the surveys

The objective of crop production forecast surveys is to provide basic quantitative information on area and expected production of major crops. This information can then be used as an earlier indicator to warn policy makers and planners about the emerging difficulties that result from surplus or deficit crop production in the following main season harvest.

3.4.5   Large and Medium Scale Commercial Farms Sample Survey

Commercial Farms Sector refers to the farms that include sate and commercial farms mainly established for the purpose of profit making by selling agricultural products at local market and/or abroad. These farms are commonly owned by government, private companies and non-governmental institutions such as private individual investors, share holders, religious and non-religious institutions etc.. The commercial farms sub-sector is mainly characterized by the use of relatively capital-intensive, mechanized and market oriented farming system, with increased use of modern farm management practices and inputs such as use of high-tech machineries and implements, irrigation scheme, use of chemical fertilizers, pesticides and improved seeds.

In Ethiopia, due to various reasons, commercial farms are not widely spread, and as a result of which, the contribution of these farms to the country's gross total agricultural output is limited only to about 5 percent. According to some written documents, the introduction of commercial farms in Ethiopia goes back to the pre-socialism era, where the government owned pilot state and research farms in some parts of the country which later on transformed into well organized and relatively mechanized state, large scale private farms and institutional farms which have later on been called 'Commercial Farms' collectively.

Three large and medium scale commercial farms surveys have so far been conducted by the CSA in 2001/2002 (1994 E.C), 2008/2009 (2001 E.C) and 2009/2010 (2002 E.C).

Objectives of the surveys

The major objectives of commercial farms surveys are to provide:

- statistical data on crop area and volume of production by farm and crop type to fill-in the existing data gap,
- detail data on various inputs for agricultural production such as type and quantity of fertilizers, pesticides and improved seeds

3.4.6 The 2001/02 Ethiopian Agricultural Sample Enumeration (EASE)

An agricultural census is a government sponsored large scale and periodic operation for the collection and derivation of quantitative information on the structure of the country's agriculture. It provides data relating to the characteristics of the organization and structure of agriculture and the use of agricultural resources such as manpower engaged in agriculture, land and water, livestock, agricultural machinery and other fixed assets and inputs. However, up until 2001/02, an agricultural census had never been conducted in Ethiopia.

To use the outcomes of the census as a benchmark for understanding the structure of the agricultural sector, the Central Statistical Agency (the then Central Statistical Authority) conducted the first ever Agricultural Sample Enumeration in 2001/02, with very strong support from the government and other development partners.

As indicated in FAO Economic and Social Development Paper I, agricultural census is a complex operation and particularly difficult for countries like Ethiopia to carry out a census for the first time.

Agricultural census is possibly classified into two categories: censuses conducted by complete enumeration of all holdings or by a sample enumeration (see FAO, statistical development Series 6, pp.37). CSA preferred the sample enumeration due to various reasons such as limitation of funds and personnel and also by considering the magnitude of the workload expected during the census operation (i.e. data collection, supervision, data processing, logistic supplies,--etc.) of the census.

The agricultural sample census (2001) was carried out as follows:

Within each woreda, a sample of 25 EAs was selected with probability proportional to size without replacement (PPSWOR). The measure of size was based on the number of farm households from the 1994 population Census. This was an efficient sampling approach, given the variability in the size of the EAs. The census sketch maps for sample EAs were updated, and EA boundaries and descriptions were clarified. A new listing of households was conducted in each of the 25 selected EAs, with screening questions to identify the agricultural households. At the second stage a sample of 30 farm households was selected within each sample EA. This procedure provided an approximately self-weighting sample within each stratum (woreda). In the case of weredas with 25 or less EAs, all of the EAs were selected with certainty at the first sampling stage, and 30 households were selected within each sample EA. In this case, each EA can be considered an individual stratum for estimation purposes. In all, 16,000 EAs were selected in the NASCE (2001).

The 2001/02 Ethiopian Agricultural Sample Enumeration provided benchmark data on basic variables both at country and sub-regional levels. The data collected in the 2001/02 EASE provided:

- Number of agricultural holdings and their principal characteristics such as size of holding, utilization of land and type of holding,
- Area under principal crops and volume of production and yield per unit of area by crop type,
- Number of livestock and poultry by age, sex and purpose and number of beehives,
- Number and characteristics of persons employed in agriculture and the extent to which the work on the holding is carried-out by the members of the household or by hired agricultural labor,
- Size and other basic characteristics of the farm population,
- Number of agricultural machinery owned, the use of agricultural machinery and availability of transport and storage facilities,
- Use of irrigation, improved seed, fertilizers and pesticides,--etc. and quantity and cost,
- Percent of agricultural products usage (crop and livestock) by type of use and crop,
- Women contribution in the agricultural activities.

Objectives of the 2001/02 EASE

a) Long-term Objectives

Agricultural Census data are indispensable inputs for the planning of the agricultural sector. These census data serve as a basis for effective economic policy decisions and for formulation of sound and realistic development programs on agriculture. The result will provide a baseline data for the monitoring and evaluation of the various agricultural development programs.

b) Immediate Objectives

The agricultural census is a principal operation for the provision and derivation of essential types of information. In addition to the information indicated in the introductory section, the following can be derived from the Agricultural Sample Enumeration of Ethiopia:

- Estimates of total agricultural output and its contribution to the national economy;
- Determine the status of the availability of food (surplus or deficit) by different administrative level,
- Produce data that serve as a benchmark for comparison with future survey results,
- Develop and update sampling frame which can be used for efficient planning of future surveys;
- Develop more efficient samples and data collection procedures for estimation of area and production of major crops;
- Strengthen the capacity of the staff to plan and conduct large scale agricultural as well as socio-economic surveys in the future.

3.5 Required Improvements on the Current CSA and MoA Systems

3.5.1 Strengths and Weaknesses of CSA and MoA Systems

A detailed review has been conducted of CSA and MoA systems by FAO "support to Food Security Information Systems in Ethiopia – GCP/ETH/071/EC" project. Until recently, crop production estimates were based on field surveys carried out independently by CSA and MoA with significantly different results because of differing methodologies. Strengths and weaknesses of crop estimates of both institutions are highlighted in the table below and recommendations made for methodological improvements leading to a collaborative statistical methods program for agriculture in Ethiopia.

	Strengths	**Weaknesses**
CSA	- Methodology based on widely accepted probability sampling principles - Produces the most accurate agriculture statistics for main crops (close to the real value) at federal and regional levels - Objective approach: field measurements (area and crop cuttings) - Methodology is documented - Data are verifiable: HH level data recorded - Produces early estimates (mid-November) and final estimates (April) - Well trained staffs for conducting field surveys at country level - Capable scientific and technical staff at the central level for data processing, analysis and report writing - Consistent information management system and systematic publication system	- Not timely for food security data users and costly - Does not produce estimates at lower administrative levels (Woreda), except in 2001/02 Ethiopian Agriculture Sample Enumeration (EASE) - Does not utilize auxiliary data from other sources to improve sampling efficiency and improve statistics - Not comprehensive: Commercial farms are not captured annually, does not produce estimates for some cash crops and CVs for minor crops are high - Negative bias as farmers may not report all their fields to the enumerators - Positive bias as sloped areas are measured (fields) - CVs at zone level are high
MoA	- Vast human Infrastructure - reportedly nearly 50,000 DAs at present - Good field knowledge of DAs - Information produced at different administrative levels, starting from Woreda - MoA/BoA produce useful information which could improve CSA statistics - Possibility of implementing quick assessments of agriculture situation in a catastrophic event	- Subjective approach: inquiry method - Uses local measurement units at DA level and conversion factors are not available - Data are not verifiable: primary data are not systematically recorded/maintained - Methodology is not documented and varies from place to place - Possibility of errors in aggregation - Disconnects in information aggregation and transmission at various administrative levels = redundant

		information generation systems (Woreda, zone, region, CFSAM) • Disaggregated data at zonal and Woreda levels are difficult to access • Positive bias: same institution produces data which are used to evaluate performance • Only produces early estimates • Systematic reporting not in place

Based on the strengths and weaknesses identified above, recommendations for progressing toward suitable statistical methods are presented below:

	Recommendations to maintain Strengths	Recommendations to address Weaknesses
CSA	• Maintain CSA probability sampling approach • Maintain CSA objective approach – field measurements • Maintain CSA enumerators expertise • Maintain CSA's capable scientific and technical staff through an adequate incentive system	• Use MoA data as auxiliary variable to generate Woreda level estimates using the Small Area Estimates technique • Implement a "state of the art" land stratification to account for the diversity of Ethiopia in CSA sample design (do not increase sample size to reduce CVs) • Implement an area frame to reduce bias and improve timeliness • Improve timeliness, decentralise data entry, test scanners to speed up data entry and strengthen data management system • Implement special surveys to capture commercial farms and special crops (cash crops, minor crops) • Implement GPS for area measurements
MoA	• Systematically use DAs information in the field to improve agriculture statistics • Systematically share MoA/BoA information with CSA • Train DAs in quick assessment in the event of a catastrophic occurrence	• Standardise and document approaches in all Regions • Systematically share MoA/BoA Woreda level information with CSA • Woreda level estimates should not be aggregated at a higher administrative level • Develop conversion factors for local measurement unit

3.5.2 Required Improvements on CSA System

It is appropriate to review the current CSA system in light of the criteria of good statistics which are: 1) standard methodology, 2) accuracy, 3) timeliness, 4) objectivity, 5) comprehensive, 6) cost-effective, 7) sustainable, 8) flexibility and 9) ability to detect change. These criteria are handled separately.

1) Standardized – CSA data are standardized in all regions and zones.
2) Accurate - CSA estimates have low sampling errors but possible non-sampling errors; CSA needs better control over the field data collection.
3) Timely – CSA estimates must be timelier.
4) Objective – CSA data are objective. Objectivity is what gives credibility to a system.
5) Comprehensive – CSA data are comprehensive; including data on crops, social and economic data and nearly any data required by the government.
6) Cost-effective – CSA data are cost-effective but this can be improved.
7) Sustainable – CSA data system are sustainable.
8) Able to detect change – CSA data estimates measure change.
9) Flexible - CSA data system is flexible meaning new requirements can be added.

Strengths of the CSA Master Sample

The master sample based on RIHSP is a major improvement over older systems that were not based on probability sampling. It provides a sampling frame for the census as well as the master sample for agricultural surveys including socioeconomic data. It also provides for probability sampling and development of classical statistics. However, although theoretically this system is excellent, it is still important to consider whether the sampling frame is complete and whether there are problems with data collection. From the last section, it is clear that the current system is: standardized, objective, comprehensive, cost-effective, sustainable, able to detect change and flexible.

Weaknesses of the CSA Master Sample

A limitation of the CSA master sample survey system is that there are still questions about coverage; i.e., some farm households may not have a chance to be selected in the two-stage list frame. The areas where under coverage are possible are:

1) Only rural EAs are sampled; some farmers might live in urban EAs.
2) An EA has between 150 and 200 households. It is possible to miss households listing.
3) All known households are listed and farm households are numbered. Some non-farm households may have farming activities.
4) Farmers may not "remember" and "report" all their fields.
5) Measurements of all fields belonging to a selected farmer are possibly incomplete.
6) Boundaries described in the EA definition are more than 9 years old. Areas may have changed. Shape file boundaries for the EAs do not register well with the SPOT satellite imagery.

The stratification is not efficient in the current CSA frame, therefore the samples are large and even then, the coefficients of variation (CVs, a form of relative sampling errors) are high and as a result, the estimates are not timely. Timeliness of agricultural statistics is very important because agriculture is dynamic and changes every four months. Moreover, estimates can not be made at the lowest level (Woreda) and these Woreda level estimates are required.

In Ecuador, these listing procedures accounted for 20% under-coverage. Ethiopia may not have an incomplete listing procedure to this degree, but the possibility raises questions about non-sampling errors associated with the sample design. Any of these weaknesses can cause a lack of credibility.

Efforts are being expended at CSA to eliminate these weaknesses that include making CSA data more: **accurate, timely, cost-effective and able to detect change**. In some subtle ways, accuracy and timeliness are tied together. This is especially true when you have non-sampling error concerns. If the sample can be reduced, that is, the number of questionnaires, then the timeliness can be improved. Often, the non-sampling errors can also be reduced depending on the nature of the non-sampling errors. CSA management believes that they can change the design of the secondary sampling units and reduce non-sampling errors, improve timeliness, improve cost-effectiveness, and improve their survey's ability to detect change.

Sampling errors and other survey errors

A fundamental principle behind the estimation process is that precision of the sample survey estimates is greatest at the aggregated regional and national levels. The precision of a sample survey estimate is measured by the estimated sampling error. For CSA surveys, the sampling error at the national level for *teff* and wheat hectares is about 3 to 4 percent, and it ranges around 6 to 8 percent in major Regions.

A Coefficient of Variation (CV) is a relative form of sampling error which is a measure of only one kind of survey error. However, there is another kind of survey error that is usually more important and therefore this section is expanded to include both types of survey errors. See Figure 1 to understand both sampling error and non-sampling error.

Figure 1. Normal Distribution showing sampling error and bias or non-sampling errors
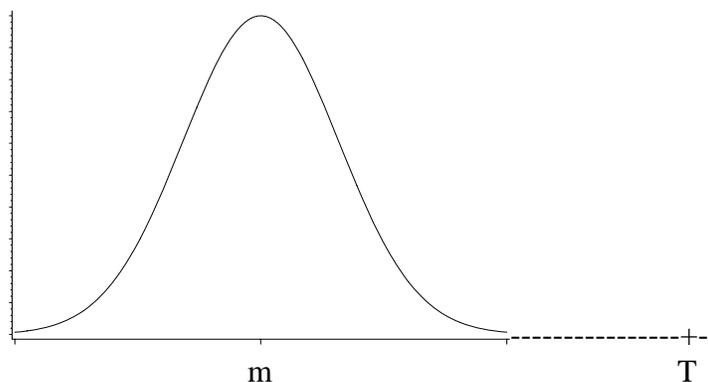
Figure 1, m is the middle of the sampling distribution and T is the target value being estimated. When a bias is present, (bias is the distance from m to T) then the CV is less important because if one tightens up the spread on the left which is the CV, one is still not getting closer to the target value being estimated. One must first correct the bias and afterwards worry about the CV. The CSA area frame should correct for some bias. Unfortunately, one can never remove all bias but bias can be reduced greatly by clear definitions and procedures and improved sample design.

There are several ways to reduce bias and CVs. One smart way to reduce bias is to reduce ambiguity in the field by making sure interviewers have a clear idea of what they are to accomplish within a time frame, and to reduce the sample size.

The way to reduce the sampling errors is by improving the stratification and increasing the sample. Currently the only stratification used by CSA is zonal level strata. A Land cover Stratification and/or a slope model could improve CSA sampling strategy by making strata more homogeneous.

3.5.3   Required Improvements on MoA System

3.5.3.1 Concepts and Definitions and Standardization of Questionnaires

Until recently, MoA data generation system did not have documented concepts and definitions. Moreover, reporting schedules varied from region to region and zone to zone.

Data items of agriculture have to be distinctly defined and identified, so that the information about the items becomes useful. The correct way of stating data items and related terms is a prerequisite for making standards and definitions for the collection and compilation of agricultural data. The purpose of using standard concepts and definitions is not only to provide quality data but also to ensure that the correct items are enumerated and measured accurately in order to reflect the true factual agricultural situation. Standard concepts and definitions used in the survey help to maintain consistent enumeration and measurement of variables of interest.

To achieve the above, standard concepts and definition have been documented for the purpose of MoA agriculture data generation. In addition, standard reporting schedules from DAs to Woreda Bureau of Agriculture (BoA) have been developed. Comprehensive training on these concepts, definitions and reporting schedules was conducted for each Woreda BoA in September 2008.

3.5.3.2   Conversion Factors

The absence of *standard coefficients* for converting local units has adverse effects on food security. It is not feasible to produce timely and less costly agricultural data, such as area under different land uses, farm inputs, production etc. This situation, of course, creates drawbacks to formulate and implement accurate and timely agricultural development policies and programs.

The absence of *standard conversion coefficients* is one of the root causes for differences in the crop area and production estimates every year between CSA and MoA. This is a crucial problem, particularly, for policy makers and other data users.

CSA has expended time and resources in an effort to understand and develop *conversion factors* so that standardized tables can be provided for all regions and zones. Generating conversion factors is one component for having standard tables. Data on area and production of crops, using both local and standard measurement units, were collected through household survey of Ethiopian Agricultural Sample Enumeration (EASE) in 2001/02. The main objective of this analysis was to test whether local (traditional) area and production measurement units vary between Woredas within a zone, and to construct conversion factor models for converting local units into metric units, for each zone in each Region. Statistical investigation using General Linear Model (GLM) where local measurement units as covariates and Woredas as random factor has been carried-out and the results indicate that there are statistically significant differences ($p<=0.05$) between mean values of selected local measurement of area and production between Woredas.

However, using cluster analysis homogeneous groups of Woredas within each Zone are identified and for each of the homogeneous groups of Woredas, conversion factor models were constructed using linear regression models. Over 160 local area and over 200 local production measurement units are used by the agricultural holders.

3.6 Human resources Available

The Agriculture, Natural Resources and Environment Directorate of the CSA, which is responsible for the production of agricultural statistics, has 14 statisticians directly responsible for the production of agricultural statistics. There are also about 117 professionals at 25 Statistical Branch Offices of CSA in different parts of the country. These professionals are also responsible for agricultural statistics and statistics related to other sectors which are conducted by the CSA.

3.7 Data Dissemination Policy for Food and Agriculture

The data dissemination policy for agricultural surveys is two months after the end of the data collection activities. All agricultural surveys conducted by the CSA encompass all Regions in the country and are, therefore, considered as large sample surveys. The dissemination policy for agricultural census is about six months after the end of the field work. The Annual CSA Statistical Abstract is released in February every year.

3.8. Modalities of Promoting User-Producer Dialogue

The agricultural data users and producers usually organize a meeting to discuss on the detailed technical issues in two occasions. The first one takes place before the launching of a survey to agree on the type of data collected, concepts used and type of outputs to be generated from the survey. The second one usually takes place to discuss the finding of the survey. The following institutes attend the user producer forum on Agricultural Statistics.

- The Ministry of Agriculture
- The National Bank of Ethiopia
- Universities

- The Ethiopian Development Research Institute
- The World Bank
- The FEWS_NET USAID
- World Food Program
- Food and Agriculture Organization
- The Ministry of Finance and Economic Development
- The Prime Minister's Office
- The Ethiopian Metrological Agency

In these type of meetings, participants: :

i) Review and approve work plans for agricultural censuses, surveys and other pertinent data collection systems;
ii) Provide technical guidance on issues relating to sample design, quality control, questionnaire   design, etc;
iii) Review manuals for guidance of district statisticians and advise on backstopping agricultural statistics work in districts;
iv) Review all existing agricultural statistics with a view to revising them in light of new findings;
vi) Advise on the diffusion of good practice in the development of agricultural statistics;

3.9 Existing Databases and Data Dissemination Tools

Databases on Food and Agriculture and other related sector statistics surveys conducted by the CSA are owned by the Agency, and are shared with other government and non-government agencies in accordance with the "Directive to establish procedures for accessing Raw data to Users (Directive No. 1/2004)".

Data are disseminated in hard copy publications, CD-ROMs and survey results (summarized) are posted on the CSA website: www.csa.gov.et

4. Outputs, Data Sources and Metadata for the Food and Agriculture Statistics

This chapter deals with the outputs, data sources and metadata of statistics on food and agriculture. In the following sub-sections, scope and the coverage, sampling methodology, data collection, processing, estimation procedures and dissemination methods of the annual agricultural sample surveys are discussed and existing outputs of the surveys will also be presented. The annual agricultural sample survey questionnaires are also attached in ANNEX IV.

4.1 Scope and Coverage of the Annual Agricultural Sample Surveys

The scope of the annual agricultural sample surveys conducted from 1980 to 1992 were limited to include the following data items, mainly due to lack of skilled manpower, financial and related resources constraints. These are:

> Area under both temporary and permanent crops,
> Production of major annual crops particularly grain crops which include
> Cereals, Pulses and Oilseeds,
> Land use i.e. total cropland area, fallow land, grazing land, forest land,
> Agricultural practices, such as use of both natural and commercial fertilizers, improved
> seed, pesticides, insecticides, herbicides and use of irrigation,
> Number of livestock and poultry by type , purpose, age and sex
> Number of beehives by type (Traditional and modern)

Considering the increasing demand for a range of data items by the government and the private data users', the CSA along with conducting the annual agricultural sample surveys has worked to its level best towards building the capacity of the agency both in terms of skilled manpower and organizational structure. As a matter of this fact and a number of others including the need for international comparability, CSA widened the scope of the agricultural sample surveys that are conducted from 1994 onwards to include the following data items in addition to those mentioned above.

> Utilization of Crop Production of both temporary and permanent crops,
> Utilization of Livestock products and by-products,
> Honey production and its harvest frequency,
> Proportion of animal feed consumed by type,
> Number of livestock vaccinated died, slaughtered and sold by type,
> Number of Extension Package participants by package type,
> Number of non-extension package participants ….etc

4.2 Sector and Area Coverage of the Annual Agricultural Sample Surveys

a) Sector Coverage

As mentioned earlier, since 1980 the Central Statistical Agency has been conducting agricultural sample surveys on annual basis covering both private peasant agricultural holdings and commercial farms including cooperative farms, except in 1992 and 1993 where the agricultural sample survey was interrupted due to the full engagement of the agency in undertaking the

preparatory activities, and the actual operation of Population and Housing Census which was conducted in 1994 for the second time in the country. Though, the annual agricultural sample surveys used to cover both the private and commercial farms agricultural holding, except the 2001/02 EASE, large and medium scale farms census result, the survey result regarding commercial farms has never been disseminated to ultimate users' due to problems in data quality and reliability that emerged by respondents unwilling to tell the truth at the time of data collection.

b) Area Coverage

The annual agricultural sample surveys were designed to cover the sedentary agricultural population in all regions of the country. Urban and nomadic areas were not included for the reason that both require different data collection method, sample selection method and estimation procedures and can't be treated in surveys designed for general purpose like that of the annual agricultural sample survey

4.3 Sampling Methodology

4.3.1 Coverage

The Annual Agricultural Sample Survey covered the entire rural parts of the country except the non-sedentary population of three zones of Afar & six zones of Somali regions. The Annual Agricultural Sample survey is conducted on the basis of 30 agricultural HHs selected from each enumeration area (EA).

4.3.2 Sample Design

In order to select the sample a stratified two-stage cluster sample design is implemented. Enumeration areas (EAs) are taken to be the primary sampling units (PSUs) and the secondary sampling units (SSUs) are agricultural HHs. The sample size for the annual agricultural sample survey is determined by taking into account of both the required level of precision for the most important estimates within each domain and the amount of resources allocated to the survey. In order to reduce non-sampling errors, manageability of the survey in terms of quality and operational control was also considered, except for Harari and Dire Dawa, where each region as a whole was taken to be the domain of estimation; each zone of a region / special wereda was adopted as a stratum for which major findings of the survey are reported.

4,3.3 Sampling Frame

The list containing EAs of all regions and their respective agricultural HHs obtained from the 2007 Ethiopian Population and Housing Census was used as the sampling frame in order to select the primary sampling units (EAs). Consequently, all sample EAs are selected from this frame based on the design proposed for the survey. The second stage sampling units, HHs, are selected from a fresh list of HHs that was prepared for each EA at the beginning of the survey.

4.3.4 Selection Schema

Enumeration areas from each stratum were selected systematically using probability proportional to size sampling technique; size being number of agricultural HHs. The sizes for EAs were obtained from the 2007 Population and Housing Census and adjusted for the sub-sampling effect. From the fresh list of HHs prepared at the beginning of the survey 30 agricultural HHs within each sample EA are selected systematically.

4.4 Method of Data Collection

Prior to 1980, all agricultural information was collected using interview or subjective method of data collection. But after the initiation of the integrated system of food and agricultural statistics in 1980, agricultural data were collected from survey covered sampled agricultural HHs both through subjective and objective method of data collection. However, in relative terms, it is the interviewing method that is widely used in the Agricultural Sample Surveys.

In the annual agricultural sample surveys, the type of data that are collected using interview and objective method of data collection are listed below.

Agricultural data collected using objective method are:

> Land area under crop,
> Conducting crop cutting experiment from 4 mts x 4 mts plot of land,
> Land Utilization (Area under different land use).

Agricultural data collected through interview method are:

> Data on agricultural practices (such as use of fertilizers, local and improved seeds, use of pesticides, herbicides, and use of irrigation),
> Cost and quantity of agricultural inputs used (Quantity and cost of chemical fertilizers, pesticides and improved seed used by type etc.), and
> Livestock, poultry and beehives enumeration and their products by type.

In the Ethiopian context under the umbrella of the annual agricultural sample survey, there are five surveys, namely, the Meher season crop production forecast, Meher seasons post harvest crop production and land utilization, Belg Season crop production, livestock, poultry and beehives enumeration as well as large and medium scale commercial farms sample survey that are conducted on annual basis covering all the regions of the country. Thus, the details in the method of data collection adapted by CSA for each of the above mentioned surveys are discussed on the following sub-sections.

4.4.1 Crop Production Forecast Sample Survey

The crop production forecast sample surveys that were conducted prior to 1980, involved subjective method of data collection during their field data collection operation. The wereda official was asked about the expected changes in cropland area and the production of major crops as compared to the previous year. The average changes at the regional level were obtained as the

average of reported changes at woreda level of major crops. These changes were multiplied with the figures of the estimates of the previous year, to give the forecasts at the regional level.

However, the crop production forecast sample surveys that were conducted on annual basis beginning from 1980, involved both subjective and objective method of data collection.

The data collected from the sampled agricultural holders for the crop production forecast estimates consisted of both subjective questions through direct interviews and objective method associated with field measurements. Data were collected objectively by measuring all fields under temporary and permanent crops using compasses and measuring tapes. On the other hand, the expected crop production forecast estimates are calculated from the condition factor data that are collected directly from the sampled holders within HHs, peasant association chairpersons and development agents. The enumerators were trained how to systematically present the questions to the respondents on percentage changes using the local translation and meaning. The enumerators were also trained on how to use comparative associations to represent the concept of percentage changes and fill in the questionnaire.

The estimation procedure of forecast survey has proven to be successful over the past years and also avoided the serious problems in Ethiopia of using many different types of local units of measurements. The farmers could otherwise report on their absolute crop yields. These subjective data on percentage yield change are recorded in the questionnaire for each grain crop under investigation.

a) Major Stakeholders involved in providing data on "Condition Factor" for the Annual Crop Production Forecast Survey.

Years have passed, since the Central Statistical Agency(CSA), in consultation with ultimate data users, had increased the number of stakeholders to five, which was only one prior to the year 2005/06(1998 E.C.), with the objective to keep up and improve the data quality in terms of reliability and accuracy. Since then, for the Annual Crop Production Forecast surveys conducted so far including the current year, the following stakeholders have been used as ultimate statistical unit data on "condition factor" are collected from.

Sampled HHs:- Each holder who grows grain crops, in the sampled HH of the selected enumeration area was interviewed to state the expected percentage change on crop yield compared to that of last year's. These holders who are knowledgeable with accumulated and rich practical experience are believed to be the major source for accurate and reliable data on condition factors.

Development Agents (DAs'):- Development Agents of Regional Bureau of Agriculture are sub professionals assigned to each peasant association. Nowadays, most of the development agents that are assigned to one or group of peasant associations are trained how to advise and provide technical assistance to farmers on the use of modern or improved farm management practices in order to attain enhanced productivity. While performing their duties these development agents could easily identify the major crops grown, the timely onset or the delay in the distribution and amount of rainfall which is important for crop production activity in their respective area. Therefore, the development agents who are informative by the very nature of their job are believed to be another source of agricultural information including "condition factors".

Chairman of the Peasant Association (PA):- Chairpersons of the peasant associations in each selected enumeration area were interviewed to state the expected percentage change of each grain crop yield compared to that of last year's. These individuals are assumed to be more knowledgeable than others about their respective areas due to their duties and responsibilities that would inform them about the supply and magnitude of farm input distribution and weather conditions. Therefore, the peasant association chairpersons are believed to be one of the sources of data on "condition factors'.

Community Leaders':- Five farmers group leaders in each selected enumeration area were interviewed to state and agree on the expected percentage change of each grain crop yield compared to that of last year's. These group leaders are very close to farmers and are believed to be one of the sole sources of data on "condition factors'

Observations from highly Skilled Professionals: - Since the year 2004/05 (1997E.C.) CSA has been working in collaboration with FAO Food Supply and Crop Assessment Mission to improve its crop forecast survey results. Hence, CSA assigns eight - six senior professionals to collect data on condition factors and technically assist in the over all field activities of the FAO Crop Assessment Mission teams for three weeks time. Therefore, besides their technical assistance to the mission, the assigned professionals served the CSA in providing data on "condition factor" to be used as a correction factor to eliminate outliers. In other words, the qualitative as well as the quantitative data are used as input in the process of the current year crop production forecast estimates.

b) Procedures of Crop Production Forecasting

The Crop Production Forecast Sample Survey is based on what could be considered a three component production "Model". The first component production "model" is the survey's direct expansion estimate of the actual cultivated area (obtained from the objectively measured fields during the September-October field data collection period). The second component production "model" uses previous year's Meher (Main season) crop yield estimate obtained from objectively collected crop cutting results. The third component production "model" is the average "condition" factor, which adjusts the previous years' yield data in order to estimate the current year production.

All specific condition factors (such as weather, pest damage, … etc.) affecting the crop growth for the rest of the current season are assumed to be taken into account by the respondent's own subjective assessment through these "condition" factors.

Factors that Influence the Expected Crop Production

For the holder, to intuitively formulate the future production of his/her crops in the field, there are numerous factors that he/she has to take into account and make assessment subjectively. Besides the meteorological factors, there are a number of other factors that influence production and yield of crops. The major external factors that have negative and positive influences on yield and production are given below:

Factors that have Negative Influence

       - Too much rainfall and lodging of the crop,
       - Shortage of rainfall,
       - Insect (locust), disease and other pest (birds) damage,
       - Hail and frost damage,
       - Wild and domestic animal damage,
       - Shortage of seed,
       - Depletion of the soil fertility, and
       - Others.

Factors that have Positive Influence

       - Favorable weather conditions,
       - Improved seed and cultural practices,
       - Application of fertilizers,
       - Application of pesticides (absence of pests), and
       - Others

4.4.2 Main Season (Meher) Survey

a) Crop Area and Land Use Estimates

For the annual agricultural sample survey, most of the information on crop area, land use and yield is collected from the holders through interview and the remaining information is obtained by physically measuring the data items of interest. This is done by enumerators who identify the selected holders, interview them; measure all their crop fields using measuring tapes, field compasses, and scientific calculators. Moreover, they harvest and weigh the yields obtained using kitchen balances from plots of randomly selected crop fields.

All crop fields of the randomly selected holders in each enumeration area are measured using the FAO recommended method, i.e., first by identifying the boundaries of the fields, determining their shape which was mostly irregular and taking compass bearings of each side with respect to the north. This is followed by measuring the length of each side of the field and using a programmable calculator to arrive at both the area of the field and the closure error. The objective of arriving at the closure error is to find out how well the field was measured.

The responses to the interview and results of the measurement are recorded on a structured questionnaire. The interview method help on the spot clarification of objectives, concepts and form of information seek from the respondents during the interview. The following table shows the list of crops covered in the Meher season.

Cereals	Pulses	Oilseeds	Vegetables	Root Crops	Fruit Crops	Other Crops
Teff	Faba beans	Neug	Lettuce	Beetroot	Avocado	Chat
Barely	Field peas	Linseed	Head Cabbage	Carrot	Bananas	Coffee
Wheat	Harricot beans	Groundnuts	Tomatoes	Onion	Guavas	Hops
Maize	Chick-peas	Safflower	Green Paper	Potatoes	Lemons	Sugar Cane
Sorghum	Lentils	Sesame	Red Paper	Garlic	Mangoes	Enset
Finger Millet	Grass peas	Rape seed	Swiss chad	Taro	Orange	
Oats	Soya beans			Sweet Potatoes	Papayas	
Rice	Fenugreek				Pineapples	
	Gibto					

b) Crop Production

Since crop production is a function of area and yield, yield measurement is done using the crop-cutting method. The method involves crop-cutting from small sub-plots of rectangular shape randomly placed in the selected crop field for each crop type and subsequent threshing, drying and weighing and recording the weight of the harvest. The crop cutting is performed for a sub-sample of 20 out of the 30 HHs selected in each enumeration area. A 4x4 meter plot is randomly demarcated for cereals, pulses, and oil seeds, for the crop-cutting exercise.

The yields harvested from the plots are immediately weighed (green weight) and /or weighed again after two weeks of drying to confirm to the normal holder harvesting and drying practices. The green and dry weights are recorded on the appropriate form.

c) Farm Management Practices Estimates

For the annual agricultural sample survey, data items regarding the Farm Management Practices, i.e., type, quantity and value of commercial fertilizers; type and quantity of improved seeds applied, application of pesticides … etc. are collected by interviewing the sample agricultural holders. This is done by enumerators who identify the selected holders.

Available Meher (main) Season Annual Agricultural Sample Surveys

The following annual agricultural sample surveys (Meher Season) conducted by the CSA between 1996 and 2010 are available in the national agricultural databank at the moment:

- Agricultural Sample Survey – 1995/96 (1988 E.C)
- Agricultural Sample Survey – 1996/97 (1989 E.C)
- Agricultural Sample Survey – 1997/98 (1990 E.C)
- Agricultural Sample Survey – 1998/99 (1991 E.C)
- Agricultural Sample Survey – 1999/2000 (1992 E.C)
- Agricultural Sample Survey – 2000/2001 (1993 E.C)
- Agricultural Sample Survey – 2003/2004 (1996 E.C)
- Agricultural Sample Survey – 2004/2005 (1997 E.C)
- Agricultural Sample Survey – 2005/2006 (1998 E.C)

- Agricultural Sample Survey – 2006/2007 (1999 E.C)
- Agricultural Sample Survey – 2007/2008 (2000 E.C)
- Agricultural Sample Survey – 2008/2009 (2001 E.C)
- Agricultural Sample Survey – 2009/2010 (2002 E.C)
- Agricultural Sample Survey – 2010/2011 (2003 E.C)

4.4.3 Livestock Survey

The main items collected in the annual livestock survey are size, population of livestock by sex, age and purpose and breed for cattle, sheep, goats and draught animals. Livestock products such as milk, honey and egg production as well as annual changes in the number of animals, number of births, purchases and acquired at the end of the year are also collected. The number of cattle, sheep, goats, camels and poultry and number of sales, slaughtered, deaths and offerings are also collected. Moreover, poultry number by size, type and breed, beehives population, estimated number of vaccinated livestock by type and animal feed from grazing, crop residue, improved feed, hay, and by-products and availability of livestock extension package are also included in the survey. Information about the survey variables are collected from the respondent by interview method. All the holders in the selected HHs are interviewed to obtain the livestock characteristics in the survey area.

Annual Livestock and Livestock Survey Datasets

The following annual livestock sample survey datasets exist on the CSA National Data Archive:

- Livestock and Livestock Characteristics Survey 1995-1996 (1988 E.C)
- Livestock and Livestock Characteristics Survey 1996-1997 (1989 E.C)
- Livestock and Livestock Characteristics Survey 1997-1998 (1990 E.C)
- Livestock and Livestock Characteristics Survey 1998-1999 (1991 E.C)
- Livestock and Livestock Characteristics Survey 1999-2000 (1992 E.C)
- Livestock and Livestock Characteristics Survey 2000-2001 (1993 E.C)
- Livestock and Livestock Characteristics Survey 2003-2004 (1996 E.C)
- Livestock and Livestock Characteristics Survey 2004-2005 (1997 E.C)
- Livestock and Livestock Characteristics Survey 2005-2006 (1998 E.C)
- Livestock and Livestock Characteristics Survey 2006-2007 (1999 E.C)
- Livestock and Livestock Characteristics Survey 2007-2008 (2000 E.C)
- Livestock and Livestock Characteristics Survey 2008-2009 (2001 E.C)
- Livestock and Livestock Characteristics Survey 2009-2010 (2002 E.C)
- Livestock and Livestock Characteristics Survey 2010-2011 (2003 E.C)

4.4.4 Belg Season Cropland Area, Production and Farm Management Practice

Prior to the year 2001/02 Ethiopian Agricultural Sample Enumeration all information regarding Belg season crop production activities i.e. Belg season cropland area, production and farm management practice such as quantity of farm input used …etc were collected in local measurement units from sampled holders by interview method on the basis of converting the local measurement units using conversion factors obtained in the 1968 National Sample Survey which was believed to be out dated. In the country, the local area and production units were found to be more than 150 and 260 respectively. The area and production estimates were,

therefore, accompanied large error because of subjective reporting of area and production by farmers and applying of out-dated conversion factors of the 1968 survey.

However, the method of actual measurement of Belg season cropped areas from sampled holders was adopted from the year 2001/02 EASE onwards. At present area under Belg crops is collected by physically measuring each crop field using compass and measuring tape. On the other hand, the problem of having appropriate conversion factor had challenged the Belg season crop production data collected from sampled holders who reported the production obtained from each plot in different local production measurement units till recently.

Nevertheless, starting from 1998 the above problem has been resolved once and for all, by replacing the production data collection with data to be collected on condition factor of each Belg season crops from different stakeholders similar with that of data collected on condition factor for crop production sample survey.

Existing Belg Season Annual Agricultural Sample Surveys

Datasets from the following annual agricultural sample surveys for the Belg season are currently available on the National Data Archive:

- Agricultural Sample Survey 2004-2005(1997 E.C) - Belg
- Agricultural Sample Survey 2005-2006(1998 E.C) - Belg
- Agricultural Sample Survey 2007-2008(2000 E.C) - Belg
- Agricultural Sample Survey 2008-2009(2001 E.C) - Belg
- Agricultural Sample Survey 2009-2010(2002 E.C) - Belg

a) Large and Medium Scale Farms

Nearly five decades have passed since market oriented large scale crop production have been introduced in Ethiopia, through the establishment of large and medium scale commercial farms. Government owned farms, called as state farms, were the pioneers to begin profit oriented large scale production, followed by producers' co-operative farms, usually established by interested group of farmers and then the so called commercial farms owned by private investors, share companies, which joined the sub-sector lately in the year 1999 and thereafter. However, as it has been mentioned earlier, due to various reasons, commercial farms are not widely spread in Ethiopia, and as a result of which the contribution of these farms to the country's gross total agricultural output was limited only to about 4 -6 percent.

After conducting the 2001/02 EASE, the first ever agricultural sample enumeration, the CSA has conducted more than three consecutive commercial farm surveys as part and parcel of the annual agricultural sample surveys. In each of these surveys the field data collection activities had covered the following data items.

Area under temporary and permanent crops by crop type and season(Meher and Belg),
Crop area under different farm management practices and quantity of farm input applied by crop and input type, and
Number, service year and the market value of farm implements, agricultural machineries, transport and storage facilities used by the farm by type etc,.

The commercial farms are used to properly register and document each and every activity carried out in each and every plot of land mainly for administrative purpose. Thus, the data collection operation that was carried out during the large and medium scale commercial farms sample surveys were performed simply by compiling data from already existing administrative records found in each of the respective farms.

Even though the CSA has conducted consecutive large and medium scale farms after the 2001/02 Agricultural Sample Enumeration, but had failed to produce the results of the surveys due to various reasons mainly due to unwillingness of the respondents to provide accurate information regarding crop yield, and area under crop and etc, among others.

4.5. Field Organization

4.5.1 Field Organization

The conducting of a survey cannot be executed without the arrangement of fieldwork. In recognition of this, the organization of fieldwork was entrusted to the then Department of Regional Offices and Field Operations that liaised between the Head Office and the 25 Branch Statistical Offices that are spread across the regions. All Branch Offices take part in the survey execution especially in recruiting the enumerators, organizing the 2nd stage training, assigning the field staff to their sites of enumeration, supervising the data collection and retrieving completed questionnaires and submitting them to the Head Office for data processing.

The Branch Offices are also responsible for administering the financial and logistic aspects of survey within their areas of operation. For data collection on the average one supervisor is assigned to five enumeration areas for supervision. All the enumerators are supplied with the necessary survey equipment after the completion of the training to ensure the smooth operation of each survey. To facilitate the data collection activities, four-wheel drive vehicles are deployed each year.

4.5.2 Training of Field Staff

The execution of a survey and quality of data acquired from the survey highly depend on the type of training given to the enumerators and supervisors and the consequent understanding of the tasks to be performed and the standard procedures to be followed by the enumerators and supervisors in the survey undertakings. The quality and completeness of data are ensured when the training meets its objective of producing responsible and fervent enumerators and supervisors.

In light of this point, the training is given to the field staff in two stages. The first stage training, which takes place at the Head Quarters of CSA and usually lasts for 7 days, targeting staff from the Head Office, statisticians and senior field supervisors from Branch Statistical Offices. The staffs that take part in the first stage training will then be assigned to conduct similar training for the enumerators and other supervisors for two to three weeks in all the twenty- five Branch Statistical Offices across the country.

In the training the field staffs are given detailed classroom instruction on how to collect data, method of area measurement, interviewing procedures, etc. The training also includes field practice to reinforce the understanding of concepts, definitions and theories discussed in the classroom with regard to field measurement, crop cutting and interviewing methods.

4.5.3 Data Collection

The agricultural data are collected from sedentary rural peasant HHs by interviewing the selected agricultural holders and physically measuring their fields to obtain data on crop yields and other items of interest.

The data obtained are recorded in various forms designed for this purpose. Instruments like measuring tape; compass, kitchen balance, scientific calculators and others are used during data collection for a timely and smooth acquisition of accurate data. The procedures for measuring area under crop and area of non-crop fields operated by the holders are performed for the 30 selected HHs from each sampled EA using measuring tapes and compasses.

4.6. Data Processing

4.6.1 Editing, Coding and Verification

Statistical data editing plays an important role in ensuring the quality of the collected survey data. It minimizes the effects of errors introduced while collecting data in the field, hence the need for data editing, coding and verification. Although coding and editing are done by the enumerators and supervisors in the field, respectively, verification of this task is done at the Head Office.

An editing, coding and verification instruction manual is prepared and reproduced for this purpose. Then editor-coders and verifiers are trained in editing, coding and verification using the aforementioned manual as a reference and teaching aid. The completed questionnaires are edited, coded and later on verified on a 100 % basis before the questionnaires are passed over to the data entry unit.

4.6.2 Data Entry, Cleaning and Tabulation

Before data entry, the Natural Resources and Agricultural Statistics Department of the CSA prepares edit specifications for the survey to be used on personal computers for data consistency checking purposes. The data on the edited and coded questionnaires are then entered into personal computers using data entry application prorams. The data are then checked and cleaned using the edit specifications prepared earlier for this purpose.

The data are entered into the computers using the entry module of the CSPro (Census and Survey Processing System) software, which is a software package developed by the United States Bureau of Census. Following the data entry operations, the data are further reviewed for data inconsistencies, missing data … etc. by the data cleaning personnel and professional staff from Natural Resources and Agricultural Statistics Department.

The final stage of the data processing is to summarize the cleaned data and produce statistical tables that present the results of the surveys using the tabulation component of the PC-based CSPro software. The tabulation programs are prepared by the computer programmers from the subject-matter Departments (Agricultural Statistics Department for agricultural surveys) conducting the surveys.

4.6.3 Report Writing and Dissemination

The reports from annual agricultural surveys are usually prepared through a number of volumes. Reports on crop production forcast, area and production for Meher season, Farm Management Practices for Meher season, land utilization, area and production for Belg season, farm management practices for Belg season, livestock and large and medium scale commercial farms are prepared in separate volumes.

The survey reports are usually disseminated through press conferences, hard copy publications, CD ROMs and through CSA's official website (**www.csa.gov.et**).

5. Overview of User Needs for Food and Agriculture Statistics

5.1 Agricultural Statistics

The CSA publishes crop production forecasts for main and short rainy seasons by area, production and yield; livestock statistics; farm management practices and land utilisation. The first agricultural census of Ethiopia was carried out in 2001/02 by the CSA, but annual agricultural surveys have been carried out since 1980. This was an important milestone in gaining a better understanding of the agricultural sector, which accounts for some 50% of the country's GDP and 90% of export earnings.

Since 1980/81, the CSA has conducted annual crop area and production sample surveys, and been using the classical method of data collection, i.e. compass and rope method for field area measurement and a 4m x 4m crop-cutting experiment for yield estimation. In the coming years, the CSA plans to make changes using improved technology, such as GPS for area measurement and reducing the size of the crop-cutting plot. There is a wide discrepancy in crop area and production estimates produced by the CSA and Regional Bureaus of Agriculture (BoA) and this has been a challenge for over a decade. Thus, the CSA has a plan to find solutions that will contribute to minimizing the extent of the discrepancies, summarized in the following paragraphs.

For the past 25 years, the CSA has used a list frame for all socioeconomic surveys including agriculture. In order to improve the data quality and coverage in the coming five years, the CSA has a plan to apply an area frame augmented by satellite images.

The Ministry of Agriculture collects data using its development agents. These agents provide advice to farmers and also collect production estimates, from farmers' associations, that are compiled at *Woreda* level, and passed through the various levels of the administration to form national, regional and zonal estimates. For instance, the CSA provided training to development agents in September 2008 in an attempt to obtain better standardization of methods, definitions and classifications.

On the other hand, the users' priority needs relate largely to additional data on commercial farming activities and modern crops, such as flowers, vegetables grown in urban settings and false banana production in the southern parts of the country, which constitute a major gap. Forestry and products, including *myrrh* (a reddish-brown resinous material, the dried sap of the tree Commiphora myrrha found in Ethiopia) and incense, are also major gaps. Livestock numbers in the non-sedentary areas are not collected except in 2001/02 Agricultural Sample Enumeration. The agricultural census is intended to be a regular feature of the statistical programme, and will be repeated in the NSDS period.

The CSA will collaborate more closely with MoA to improve techniques for the surveying of peasant farmers. These will include introducing GPS measurement for land parcels, and using an area frame and satellite imagery for areas of agricultural production and for land uses. The first two activities will be: i) to improve the methodology for the crop-forecasting survey by using the new techniques outlined above; and ii) to utilize satellite imagery for major areas of production. This will need to be supplemented with on-the-ground verification. Technical assistance is being sought to introduce these techniques.

For minor crops and vegetables, a household-based approach in both urban and rural contexts is called for.

The frame of commercial and state farms requires updating on a regular basis and an annual survey will be required. New techniques should be sought to improve response rates and this should be part of the methodological improvements planned.

Priority Data Needs: Agricultural Statistics

No.	Origin	Nature of need
1	Stakeholders' workshop	Introducing GPS measurement
2	Stakeholders' workshop	Changing from a list frame to area frame
3	Stakeholders' workshop	Standardising CSA and MoRAD methods
4	Stakeholders' workshop	Improving coverage and quality of commercial farms' estimates using satellite and GPS
5	Stakeholders' workshop	CSA survey to include details on improvements such as irrigation, terracing, soil conservation
6	Stakeholders' workshop	Improving forecasting methods by using agro-meteorological data
7	Stakeholders' workshop	*Woreda*-level data using small area estimation techniques
8	Stakeholders' workshop	Coverage of non-sedentary population, particularly livestock
9	National accounts/User needs study	Commercial and state farms production
10	National accounts/User needs study	Minor crops and vegetables

5.2 Food security and market prices

Food security is an important issue in an agricultural country like Ethiopia. It has important policy implications and data needs. In addition, the market price collection of agricultural commodities is important in a number of statistical domains, including developing constant prices for deflating poverty estimates and for making agricultural policy decisions, both for the Government and the private sector.

It is also very important for the individual farmer who must make decisions about which crop to grow, which animals to raise and when to sell commodities.

The National Integrated Household Survey Programme (NIHSP) has been conducted by the CSA since 1980/81 as stated earlier. A monthly rural agricultural producer prices survey is conducted on a monthly basis in selected farmers' associations. Prices at zone level have been provided since September 1997. The sample was reduced in September 1998 from 1,420 enumeration areas to 446. Ninety-nine selected products are covered.

No specific priorities addressed food security with the exception of needs expressed by the World Food Programme and the Ethiopian Research Institute.

5.3 Poverty and welfare statistics

Poverty and welfare statistics are currently provided by two linked surveys: the Household Income and Expenditure Survey (HICE) and the Welfare Monitoring Survey (WMS). The HICE not only provides money metric poverty data, but also provides the weights for the Consumer Price Index (CPI) and the household consumption estimates used to compile GDP estimates.

These linked surveys have been conducted by the CSA every five years, the latest publications being WMS 2004 and HICE 2004/05. This is a domain where the CSA has plans for methodological improvement for the next round of surveys. The problems that the CSA has outlined include reluctance by households to participate in the multiple visits required to collect the income and expenditure data. The households may experience up to 16 visits in both survey rounds. The results can be of poor quality, and the data editing and cleaning and merging operations complex. This delays the release of the results and reduces their quality.

There are plans to improve the surveys and to increase the amount of information available at *woreda* level. A study will take place to propose improvements in the methodology, using the HICE survey of 2004/05 estimates of average consumption, expenditure per capita, poverty level, poverty gap and inequality. Carefully constructed survey field experiments will be required to compare the household expenditure estimates obtained through different survey design options. Changing the methodology will affect the comparability of the results of future surveys with those of the past and disrupt time series. Changes should, therefore, be introduced with care and include experimental methods or control groups to allow the historical estimates to be adjusted for comparative purposes.

The results of the needs surveys show that the calls for the review of the methodologies of these surveys are extensive. Some statistical users called for a more regular measurement of poverty in the country, while others suggested a panel survey to monitor poverty changes more accurately. The panel survey was a top priority for implementation at the stakeholders'workshop.

There is some duplication of content in the WMS with questioning in the DHS. Some of this must be retained to enable the cross analysis of health and demographic variables with poverty. However, the anthropometry, fertility and contraceptive-use sections could be dropped or trimmed to provide space for increasing the amount of employment and earnings information collected, particularly about those participating in the informal economy. The survey content should focus on the relationship between increased business activity and agricultural transformations to improvements in welfare and poverty reduction of the population.

The stakeholders'workshop in general recommended the following:

- Following a panel survey approach in which a subset of the previous sample will be selected for re-interview;
- Use of new computer technology in data collection to reduce time required to collect, edit and capture data;
- Survey results at the *woreda* level;
- An asset-based poverty index where the poverty mapping exercise will include modelling exercises that link poverty incidence to the ownership of assets, housing conditions and other variables;
- A Participatory Poverty Assessment (PPA) which provides qualitative information to complement the quantitative findings from the HICE/WMS results.

It will clearly be difficult to deliver on all these needs simultaneously and an early study of the options, their costs and benefits will need to be studied and discussed with major stakeholders.

Priority Data Needs: Poverty and Welfare Statistics

No.	Origin	Nature of need
1	Stakeholders' workshop	Panel survey
2	PASDEP/user-needs survey	Agricultural modernization
3	User-needs survey	Asset-based poverty index
4	User-needs survey	*Woreda* level information
5	User-needs survey	Improvements in data collection
6	Planned activity	Poverty mapping and small area modelling
7	Stakeholders' workshop	Participaratory Poverty Assessment

5.4 Prices

The CSA produces Consumer Price Index (CPI) and Agricultural Producer Price Index (PPI) on a monthly basis. The CSA also publishes PPI-M on a quarterly basis. The need for more and better price indices was one of the strongest findings to emerge from the user-needs exercise. Public and private users in all areas of the economy wanted a wide range of indices of prices and wages in all sorts of areas, and raised these as an important need in all sorts of contexts.

Priority Data Needs: Price Statistics

No.	Origin	Nature of need
1	Stakeholders' workshop	Export/import price indices
		Import price index (consumption & investment goods
		Import price index (consumption & investment goods
		Divergence between export & import prices
2	Stakeholders' workshop	Import-driven inflation
3	Core needs	CPI
4	Core needs	PPI large manufacturers
5	Core needs	PPI agriculture

5.5 Water

In 2007, the Ministry of Water Resources and Energy (MoWRE) launched the Global initiative for rational Water Information and Monitoring Systems (GIRWI) with United Nations Department of Economic & Social Affairs. The main goal of the GIRWI in Ethiopia is to develop, test and validate an approach for monitoring the whole water sector vis-à-vis the goals of the national water policy.

Developing the information systems is at its early stage. A water resources information and meta-database centre exists at the Ministry of Water Resources, as a central data and information warehouse for the water sector in the country. River basin studies are the major source of data for the country's water resources. There are no comprehensive indicators that are agreed upon by the different institutions for monitoring the whole water sector and its environment for regular reporting.

The CSA, on its part, collects and compiles water related data from administrative sources and surveys, i.e. welfare monitoring and health and nutrition surveys. It is also planned to enhance this effort by including data on water collection, treatment and supply and sewerage within the coming years.

Priority Data Needs: Water and sanitation

No.	Origin	Nature of need
1	Stakeholders' workshop	Panel survey The stakeholders' workshop did not strongly articulate a need for water data directly but only as a subset of environment data
2	Bilateral discussion	It was pointed out that an agreed standard set of definitions needs to be used by all parties producing water related data.

5.6 Trade

The CSA produces data on imports and exports using information provided by the Customs Authority. Estimates of imports and exports of services are produced by the National Bank while compiling the Balance of Payments using the ticket system, under which banks have to indicate the purpose for which foreign currency is being purchased or sold.

As with most areas of economic statistics, the need for more price data was a major theme of the user-needs groups. However, there were also calls for more basic data on numbers of informal operators and traders.

The stakeholders'workshop highlighted regular surveys of the informal sector and the distributive trades as top priorities.

Priority Data Needs: Wholesale and Retail trade

No.	Origin	Nature of need
1	Core need	Distributive Trade and Service
2	Stakeholders' workshop	Number and value of trade from informal sector operators
3	User-needs survey	Transport & storage capacity of wholesalers
4	User-needs survey	Licensed traders (wholesale, retail & services)
5	User-needs survey	Wholesale price index (domestic & imports)

Import and export data are important and must be maintained. The user-needs exercise also discovered a demand for information on informal cross-border trade.

Priority Data Needs: External trade

No.	Origin	Nature of need
1	Core need	Customs-based import and export data
2	Stakeholders' workshop	Export & import price indices
3	User-needs survey	Informal sector trade & smuggling
4	User-needs survey	Quantity & vale of exported finished products and FOREX obtained
5	User-needs survey	International market prices

6. General Reporting and Dissemination Systems

6.1 Existing reporting and dissemination systems

Existing reporting and dissemination software systems in CSA include MS-Word which is almost used by all staff members for various purposes; IHSN Micro Data Management Toolkit which is exclusively used by the ICT Department; MS-Excel which is also used by most of the staff members for various purposes; Ethio-Info, REDATAM+SP, SPSS; and Adobe PDF Maker which is mostly used by the ICT Department for information publishing on the website and CD-ROMs.

Information sharing and dissemination is based on data access policy which was approved by the Ethiopian Council of Ministers.

The Agency is widely using facsimile technology in communicating with its branch offices and Email technology is not widely used in the Agency for official communications whereas Micro-soft Exchange mail server is operational at the Agency.

 FTP is not widely used as WAN is not fully implemented yet at the CSA. In fact most of the staff members are sharing reports and data by using secured shared folders.

The following section will cover major features of the software in use and for what purpose CSA is using them.

MS-Word

A word processor such as MS-Word is a computer program or software that enables users to create, edit, print and save documents (or textual files) for future retrieval and revision. Users enter text into the computer by using keyboard, which is displayed on the monitor. A key advantage of word processing software is that users can make changes such as spelling, margins, additions, deletions, movement of text, etc.

CSA is using Microsoft Word that runs on the *Windows* operating system. For instance, MS-Word lets users to combine text that has been formatted in a variety of styles with graphics and can include tables and data from other software such as spreadsheets (e.g. MS-Excel), SPSS, databases and graphics programs. The users are importing pictures (graphs) anywhere in a page in different sizes.

Generally stating, CSA is using this software so as to prepare and produce reports on all surveys. Then, the reports are printed and same copies are forwarded for electronic report disseminations.

MS-Excel

The primary advantage of a computerized spreadsheet is its ability to redo the calculations should the data it stores be changed. Calculations can be made automatically as formulas have been preset into the spreadsheet.

This software is the richest in exchanging data with a number of other systems such as Databases, spreadsheets, statistical software, word processing, information presentation tools, etc.

Almost all staff members are using Microsoft Excel for various purposes such as doing some calculations, generating graphs, etc. and sharing data with others.

IHSN Micro Data Management Toolkit

The IHSN Micro data Management Toolkit developed by the World Bank Data Group for the International Household Survey Network (IHSN) aims to promote the adoption of international standards and best practices for micro data documentation, dissemination and preservation.

CSA is using all three modules of the Toolkit. Metadata Editor is used to document data in accordance with international metadata standards (DDI and Dublin Core). The Data Documentation Initiative (DDI) is an international project to create a standard for information describing social science data. The DDI specification, written in XML, provides a format for content, exchange, and preservation of information.

DDI is used to Support Preservation, Management, Access and Dissemination Systems for Social Science Data.

The DDI-tree contains five main branches, or sections:

1. **The Document description**, which consists of bibliographic information describing the metadata document and the sources that have been used to create it
2. **The study description**, which contains information about the data collection.
3. **The Data files description**, which describes each single file of a data collection (formats, dimensions, processing information, missing data information etc.)
4. **The variable description,** which describes each single variable in a data file (format, variable and value labels, definitions, question texts, imputations etc.).
5. **Other Study-Related materials**, which can include references to reports and ublications, other machine-readable documentation

CSA is taking the advantage of DDI to classify, describe, and organize datasets of its surveys.

The Dublin Core metadata standard is a widely recognized meta-language to describe information resources. It contains fifteen elements such as coverage, creator, date, description, format, etc.

The Explorer, free reader for files generated by the Metadata Editor is also in use. The module allows users to view the metadata and to export the data into various common formats (Stata, SPSS, etc).

CSA through its ICT Department is widely and frequently using its CD-ROM Builder to generate user-friendly outputs (CD-ROM, website) for dissemination and archiving.

CSA is usually using this toolkit to publish CD-ROMs and website on each of the datasets.

Some professionals use Nesstar software and others use IHSN.

Nesstar is a commercial software system for data publishing and online analysis. The software consists of tools which enable data providers to disseminate their data on the Web. Nesstar handles survey data and multidimensional tables as well as text resources. Users can search, browse and analyze the data online.

Nesstar Publisher's feature is being integrated with IHSN. This component consists of data and metadata conversion and editing tools, enabling the user to prepare these materials for publication to a Nesstar Server.

The Nesstar Server is built as an extension to a normal web server. As well as providing all the usual facilities for publishing web content, this server provides the ability to publish statistical information that can be searched, browsed, analyzed and downloaded by users. This is done either by using a standard web browser or using Nesstar WebView.

The Nesstar represents a system of software architecture that makes it easy to create, locate, access and operate remotely on metadata and corresponding data. At the same time it does this while maintaining a high level of compatibility with the WWW.

Nesstar has the following analytical tools which are not available in IHSN:

- Cross tabulations
- Correlations
- Regressions
- Compute and recode commands
- Graphical representations of data in customizable forms
- Application of variable weights

IHSN toolkit has taken a lot of features from Nesstar. In fact, IHSN is using a lot of components from Nesstar as they are.

In reporting and dissemination of reports and datasets archiving, CSA is using IHSN. The staff members of Dissemination Team are using IHSN to produce a single output particularly for CD-ROM version; then they are publishing same version to the website without optimizing it for web.

The ICT department is burning CD-ROMs for each of the surveys based on the number of target audiences of each of the surveys. Whenever more or extra copies are requested, they produce requested CD-ROM copies and send them to public relations for distribution.

Ethio-Info/DevInfo

EthioInfo is in use in CSA at http://www.csa.gov.et/ethioinfo. CSA is currently using it as a common platform for indicators related to Human Development, to facilitate data sharing and indicator harmonization at global, regional and country level by making statistics available to a wide audience. It allows presentation of data through Tables, Graphs and Maps.

End users can get screens whereby they can enter some parameters for searching and information presentations.

The site is using ACCESS Databases at the backend and ASP.NET programming language for the site at the front-end.

EthioInfo contains the latest Ethiopia Demographic and Health Survey 2005 and also includes, among others, the following surveys:

- Welfare Monitoring Survey (WMS), 1996, 1998, 2000 & 2004
- Total Population for 2004 & 2005 (Population size, Area, & Density)
- Area and Production of temporary crops for 2004 & 2005
- Ethiopia Demographic and Health Survey 2000
- Household Income Consumption and Expenditure Survey (HICE), 1996, 2000

EthioInfo is a customized adaptation of DevInfo, a user friendly software that helps to organize, present data in a result based environment with unique features linking to strategic monitoring and evaluation of policies such as MDG, National Poverty Reduction Strategies.

DevInfo is a powerful database system that is used to compile and disseminate data on human development. The software package has evolved from a decade of innovations in database systems that support informed decision making and promote the use of data to advocate for human development.

DevInfo was developed by UNICEF in cooperation with the UN System to assist the UN and Member States in tracking progress toward the Millennium Development Goals (MDGs). Its specific purpose is to store existing data, identify gaps in the MDG indicators, provide a single entry point for data on the MDG indicators, and disseminate information simply and attractively.

DevInfo is claiming that it is an integrated desktop and web-enabled tool that supports both standard and user-defined indicators. The standard set of MDG indicators is at the core of the DevInfo package. In addition, at the regional and country levels, database administrators have the option to add local indicators to their databases. The software supports an unlimited number

of levels of geographical coverage: from global level to regional, sub-regional, national and sub-national down to sub-district and village levels (including schools, health centers, and water points).

Data from DevInfo can be exported to XLS, HTML, PDF, CSV and XML files and imported from spreadsheets in a standardized format. DevInfo also has a data exchange module for importing data from industry-standard statistics software packages such as SPSS, SAS, STATA, Redatam, and CSPro.

DevInfo is distributed royalty-free to all Member States and UN agencies for deployment on both desktops and the web. The user interface of the system and the contents of the databases it supports include country-specific branding and packaging options which have been designed to ensure broad ownership by national authorities. There are no restrictions on the database and its use.

The most common DevInfo users include UN country teams, national statistical offices, planning ministries, and district planners. Frequent users also comprise members of the media (for reporting and tracking human development data), educational institutions (for analyzing data and helping students gain data access), as well as DevInfo administrators (in particular for customizing the system or adding data through advanced database administration modules).

Adobe PDF Maker

CSA has adopted PDF to streamline document management and reduce reliance on paper. It is used as the standard format for the electronic document management and dissemination of output of all surveys.

The PDF formats are generated by the ICT department. Reports and questionnaires are available in PDF format for surveys over Internet.

This format is used to keep file format by preserving the fonts, images, and layout of source documents created on a wide range of applications and platforms. PDF is the standard for secure, reliable distribution and exchange of electronic documents and forms. Adobe PDF files are compact and complete, and can be shared, viewed, and printed by anyone with free Adobe Reader software.

The PDF documents can be opened either in Acrobat or in a web browser. In Windows, users can configure their web browser to open PDF documents.

All PDF documents which are made available to users over the website do not have a feedback collection form which is an electronic-based document that can collect data from a user and then send that data via email or the web to CSA.

This implies that the electronic document generating process does not include some important features of the dissemination system. For instance, all PDF documents could have feedback forms in the body of the document.

SPSS

SPSS is commonly used by computer programmers to check the validity of data and also to organize and prepare survey and census data for electronic archiving. The ICT department also uses the software to disseminate micro data and generate statistical tables whenever requested by clients.

REDATAM+SP

REDATAM+SP **is** a database management tool that administrates large volumes of census micro data with hierarchical (geographical) structure down to the smallest area of the census administrative exercise, often city blocks or similar-sized areas. It was developed to promote access to and analysis of census and other data for informed decision making for sectoral and local development programmes and policies:

- by facilitating for National Statistical Agencies the dissemination of micro data (taking into account confidentiality issues)
- by providing the end users (Sectoral Ministries, regional and local authorities and universities) with a user friendly and fast software.

All types of data sources can be used in Redatam: Population, agricultural, and economic censuses; vital statistics; household and fertility surveys; educational and health statistics; commerce data, etc.

Characteristics of REDATAM+SP

- User friendly software
- Administrates Hierarchical databases
- Data stored in internal format (no access to individual or household records)
- Highly Compressed database
- Fast data processing
- Multi-sectoral databases (combining several databases)
- User can define geographical area to be processed
- Exportation of results to other software (MS Excel, ASCII, GIS)
- Thematic mapping
- Graphs
- External data in dbf format can be accessed
- On line Help
- Web Applications development
- Access on-line databases and processing

7. Expectations from CountrySTAT and Synergies with the ongoing Initiatives in Ethiopia

CountrySTAT, which is a web based and an integrated information system, is expected to provide technical assistance required in enhancing collaborative efforts in the National Statistics System of the country with the major emphasis being on Food and Agriculture Statistics. In this regard, there are a number of basic activities related to the Organization and Management of Statistical Data.

To this effect, the first requirement will be to undertake an inventory of the existing different datasets being collected and processed at the Central Statistical Agency (CSA), the Ministry of Agriculture (MoA), Revenue and Customs Authority, National Meteorology Agency (NMA), Ministry of Water and Energy and other stakeholder institutions. The quality and reliability of the data currently available should be ensured to the extent to which they are utilized by the end-users. In addition to the quality of data, a metadata, which is an adequate description of how the data is collected and formatted should be compiled and attached to each dataset.

After completing the inventory and identifying and fully documenting data sources, the next step should be the development of an integrated agricultural database. In this regard, the CSA has already identified the need for such an integrated statistical database that provides access to data on various agriculture and food statistics activities as well as data from other related sectors. Recognizing its importance and usefulness, the Statistics Agency, in close collaboration with the Ministry of Agriculture, has taken the challenge of establishing the CountrySTAT Tool with the technical and financial support from FAO Statistics Division. The CountrySTAT Statistical Information System has, accordingly, been developed on the basis of the FAOSTAT framework at the Agency. The software facilitates an online dissemination of statistical data along with an adequate metadata.

Following the development of the statistical system comes, the need for the integration and harmonization of agricultural statistics based on FAO standard data structure, concepts and definitions used in FAOSTAT. This will be coordinated by the CSA and MoA with the main aim of producing specific indicators as official statistics. In this regard, the CSA will need further technical assistance in the development and implementation of the CountrySTAT System including the process of integrating and harmonizing agricultural statistical information.

In the efforts made so far in developing and implementing CountrySTAT in Ethiopia, about 40 different datasets related to crop production, area harvested, land use, livestock, export and import of live animals, seeds, producer price, consumer price index, food supply, fertilizers, pesticides, fishery, total population and labor force have been collected from various sources within the country, validated and uploaded to CountrySTAT Ethiopia website. It is worth mentioning here that the close follow-up and technical support we received through the FAO CountrySTAT Team has been significant in what has been achieved so far. The Correspondence Table between the National and FAO Classifications for the datasets uploaded to CountrySTAT Ethiopia is shown in ANNEX II and the description of the characteristics of datasets uploaded to CountrySTAT Ethiopia is given in ANNEX III.

The CountrySTAT System has been launched is currently in use at the CSA at:
http://www.csa.gov.et/repositories/countrystat

Important Factors for the Success of CountrySTAT Project in Ethiopia

The success and sustainability of the CountrySTAT Project in the country will depend on a number of factors. Together with the progress in regard to other proposals, the important factors required for the success of the CountrySTAT Project, among others, should include the following.

- Coordinated approach in the implementation of CountrySTAT between CSA, MoA and other stakeholders in food and agriculture statistics
- Training of competent and skilled personnel and development of institutional capacity at the CSA, MOA and other stakeholder agencies
- A plan for training and support for data users should be identified and utilized
- Strengthening the National CountrySTAT Secretariat
- Strengthening the collaboration among the main national institutions providing data on food and agriculture
- Continuous improvement of data quality and the upload of metadata
- Following the guidelines of standard data harmonization and integration using international concepts and definitions common to FAOSTAT and CountrySTAT
- Availability of funds and technical assistance required in tackling connectivity problems at the CSA, and the coverage of the fees required for using CountrySTAT software, and server updates after the Project
- Provision of necessary equipment (computers, network facilities etc.)

8. Summary

In its regular Annual Agricultural Surveys, the CSA reports data at national, regional and zonal levels due to the current sampling methodology in use. However, the current federal system of administration demands data at wereda level, as most decisions related to agricultural developments are made at wereda level. The CSA has never been able to produce wereda level data on food and agriculture except during the 2001/02 Ethiopian Sample Agricultural Enumeration (EASE). With the existing approach, providing wereda level data annually means conducting similar sample enumerations every year. This cannot be realized due to the logistics as well as financial constraints. The CSA will need to overcome these constraints and be able to supply data on food and agriculture at wereda level without the need to carry out surveys on large-scale sample basis. In this regard, the Agency is currently trying to implement a model based approach known as Small Area Estimation Technique.

Another short coming of the annual agricultural sample surveys conducted by the CSA, is that these surveys are limited to the rural sedentary population and agricultural practices in urban areas are not covered, except in the case of the 2001/02 EASE. Hence an approach that would enable the inclusion of urban agriculture in the surveys will need to be designed and implemented. Similarly, a mechanism to cover the pastoral areas of the country in the annual livestock surveys should be assessed and implemented. It is to be recalled that the only time the pastoral areas were covered by the annual livestock survey was in the 2001/02 agricultural sample enumeration as indicated above.

In the annual agricultural sample surveys, only agricultural statistics data are collected and data related to other sectors like non-farm activities and environmental statistics are not covered. To address the data gap in non-farm activities the CSA is planning to conduct a rural economy survey on annual basis in the near future. There is also a need to integrate environmental statistics in the national statistical system. Furthermore, a plan is also underway at the CSA to use Computer Assisted Personal Interview (CAPI) method and geo-referencing of the sample households to improve its data collection activities.

The other issue that needs due consideration is related to the discrepancies between the statistics on food and agriculture produced by the CSA and MoA. Until recently, crop production estimates were based on field surveys carried out independently by the two organizations with significantly different results due to the different methodologies they implement. Methodological improvements leading to a collaborative statistical methods program, as recommended in the review conducted on CSA and MoA systems by the FAO "Support to Food Security Information system in Ethiopia" project will need to be implemented.

With regard to data quality, it is also very important to ensure that survey and census results used in supporting analysis, development plans, policy formulation, monitoring and evaluation are reliable, accurate and timely. In this regard, the application of quality standards to all statistics produced in the country, including the data generated by the CSA, will be necessary to build trust and confidence among data users.

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ANNEX I: List of the National Statistical System Members

1. Addis Ababa University
2. Bureau of Workers and Urban Development (Oromiya)
3. Central Statistical Agency
4. Ethiopian Revenue and Customs Authority
5. Ethiopian Agricultural Research Organization
6. Economic Association of Ethiopia
7. Environmental Protection Authority
8. Ethiopian Mapping Agency
9. Ethiopian Civil Service College
10. Ethiopian Electric and Power Corporation
11. Ethiopian Health and Nutrition Research Institute
12. Ethiopian Micro-Finance Association
13. Ethiopian Roads Authority
14. Federal Civil Service Agency
15. Federal Micro and Small Enterprises Agency
16. Federal Police Commission
17. Government Houses Agency
18. Higher Education Relevance and Quality Agency
19. HIV/AIDS Prevention and Control Office
20. Information and Communications Technology Development Agency (ICTDA)
21. Ministry of Culture and Tourism
22. Ministry of Education
23. Ministry of Federal Affairs
24. Ministry of Finance and Economic Development
25. Ministry of Health
26. Ministry of Justice
27. Ministry of Labor and Social Affairs
28. Ministry of Mines and Energy
29. Ministry of Trade and Industry
30. Ministry of Transport and Communications
31. Ministry of Water Resources
32. Ministry of Women's Affairs
33. Ministry of Works and Urban Development
34. Ministry of Youth and Sport
35. MOARD
36. National Bank of Ethiopia
37. Oromiya Trade, Industry and Transport Bureau
38. Oromiya Finance and Economic Development Bureau
39. Regional Finance and Economic Development Bureau
40. Social Security Agency

ANNEX II: Correspondence Table between National and FAO Classification

Main category	National local codes	National nomenclature	FAO codes	FAO nomenclature
Crops	7	Teff	108.1	Teff
	3	Finger millet	79	Millet
	1	Barley white	44	Barley
	8	Wheat white	15	Wheat
	2	Maize	56	Maize
	6	Sorghum	83	Sorghum
	4	Aja	75	Oats
	5	Rice local	27	Rice
	13	Faba beans/Horse Bean	181	Broad beans dry
	15	Field peas	187	Field peas
	12	Haricot beans	176	Haricot beans
	11	Chick-peas	191	Chick-peas
	14	Lentils	201	Lentils
	16	Grass peas/Vetch	205	Grass peas
	18	Soya beans	236	Soya beans
	36	Fenugreek	723	Spices NES
	17	Gibto	210	Lupins
	25	Neug	339	Oil seed NES
	23	Linseed	333	Linseed
	24	Groundnuts	243	Groundnuts
	28	Safflower	280	Safflower
	27	Sesame	289	Sesame
	26	Rape seed	270	Rape seed
	57	Lettuce	372	Lettuce
	52	Head cabbage	*358*	Cabbage
	56	Eth. Cabbage	*358*	Cabbage
	63	Tomatoes	*388*	Tomatoes
	59	Chillie Peppers	401	Chillies Peppers
	69	Swiss chard	373	Spinach
	51	Beetroot	463	Vegetables NES
	53	Carrot	426	Carrot

Main category	National local codes	National nomenclature	FAO codes	FAO nomenclature
	58	Onion	403	Onion
	60	Potatoes	116	Potatoes
	55	Garlic	406	Garlic
	64	Godere	136	Taro
	62	Sweet potatoes	122	Sweet potatoes
	84	Avocados	572	Avocados
	42	Bananas	486	Bananas
	65	Guavas	603	Fruit Tropical NES
	44	Lemons	497	Lemons
	46	Mangoes	571	Mangoes
	47	Oranges	490	Oranges
	48	Papayas	600	Papayas
	49	Pineapples	574	Pineapples
	71	Chat	674	Not Available
	72	Coffee	656	Coffee
	75	Hops	677	Hops
	76	Sugar cane	156	Sugar cane
	74	Enset	149	Roots and Tubers NES
	37	Ginger	720	Ginger
		Not Available	265	Castor Beans
		Buckthorn leaves (Not Available)		
Live animals	151	Cattle	866	Cattle
	154	Sheep	976	Sheep
	156	Goats	1016	Goats
	166	Horses	1096	Horses
	168	Donkeys/ Asses	1107	Donkeys/ Asses
	167	Mules	1110	Mules
	158	Camels	1126	Camels
	161	Poultry /Chickens	1057	Poultry /Chickens
	164	Beehives	1181	Beehives
Meat	159	Camel meat	1127	Camel meat
	152	Cattle meat	867	Cattle meat
	162	Chicken meat	1058	Chicken meat
	157	Goat meat	1017	Goat meat
	155	Sheep meat	977	Sheep meat

Main category	National local codes	National nomenclature	FAO codes	FAO nomenclature
Product form Live animals				
Milk	153	Cow milk, whole, fresh	882	Cow milk, whole, fresh
	160	Camel milk	1130	Camel milk
Eggs	163	Hen eggs, with shell	1062	Hen eggs, with shell
Honey	165	Honey	1182	Honey
Machinery	84321000	Ploughs	84321000	Ploughs
	84323000	Seeders, Planters And Tran planters	84323000	Seeders, Planters And Tran planters
	84324000	Manure Spreaders And Fertilizer Distributors	84324000	Manure Spreaders And Fertilizer Distributors
	84334000	Straw Or Fodder Balers (Including Pick-Up Balers)	84334000	Straw Or Fodder Balers (Including Pick-Up Balers)
	84335100	Combine Harvester-Threshers	84335100	Combine Harvester-Threshers
	84335200	Threshing Machinery For Agricultural Produce, Nes	84335200	Threshing Machinery For Agricultural Produce, Nes
	84335300	Root Or Tuber Harvesting Machines	84335300	Root Or Tuber Harvesting Machines
	84341000	Milking Machines	84341000	Milking Machines
	87011000	Pedestrian Controlled Tractors	87011000	Pedestrian Controlled Tractors
	87013000	Track-Laying Tractors	87013000	Track-Laying Tractors
	87019000	Tractors (Excluding Tractors Of 87.09), Nes	87019000	Tractors (Excluding Tractors Of 87.09), Nes
Fertilizers	0	Urea	310210	Urea
	1	Diammonium phosphate (DAP)	310530	Diammonium phosphate (DAP)
Pesticides	38081000	INSECTICIDES, TOTAL	3808.1	INSECTICIDES, TOTAL
	38083000	HERBICIDES, TOTAL	3808.3	HERBICIDES, TOTAL
	38082000	FUNGICIDES, TOTAL	3808.2	FUNGICIDES AND BACTERICIDES, TOTAL
		Not Available	1352	FUNGICIDES - SEED TREATMENTS, TOTAL
	38083000	ANTI-SPROUTING PRODUCTS AND PLANT GROWTH REGULATORS	1641	PLANT GROWTH REGULATORS, TOTAL (specify)
	38089000	RODENTICIDES, TOTAL	1345	RODENTICIDES, TOTAL
Forestry	Not Available	Not Available		

ANNEX III: Descriptions of the Characteristics of Datasets Uploaded to CountrySTAT

A) Databases Related to Production (Core)

Matrix	Table title or indicator	Focal point	Concepts definitions, classifications	Geographical coverage	Data Processing, estimation & data revision	Sources	Dissemination method	Frequency of data collection	Timeliness and punctuality
238CPD010	Production quantity of primary crops	Biratu Yigezu (CSA) biratuy@csa.gov.et	FAO	National	- Data entry, cleaning and summarization accomplished to generate survey results - Zonal estimated results are aggregated to Regional & National levels	Annual agricultural surveys CSA (2005-2010)	Publications, CD-ROM, Website	Annual	2 months after data collection
238CPD015	Area harvested	Girma Tadese (CSA) girmat_2005@yahoo.com	FAO	National	- Data entry, cleaning and summarization accomplished to generate survey results - Zonal estimated results are aggregated to Regional & National levels	Annual agricultural surveys CSA (2005-2010)	Publications, CD-ROM, Website	Annual	2 months after data collection
238CPD020	Seed	»	FAO	National	- Data entry, cleaning and summarization accomplished to generate survey results - Zonal estimated results are aggregated to Regional & National levels	Annual agricultural surveys CSA (2005-2010)	Publications, CD-ROM, Website	Annual	2 months after data collection
238CPD035	Number of live animals	»	FAO	National	- Data entry, cleaning and summarization accomplished to generate survey results - Zonal estimated results are aggregated to Regional & National levels	Annual agricultural surveys CSA (2005-2010)	Publications, CD-ROM, Website	Annual	2 months after data collection
238CPD040	Number of female live animals	»	FAO	National	- Data entry, cleaning and summarization accomplished to generate survey results - Zonal estimated results are aggregated to Regional & National levels	Annual agricultural surveys CSA (2005-2010)	Publications, CD-ROM, Website	Annual	2 months after data collection
238CPD045	Slaughtered animals	»	FAO	National	- Data entry, cleaning and summarization accomplished to generate survey results - Zonal estimated results are aggregated to Regional & National levels	Annual agricultural surveys CSA (2005-2010)	Publications, CD-ROM, Website	Annual	2 months after data collection
238CPD055	Milking animals	»	FAO	National	- Data entry, cleaning and summarization accomplished to generate survey results - Zonal estimated results are aggregated to Regional & National levels	Annual agricultural surveys CSA (2005-2010)	Publications, CD-ROM, Website	Annual	2 months after data collection
238CPD060	Production of milk	»	FAO	National	- Data entry, cleaning and summarization accomplished to generate survey results - Zonal estimated results are aggregated to Regional & National levels	Annual agricultural surveys CSA (2005-2010)	Publications, CD-ROM, Website	Annual	2 months after data collection
238CPD065	Laying animals	»	FAO	National	- Data entry, cleaning and summarization accomplished to generate survey results - Zonal estimated results are aggregated to Regional & National levels	Annual agricultural surveys CSA (2005-2010)	Publications, CD-ROM, Website	Annual	2 months after data collection
238CPD070	Production of hen eggs and other eggs	»	FAO	National	- Data entry, cleaning and summarization accomplished to generate survey results - Zonal estimated results are aggregated to Regional & National levels	Annual agricultural surveys CSA (2005-2010)	Publications, CD-ROM, Website	Annual	2 months after data collection

B) Databases Related to Production (Sub-National)

Matrix	Table title or indicator	Focal point	Concepts definitions, classifications	Geographical coverage	Data Processing, estimation & data revision	Sources	Dissemination method	Frequency of data collection	Timeliness and punctuality
238SPD010	Production quantity of primary crops by administrative level 1, commodity and year	Girma Tadese (CSA) girmat_2005 @yahoo.com	FAO	Regional	- Data entry, cleaning and summarization accomplished to generate survey results - Zonal estimated results are aggregated to Regional & National levels	Annual agricultural surveys CSA (2005-2010)	Publications, CD-ROM, Website	Annual	2 months after data collection
238SPD015	Area harvested by administrative level 1, commodity and year	»	FAO	Regional	- Data entry, cleaning and summarization accomplished to generate survey results - Zonal estimated results are aggregated to Regional & National levels	Annual agricultural surveys CSA (2005-2010)	Publications, CD-ROM, Website	Annual	2 months after data collection
238SPD035	Number of live animals by administrative level 1, commodity and year	»	FAO	Regional	- Data entry, cleaning and summarization accomplished to generate survey results - Zonal estimated results are aggregated to Regional & National levels	Annual agricultural surveys CSA (2005-2010)	Publications, CD-ROM, Website	Annual	2 months after data collection
238SPD055	Milking animals by administrative level 1, commodity and year	»	FAO	Regional	- Data entry, cleaning and summarization accomplished to generate survey results - Zonal estimated results are aggregated to Regional & National levels	Annual agricultural surveys CSA (2005-2010)	Publications, CD-ROM, Website	Annual	2 months after data collection
238SPD060	Production of milk by administrative level 1, commodity and year	»	FAO	Regional	- Data entry, cleaning and summarization accomplished to generate survey results - Zonal estimated results are aggregated to Regional & National levels	Annual agricultural surveys CSA (2005-2010)	Publications, CD-ROM, Website	Annual	2 months after data collection
238SPD065	Laying animals by administrative level 1, commodity and year	»	FAO	Regional	- Data entry, cleaning and summarization accomplished to generate survey results - Zonal estimated results are aggregated to Regional & National levels	Annual agricultural surveys CSA (2005-2010)	Publications, CD-ROM, Website	Annual	2 months after data collection
238SPD070	Production of hen eggs and other eggs by administrative level 1, commodity and year	»	FAO	Regional	- Data entry, cleaning and summarization accomplished to generate survey results - Zonal estimated results are aggregated to Regional & National levels	Annual agricultural surveys CSA (2005-2010)	Publications, CD-ROM, Website	Annual	2 months after data collection

C) Databases Related to Land and Irrigation (Core, Sub-National)

Matrix	Table title or indicator	Focal point	Concepts definitions, classifications	Geographical coverage	Data Processing, estimation & data revision	Sources	Dissemination method	Frequency of data collection	Timeliness and punctuality
238CLI010	Area – land use	Girma Tadese (CSA) girmat_2005 @yahoo.com	FAO	National	- Data entry, cleaning and summarization accomplished to generate survey results - Zonal estimated results are aggregated to Regional & National levels	Annual agricultural surveys CSA (2005-2010)	Publications, CD-ROM, Website	Annual	2 months after data collection
238SLI010	Area – land use by administrative level 1, commodity and year	»	FAO	Regional	- Data entry, cleaning and summarization accomplished to generate survey results - Zonal estimated results are aggregated to Regional & National levels	Annual agricultural surveys CSA (2005-2010)	Publications, CD-ROM, Website	Annual	2 months after data collection

D) Databases Related to Prices (Core)

Matrix	Table title or indicator	Focal point	Concepts definitions, classifications	Geographical coverage	Data Processing, estimation & data revision	Sources	Dissemination method	Frequency of data collection	Timeliness and punctuality
238CPR010	Producers' price for primary crops and livestock products	Alemayehu Teferi (CSA) Alemayehut@ ethionet.et	FAO	National	Data collected from market places are processed and summarized to regional and national levels	Monthly price surveys, CSA (2006-2010)	Publications, CD-ROM, Website	Monthly	1 month
238CPR040	Food consumer price index (CPI)	»	FAO	National	-CPI's are calculated based on HH expenditure weights and current market prices -Indices are summarized to regional & national levels	Monthly price surveys, CSA (2006-2009)	Publications, CD-ROM, Website	Monthly	1 month

E) Databases Related to Prices (Sub-National)

Matrix	Table title or indicator	Focal point	Concepts definitions, classifications	Geographical coverage	Data Processing, estimation & data revision	Sources	Dissemination method	Frequency of data collection	Timeliness and punctuality
238SPR010	Producers' price for primary crops and livestock products by administrative level 1, commodity and year	Alemayehu Teferi (CSA) , Alemayehut@ethionet.et	FAO	Regional	Data collected from market places are processed and summarized to regional and national levels	Monthly price surveys, CSA (2006-2010)	Publications, CD-ROM, Website	Monthly	1 month
238SPR040	Food consumer price index (CPI) by administrative level 1, commodity and year	»	FAO	Regional	-CPI's are calculated based on HH expenditure weights and current market prices -Indices are summarized to regional	Monthly price surveys, CSA (2006-2009)	Publications, CD-ROM, Website	Monthly	1 month

F) Databases Related to Fertilizers (Core)

Matrix	Table title or indicator	Focal point	Concepts definitions, classifications	Geographical coverage	Data Processing, estimation & data revision	Sources	Dissemination method	Frequency of data collection	Timeliness and punctuality
238CFE015	Fertilizers – import quantity	Feta Zeberga (MoA) , fetazb@yahoo.com	FAO	National	Data received from different organizations are summarized to country level	- Ministry of Agricultural (2005-2009)	Publications, CD-ROM, Website	Updated every month	12 months
238CFE030	Fertilizers – consumption quantity	Girma Tadese (CSA) girmat_2005@yahoo.com	FAO	National	- Data entry, cleaning and summarization accomplished to generate survey results - Zonal estimated results are aggregated to Regional & National levels	Annual agricultural surveys,CSA (2005-2010)	Publications, CD-ROM, Website	Annual	2 months after data collection

G) Databases Related to Fertilizers (Sub-National)

Matrix	Table title or indicator	Focal point	Concepts definitions, classifications	Geographical coverage	Data Processing, estimation & data revision	Sources	Dissemination method	Frequency of data collection	Timeliness and punctuality
238SFE030	Fertilizers – consumption quantity by administrative level 1, commodity and year	Girma Tadese (CSA) girmat_2005 @yahoo.com	FAO	Regional	- Data entry, cleaning and summarization accomplished to generate survey results - Zonal estimated results are aggregated to Regional & National levels	Annual agricultural surveys,CSA (2005-2010)	Publications, CD-ROM, Website	Annual	2 months after data collection

H) Databases Related to Pesticides (Core)

Matrix	Table title or indicator	Focal point	Concepts definitions, classifications	Geographical coverage	Data Processing, estimation & data revision	Sources	Dissemination method	Frequency of data collection	Timeliness and punctuality
238CPE015	Pesticides – consumption	Girma Tadese (CSA) girmat_2005 @yahoo.com	FAO	National	Data obtained from different regions are aggregated to the national level	Ministry of Agricultural	Publications, CD-ROM, Website	Annual	1 month
238CPE030	Pesticides – import value	Feta Zeberga (MoA) , fetazb@yahoo .com	FAO	National	Aggregation of values from various sources to obtain national results	Ministry of Agricultural	Publications, CD-ROM, Website	Annual	1 month

I) Databases Related to Fisheries (Core)

Matrix	Table title or indicator	Focal point	Concepts definitions, classifications	Geographical coverage	Data Processing, estimation & data revision	Sources	Dissemination method	Frequency of data collection	Timeliness and punctuality
238CFI010	Quantity of fish capture production (metric tones)	Feta Zeberga (MoA) , fetazb@yahoo.com	FAO	National	Data obtained from different regions are aggregated to the national level	Ministry of Agricultural (2006-2010)	Publications, CD-ROM, Website	Annual	12 months
238CFI020	Value of fish capture production (US$)	»	FAO	National	Aggregation of values from various sources to obtain national results	Ministry of Agricultural (2006-2010)	Publications, CD-ROM, Website	Annual	12 months

J) Databases Related to Food Availability (Sub-National)

Matrix	Table title or indicator	Focal point	Concepts definitions, classifications	Geographical coverage	Data Processing, estimation & data revision	Sources	Dissemination method	Frequency of data collection	Timeliness and punctuality
238SFA011	National food supply quantity	Alemayehu Teferi (CSA) , Alemayehut@ethionet.et	FAO	Regional	- Data entry, cleaning and summarization accomplished to generate survey results Survey results estimated at regional levels are summarized to give national results	2005 HICE Survey, CSA	Publications, CD-ROM, Website	Every 5 years	12-18 months
238CFA023	Food supply (cal/capita/day) by administrative level 1, and year	»	FAO	Regional	- Data entry, cleaning and summarization accomplished to generate survey results -Survey results estimated at regional levels are summarized to give national results	2005 HICE Survey, CSA	Publications, CD-ROM, Website	Every 5 years	12-18 months

K) Databases Related to Trade (Core)

Matrix	Table title or indicator	Focal point	Concepts definitions, classifications	Geographical coverage	Data Processing, estimation & data revision	Sources	Dissemination method	Frequency of data collection	Timeliness and punctuality
238CTR026	Import value of live animals (1000 Birr)	Mageru Haile (CSA) Mageruh@ethionet.et	FAO	National	Euro Trace software is used to access and summarize import values	Customs Authority/ CSA (2007-2010)	Publications, CD-ROM, Website	Monthly updated	2 months after data collection
238CTR031	Export value of live animals	»	FAO	National	Euro Trace software is used to access and summarize export values	Customs Authority/ CSA (2007-2010)	Publications, CD-ROM, Website	Monthly updated	2 months after data collection

L) Databases Related to Machinery (Core)

Matrix	Table title or indicator	Focal point	Concepts definitions, classifications	Geographical coverage	Data Processing, estimation & data revision	Sources	Dissemination method	Frequency of data collection	Timeliness and punctuality
238CMA015	Import quantity	Mageru Haile (CSA) Mageruh@ethionet.et	FAO	National	Euro Trace software is used to access and summarize import quantity of machinery	Customs Authority/ CSA (2005-2008)	Publications, CD-ROM, Website	Monthly updated	1 month
238CMA020	Import value	»	FAO	National	Euro Trace software is used to access and summarize import values of machinery	Customs Authority/ CSA (2005-2008)	Publications, CD-ROM, Website	Monthly updated	1 month

M) Databases Related to Population (Core, Sub-National)

Matrix	Table title or indicator	Focal point	Concepts definitions, classifications	Geographical coverage	Data Processing, estimation & data revision	Sources	Dissemination method	Frequency of data collection	Timeliness and punctuality
238CPO010	Total population	Sahlu …….. (CSA) Salut@ethion et.et	FAO	Regional	- Data entry, cleaning and summarization accomplished to generate census results -Census results at Wereda level are summarized to zonal, regional and national results	1994/2007 Censuses, CSA	Publications, CD-ROM, Website	Every 10 years	12-18 months
238SPO010	Total population by administrative level 1, indicator and year	»	FAO	Regional	- Data entry, cleaning and summarization accomplished to generate census results -Census results at Wereda level are summarized to zonal, regional and national results	1994/2007 Censuses, CSA	Publications, CD-ROM, Website	Every 10 years	12-18 months

N) Databases Related to Labor (Core, Sub-National)

Matrix	Table title or indicator	Focal point	Concepts definitions, classifications	Geographical coverage	Data Processing, estimation & data revision	Sources	Dissemination method	Frequency of data collection	Timeliness and punctuality
238CLA010	Total economically active population	Teshome Adino (CSA) Teshomea@cs a.gov.et	FAO	Regional	- Data entry, cleaning and summarization accomplished to generate survey results -Survey results estimated at regional levels are summarized to national level	Labor Force Surveys,CSA (2005, 2007)	Publications, CD-ROM, Website	Every 5 years	2 months after data collection
238SLA010	Total economically active population by administrative level 1, indicator and year	»	FAO	Regional	- Data entry, cleaning and summarization accomplished to generate survey results -Survey results estimated at regional levels are summarized to national level	Labor Force Surveys,CSA (2005, 2007)	Publications, CD-ROM, Website	Every 5 years	2 months after data collection

ANNEX IV : Annual Agricultural Sample Survey Questionnaires

Form AgSS 2003/2A

CENTRAL STATISTICAL AUTHORITY
ETHIOPIAN AGRICULTURAL SAMPLE SURVEY 2010/2011 (2003 E.C)

PART I – IDENTIFICATION PARTICULARS

1	2	3	4	5	6	7	8	9	10	11	12	13	14
Region	Zone	Wereda	PA / REST.AR	EA LOCAL	HH ID	HH HEAD SEX 1=M 2=F	HOLDER ID	HOLDER'S NAME		SEX M=1 F=2 AGE	HIGHEST GRADE COMPLETED	HOLDER'S HH SIZE	FARMING TYPE CROP=1 LIVEST=2 BOTH=3

PART II – CROP FIELD / OTHER LAND USE

15		16	17					
			PARCEL NO.		FIELD NO.			
			IS THE FIELD PURE STAND =1 MIXED CROP =2 OTHER LAND USE=3					
			CROP/OTHER NAME		CROP NAME		CROP NAME	
SER. NO.		QUESTIONS FOR THE HOLDER	CODE		CODE		CODE	
0	1	Ownership Own = 1 Rented in =2 Other =3						
0	2	Is field under Extension Program? Yes =1 No = 2						
0	3	Is Field Irrigated? Yes =1 No =2						
0	4	If Field Irrigated source of water River =1 Lake =2 Pond =3 Harvested water =4 other =5						
0	5	Is Field Prevented form Erosion Yes = 1 No =2						
0	6	If yes in #5, common way of prevention Terracing = 1 Other =5 Water catchments =2 Afforestation = 3 Plough along the cont. = 4						
0	7	Percent share of mixed crops						
0	8	Number of Fruit Trees *(excluding chat, pineapple, sugarcane)*						
0	9	Number of Fruit Bearing Trees *(excluding , chat, pineapple, sugarcane)*						
1	0	Percentage share of Fruit Bearing Trees *(excluding , chat, pineapple, sugarcane)*						
1	1	Seed / Seedling Type Improved Seed = 1 indigenous seed = 2						
1	2	*For Cereals, Pulses & Oilseeds only* Quantity of improved seeds used	Kilo	Gram	Kilo	Gram	Kilo	Gram
1	3	*For Cereals, Pulses & Oilseeds only* Price of improved seeds used	Birr	Cents	Birr	Cents	Birr	Cents
1	4	*For Cereals, Pulses & Oilseeds only* Quantity of indigenous seeds used	Kilo	Gram	Kilo	Gram	Kilo	Gram
1	5	Was crop damaged ? Yes = 1 No =2						
1	6	If yes in question number 14, Cause of damage Code						
1	7	Percent of damaged crop						
1	8	Prevention/precaution measure taken? Yes =1 No =2						
1	9	Type of measure if any? Chemical = 1 Non – chemical = 2 Both = 3						
2	0	Chemical type used if any Pesticide =1 herbicide =2 Fungicide =3 1&2 = 4 1 & 3 = 5 2 & 3 = 6 All = 7						
2	1	Is Fertilizer Used? Yes =1 No = 2						
2	2	Type of fertilizer used if any? Natural = 1 Chemical = 2 Both = 3						
2	3	If chemical fertilizer used 23.1 Type UREA = 1 DAP = 2 Both = 3 23.2 Quantity of chemical fertilizer used	Kilo		Gram			
2	4	If natural fertilizer used, type Manure = 1 Compost = 2 Organic = 3 1 &2 = 4 1&3 = 5 2 & 3 = 6 All = 7 others = 8						
2	5	How often is temporary crop field used in Meher (main) season?						
2	6	If twice in #24 which crop is the 2nd harvest?	Crop name	code	Crop name	code	Crop name	code
2	7	What was the previous state of the field ? Falow =1 crop field =2 Virgin =3 Rented in cropfield =4 other =5						

PART 3A: RESULTS OF AREA MEASUREMENTS using GPS

18	19	20	21	22	23	24	25
GPS Accuracy during field measurement	Is the field measured? yes =1 No =2				⟶		
	Area of measured field		**Is the field** **Flat =1** **Partialy Sloppy = 2** **Sloppy = 3**	**Code**	**If the field covered?** **None = 1** **With plant / permanent crop = 2** **With house = 3** **Partially covered = 4** **Others = 5**	**Code**	**Comments**
	Area in square meters **(Clockwise)**	Area in square meters **(Anti-Clockwise)**					
	Field measurement		*Date*		*Month*		

PART 3B – RESULTS OF AREA MEASUREMENTS USING COMPASS-ROPE

18	19	20	21	22	23	24	25	26
Is the field measured? Yes =1				No = 2	Code		⟶	
Side	1 - 2	2 - 3	3 -	4 -	5 -	6 -	7 -	8 -
Bearing (0)								
Length								
Side	9 -	10 -	11 -	12 -	13 -	14 -	15 -	16 -
Bearing(0)								
Length								
Side	17 -	18 -	19 -	20 -	21 -	22 -	23 -	24 -
Bearing (0)								
Length								
Side	25 -	26 -	27 -	28 -	29 -	30 -	31 -	32 -
Bearing (0)								
Length								
Field Measurement	date	month	**Closure error**		Area in square meters			

For fields selected	Selected corner number	Shortest side length	Random number	
For crop cutting	Shortest side Bearing	Longest side length	Random number	

	Name	**Signature**	**Date**
Data collector			
Field Supervisor			

CENTRAL STATISTICAL AUTHORITY
ETHIOPIAN AGRICULTURAL SAMPLE SURVEY 2010/11 (2003 E.C)

PART I – IDENTIFICATION PARTICULARS

1	2	3	4	5	6	7	8	9	10	11	12	13	14
			PA / REST.AR	EA LOCAL	HH ID	HH HEAD SEX 1=M 2=F	HOLDER ID	HOLDER'S NAME		SEX M=1 F=2	HIGHEST GRADE COMPLETED	HOLDER'S HH SIZE	FARMING TYPE CROP=1 LIVEST=2 BOTH=3
Region	Zone	Wereda							AGE				

PART II – MISCELLANEOUS QUESTIONS FOR THE HOLDER

15	16	17	
SER.NO.	QUESTIONS	CODE	
1	Do you exercise crop rotation on your land holing? Yes = 1 No = 2		
2	Reason for not using chemical fertilizers on any one of your crop fields Ignorance = 1 High price = 2 Lack of Money = 3 Non – availability of supply = 4 lack of credit service =5 Skeptical of the outcome = 6 Others (specify) = 7		
3	Reason for not participating in Extension Program Ignorance = 1 Lack of Money = 2 Skeptical of the outcome = 3 Non – availability of the program = 4 Lack of adequate crop fields = 5 Others (specify) = 6		
4	Do you get credit services? Yes = 1 No = 2		
5	If no in # 4 Why? Non availability of the service = 1 Unable to pay the loan = 2 Inadequate services provided = 3 Ignorance = 4 Does not yield any results = 5 Others = 6		
6	Do you get advisory services? Yes = 1 No = 2		
7	If no in # 6 Why? Non availability of the service = 1 Inadequate services provided = 2 Inadequate services provided = 2 Ignorance = 3 Does not yield any results = 4 Others = 5		
8	Your major supplier of fertilizer is Government organizations = 1 Private organizations = 2 Merchants = 3 Others (Specify) = 4 Never used fertilizer = 5		
9	Total Chemical fertilizers (Urea+Dap) purchased for main season in 2003 E.c (it includes gifts, loans, supports)	Killo	gram
9.1	Total Dap fertilizers purchased for main season in 2003 E.c (it includes gifts, loans, supports)		
9.2	Total Urea fertilizers purchased for main season in 2003 E.c (it includes gifts, loans, supports)		
10	How many oxen do you have in this Meher season?		
11	If you have one or no ox how do you plough? By renting ox = 1 By pairing mine with someone's ox = 2 By pairing mine with cow/ horse =3 Using horses or cows = 4 Hand digging = 5 Using borrowed oxen = 6 others = 7		
12	Total number of fields recorded for the holder		
13	Total number of crop fields recorded for the holder		
14	Has the holder ploughed additional fields over that of the previous year? Yes =1 No = 2		
15	If yes in question # 13, what was the previous state of the additional fields? Holder's virgin land = 1 Public/ Community virgin land = 2 Borrowed fallow land = 3 Other = 4		

Form AgSS. 2003/4

CENTRAL STATISTICAL AUTHORITY
ETHIOPIAN AGRICULTURAL SAMPLE SURVEY 2010/11 (2003 E.C)

Part I – Identification Particular

1	2	3	4	5	6	7	8	9	10	11	12	13	14
			Farmers'		Household	Household	Holder	Holder's			Educational	Household	Holding type
Region	Zone	Wereda	Association	E.A	ID	Head Sex	ID	Name		Sex	Level	Size	Crop = 1
						M = 1				M = 1	Highest grade		Livestock = 2
						F = 2			Age	F = 2	Completed		Both = 3

Part II – List of temporary crop fields for selecting crop cutting plots

15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
				Crop name																			
Parcel No.	Field No.	Crop name	code	Field No.	Selected Field No.	Field No.	Selected Field No.	Field No.	Selected Field No.	Field No.	Selected Field No.	Field No.	Selected Field No.	Field No.	Selected Field No.	Field No.	Selected Field No.	Field No.	Selected Field No.	Field No.	Selected Field No.	Field No.	Selected Field No.

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Annual Agricultural Sample Survey
Livestock and Beehives Population - 2010/11 (2003 E.C.)

Part I - Identification Particulars

Region	Zone	Wereda	Farmers' Association	Enumeration Area	Household Number	Holder Number	Holder						Type of Holding
							Name		Sex M=1	Edu. Status (Highest Grade	Family Size	Crop=1 Livestock=2	
								Age	F=2	Completed)			Both=3

PART II - LIVESTOCK POPULATION AND PRODUCTS
QST I - Did You Have Livestock and/or Beehives on November 10, 2010?

☐ Yes Complete questions below   ☐ No – End of the question

Number of Cattle by Age and Purpose on Nov 10, 2010

	None	Total		Male		Female	
1. Cattle of all ages _____		1		2		3	
a. Cattle less than 6 months _____		4		5		6	
b. Cattle 6 months and less than 1 year_____		7		8		9	
c. Cattle 1 year and less than 3 years _____		10		11		12	
d. Cattle 3 years and less than 10 years _____		13		14		15	
1. Beef Cattle_____		16		17		18	
2. Cattle for breeding _____		19		20		21	
3. Dairy cows_____		22		■		23	
4. Cows that gave milk for the last 12 months_____		24		■		25	
5. Draft cattle_____		26		27		28	
6. Cattle for other purposes_____		29		30		31	
e. Cattle 10 years and older_____		32		33		34	
f. Grand Total_____		35		36		37	
1. Local breed_____		38		39		40	
2. Exotic_____		41		42		43	
3. Hybrid_____		44		45		46	

Number of Sheep by Age and Purpose on Nov 10, 2010

	None	Total		Male		Female	
2. Sheep of all ages		47		48		49	
a. Sheep less than 6 months		50		51		52	
b. Sheep 6 months and less than 1 year		53		54		55	
c. Sheep 1 year and less than 2 years		56		57		58	
d. Sheep 2 years and older		59		60		61	
1. Sheep for mutton		62		63		64	
2. Sheep for wool		65		66		67	
3. Sheep for breeding		68		69		70	
4. Sheep for other purposes		71		72		73	
e. Grand Total		74		75		76	
1. Local breed		77		78		79	
2. Exotic		80		81		82	
3. Hybrid		83		84		85	

Number of Goats by Age and Purpose on Nov 10, 2010

	None	Total		Male		Female	
3. Goats of all ages		86		87		88	
a. Goats less than 6 months		89		90		91	
b. Goats 6 months and less than 1 year		92		93		94	
c. Goats 1 year and less than 2 years		95		96		97	
d. Goats 2 years and older		98		99		100	
1. Goats for meat		101		102		103	
2. Dairy Goats		104		■■■■		105	
3. Goats for breeding		106		107		108	
4. Goats for other purposes		109		110		111	
e. Grand Total		112		113		114	
1. Local breed		115		116		117	
2. Exotic		118		119		120	
3. Hybrid		121		122		123	

Number of Horses, Mules, Donkeys and Camels by age and Purpose on Nov 10, 2010

Horses

	None	Total		Male		Female	
4. Horses of all ages _____		124		125		126	
a. Horses less than 3 years _____		127		128		129	
b. Horses 3 years and older _____		130		131		132	
1. Horses used primary for draft purposes _____		133		134		135	
2. Horses for transportation _____		136		137		138	
3. Horses for other purposes _____		139		140		141	

Mules

	None	Total		Male		Female	
5. Mules of all ages _____		142		143		144	
a. Mules less than 3 years _____		145		146		147	
b. Mules 3 years and older _____		148		149		150	
1. Mules used primary for draft purposes _____		151		152		153	
2. Mules for transportation _____		154		155		156	
3. Mules for other purposes _____		157		158		159	

Donkeys

	None	Total		Male		Female	
6. Donkeys of all ages _____		160		161		162	
a. Donkeys less than 3 years _____		163		164		165	
b. Donkeys 3 years and older _____		166		167		168	
1. Donkeys used for draft purposes _____		169		170		171	
2. Donkeys for transportation _____		172		173		174	
3. Donkeys for other purposes _____		175		176		177	

Camels

	None	Total		Male		Female	
7. Camels of all ages _____		178		179		180	
a. Camels less than 4 years _____		181		182		183	
b. Camels 4 years and older _____		184		185		186	
1. Camels for slaughter _____		187		188		189	
2. Camels for draft purposes _____		190		191		192	
3. Camels for milk _____		193		209		194	
4. Camels for transportation _____		195		196		197	
5. Camels for other purposes _____		198		199		200	

Poultry

	None		Total		Indigenous		Hybrid		Exotic	
8. Poultry total on **Nov 10, 2010**		201		202		223		204	
a. Laying hens _____		205		206		207		208	
b. Non-Laying hens _____		209		210		211		212	
c. Cocks _____		213		214		215		216	
d. Cockerels _____		217		218		219		220	
e. Pullets _____		221		222		223		224	
f. Chicks_____		225		226		227		228	

QST II- Did You Have Livestock During The Reference Period (Nov 11, 2009 to Nov 10, 2010)?   Yes=1 No=2   [   ]

Yes Complete questions below   No – End of the question

	None	Total	
9. Total Beehives (produced honey during the reference period)		229	
a. Traditional Beehives _____		230	
b. Intermediate Beehives _____		231	
c. Modern Beehives _____		232	

10. Honey production per beehive in kg during the reference period

a. Average honey production/ Traditional hive/harvest _____	233	
Number of harvests/Traditional hive/year_____	234	■
b. Average honey production/ Intermediate hive/harvest_____	235	
Number of harvests/Intermediate hive/year_____	236	■
c. Average honey production/ Modern hive/harvest_____	237	
Number of harvests/Modern hive/year_____	238	■

Milk, Egg, and Honey Production during the reference period

11. Dairy cows and Camels   None

    a. Cows that gave milk during the reference Period_____ | | | 239 |
    b. Average number of months cows actually milked _____ | | | 240 |
    c. Average lactation period of cows in months _____ | | | 241 |
    d. Milk production per day per cow in liters _____ | | | 242 |
    e. Camels that gave milk during the reference period_____ | | | 243 |
    f. Average number of months camels actually milked _____ | | | 244 |
    g. Average lactation period of camels in months _____ | | | 245 |
    h. Milk production per day per camel _____ | | | 246 |

	None	Indigenous	Hybrid	Exotic
12. Egg production per hen per clutch _____		247	248	249
13. Average number of days per clutch_____		250	251	252
14. Total Number of clutch during the reference period_____		253	254	255

15. Livestock Diseases and Treatments during the Reference Period

1	2	4			5		
		Afflicted/Diseased			Total Treated		
Sr. No.	Livestock Type	Total	Male	Female	Total	Male	Female
1	Cattle						
2	Sheep						
3	Goats						
4	Horses						
5	Donkeys						
6	Mules						
7	Camel						
8	Poultry						

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16. Number of Births, Purchases, Sales, Slaughters, and Deaths during the Reference Period

1	2	3			4			5			6			7			8			9			10		
Sr. No.	Livestock Type	Births			Purchases			Acquired			Sales			Slaughters			Offered			Died from Diseases			Died from other Reasons		
		T	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F
1	Cattle																									
2	Sheep																									
3	Goats																									
4	Horses																									
5	Donkeys																									
6	Mules																									
7	Camels																									
8	Poultry																									

17. Livestock diseases, treatment and Vaccination during the Reference Period

1	2	3			4	5		6			7			8			9		
Sr. No.	Livestock Type	Total Vaccinated			Vaccinated against														
					Anthrax	Blackleg		Pleuro-Pneumonia			Hemorrhagic Septicemia			Rinderpest			Others		
		T	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F
1	Cattle																			
2	Sheep																			
3	Goats																			
4	Camels																			

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18. Livestock Feeds utilized during the reference period

1	2	3	4	5	5	6
Sr. No.	Type of Livestock Feed	Code	Utilized yes=1 no=2	Percent from the total feed Utilized	Source of Feed	Code
1	Green fodder/Grazing	1				
2	Crop Residue	2				
3	Improved Feed	3				
4	Hay	4				
5	Bi-products	5				
6	Others	7				
	Total	■■■■	■■■■	100		

Own Holding=1   Purchased=2   Communal Holding=3
1 & 2 =4   1 & 3=5   2 & 3=6   1, 2, & 3=7   Others=8

19. Did you participate in any Livestock Extension Program during the reference period? ☐

Yes=1   No=2

20. If yes to 19, what was the type of the package? ☐

Dairy development package   =1
Beef/Meat/Mutton development package   =2
Poultry development package   =3
Honey and Wax development Package   =4
Any two or more of the above packages =5
Any other livestock package   =6