MINISTRY OF AGRICULTURE

AGRICULTURAL INFORMATION SITUATION IN ETHIOPIA: DATA/INFORMATION PRODUCER'S PERSPECTIVE

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BY
SAMIA ZEKARIA

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1. **Introduction**

It is known that agriculture is the main economic sector which provides the necessary means for the livelihood of both rural and urban population of Ethiopia. In this respect, the process of agricultural planning, strategy designing, policy formulation and analysis require large volume of statistical data/information. The data requirement of agricultural development planners and policy makers range from agricultural resource base which include human resource (rural population), land, water, forest, wildlife, livestock, poultry, beehives and fisheries to agricultural services, production and marketing which include the small peasant holders pastoral-nomadic and commercial farming systems. The collection of reliable, comprehensive and timely statistical information on agriculture is very essential. Thus, the implementation of a dynamic agricultural information system is ought to be the top priority of the government.

In this respect the establishment of a user-oriented and sustainable agricultural information system require proper management, planning, implementation and procedures. The success and sustainability of the national agricultural information system depends on the supply of accurate and reliable data in a timely basis. In the past, lack of coordinated planning activities between different sectors of the economy and different areas of the agricultural sector coupled with the inefficiency of the method of data collecting activities contributed to data deficiencies.

The paper reviews the historical perspective of agricultural information system by assessing the pattern and growth of the past and the current agricultural statistics system in Ethiopia. It attempts to draw the attention of the government to build the capacity (human and material) of statistical services to establish sustainable national agricultural information system. The paper also
gives an insight that the collaborative efforts of the major sources of agricultural statistical data could provide timely and reliable data for formulation of policies and strategies of the agricultural sector. Considering the Central Statistical Authority’s (CSA) capability of data handling, integration, management and sharing among the major users and producers of agricultural information/data, the paper shows the feasibility of establishing an Agricultural Information System (AIS) within the CSA.

2. **Historical Background of Agricultural Statistics**

Agricultural censuses were first mentioned in the oldest monuments of written history. In the early days, the principal form of wealth were agricultural-landed estates with their crops, serfs and livestock. Consequently, when rulers of the highly centralized states of antiquity needed information on the wealth and income of their subjects, they turned to surveys of agricultural resources (W.S. Woytinsky *et al*, 1939).

Records show of a cadastrol survey of Babylon in the third millennium B.C. The Romans made extensive use of agricultural statistics. The Tabulae Census taken in 555 B.C. by Servius Tullius contained an inquiry on the number of serfs in the possession of each citizen which was to show the value of his landed property. Little is known of the agricultural statistics of old Greece, but Solonian reform and the redistribution of land frequent in Greek Republic could not have been carried without cadastrol surveys. (W.S. Woytinsky *et al*, 1939)

In the eighth century the French King Charlemagne sent into the different parts of his vast kingdom officials instructed to describe the agricultural area and livestock and ascertain the value of crops and the incomes of landlords and villains. (W.S. Woytinsky, 1939)
The general trend in the agricultural statistics of more recent times is the tendency to approach the agricultural problems from the angle of national economy and the needs of rural population rather than that of military or fiscal requirements.

Experiences of many African countries show that the main sources of statistics on food production are agricultural censuses and surveys, agro-economic sample surveys and sources such as administrative reports and/or records, cadastrol registers, reports from agricultural extension workers, areal photography producers declarations...etc. In general, most African countries conducted decennial agricultural sample censuses as opposed to full agricultural census and the holdings been used as the statistical units for the collection of the data. Those African countries which have faced problems in carrying out censuses, their major problems have been shortage of financial resources and skilled manpower. Ethiopia is among those African countries which has not conducted agricultural census to date.

In the areas of agricultural sample surveys, most African countries have now established annual sample surveys with the purpose of obtaining data annually on a number of agricultural subjects including crop and livestock using objective techniques. There are some countries which use subjective methods like eye estimation technique or a combination of objective and subjective methods.

In African countries where objective techniques of area measurement have been used, several method of measurements have been adopted. These are methods of triangulation, tape and compasses ...etc. In the case of mixed cropping some countries have used seed densities method for estimating area under crops.
Regarding yield statistics, most African countries carry out objective methods of crop-cutting surveys to obtain yield of crops. The shapes of plots used for crop cutting are usually square, circular or rectangular. However, measurement of yield of crop such as cassava, yam, potatoes have caused problems since they are in general harvested gradually by households in a piece meal fashion and not necessarily completely during any given period of a year. In measuring the yield of crops, problems of moisture content have been experienced by most African countries.

Area and yield statistics are not always collected as described above, i.e., measurement techniques. There are, however, countries where holders keep records of their activities and are able to supply data of reasonable quality on many types of agricultural statistics, areas and yields, prices of agricultural products ... etc. “It, therefore, remains to examine the usefulness of the multi-subject approach in collecting agricultural statistics by interview surveys” by interview surveys (S.S. Zarkovich, 1978).

Useful agricultural statistics should be adequate in coverage, reliable, timely and above all, comparable. In many countries they leave much to be desired in these respects. For example, in some of the more developed countries, statistics of crop acreage and livestock number are collected by interviews with farmers or mailed questionnaires, supplemented in some countries by spot inspections. With few exceptions, such surveys suffer from incompleteness.

3. The pattern of Agricultural Statistics Growth in Ethiopia

This section of the paper attempts to examine the pattern of agricultural statistics growth and its sources since the compilation of statistics on agriculture has been initiated in Ethiopia. To provide the overall picture of historical
development of agricultural information, three distinctly different periods of time are analyzed in this papers:

a) Pre 1974 - "Ad-hoc surveys"
b) 1974 - 1979 "Annual Agricultural Sample Survey"
c) 1980 - 1997 "Integrated Household Sample Survey Program"

3.1 Status of Crop and Livestock Statistics Pre 1974 “Ad-hoc Surveys”

The growth and development of agricultural statistics could be discussed with the progress of statistical institutions that are responsible to collect, process and disseminate the relevant data. Prior to 1974, statistical services in general and agricultural statistics in particular were in a weak position. The state of crop and livestock statistics were generally unsatisfactory and inadequate with respect to coverage, timeliness and reliability of the data.

The author did not come across with records or documents which show when agricultural surveys were actually started in Ethiopia. However, from Mr. A.A. Rau, an FAO expert’s review paper, one could gather that agricultural statistics was initiated after the establishment of the Department of Economics and Statistics in 1954 in the MoA. He indicated that with the Technical Assistance obtained from the FAO serious attempts were made to improve and develop agricultural statistics. The expert noticed that the only information available on crop area, production and yield-rates at the time of his review in 1972 were those built up by the Central Statistical Office. In his conclusion after reviewing the status of agricultural statistics, Mr. Rau, stated that the work done by the Department during the 15 years starting from 1954 to 1968 had not significantly improved agricultural statistics, but helped to evolve a suitable and scientific methodology for crop-sampling surveys. It also provided some valuable information on methodological, operational and cost aspects for planning regular Empire-wide crop estimation procedures. (Unpublished document, FAO, 1972)
### 3.1.1 Crop Statistics Collected by Different Institution

During the pre 1974 period a number of organizations were actively involved in producing data on crops. These institutions were collecting data on agricultural statistics on an ad-hoc basis. The Ministry of Agriculture (MoA), was prominent among such specialized agencies as the Ethiopian Grain Corporation, the Ethiopian Grain Board, the National Coffee Board, the Ethiopian Tobacco Monopoly, the Awash Valley Authority and Central Statistical Office. Among the statistical data collected were details on production, exports, imports, prices, area planted, yield, fertilizer climatology, land tenure and farm credit. The above mentioned data were collected to throw light on specialized aspects of agriculture in particular localities. Information on yields and other aspects of crop production was also available as a result of the studies carried out by the IAR and other bodies. (CSO, 1974)

### 3.1.2 Crop Statistics and the Ministry of Agriculture

In the early years of the 15 years period mentioned above, emphasis had been given in the training of the related office and field personnel. Conducting exploratory investigations were major tasks of the Department of Economic and Statistics of MoA. In 1965 and 1966, two pilot sample surveys were conducted in two provinces, i.e., Shoa and Arussi respectively. Following the pilot surveys, crop estimation survey was conducted in Tigre, Wollo and Begemdir provinces to obtain estimates for each of the three provinces separately in 1969/70. The survey covered major crops such as teff, wheat, sorghum and maize. Stratified two stage sampling design was utilized for the traditional sector of farming, while complete enumeration was applied for the modern sector of farming. Yield was estimated by three crop-cutting experiments on plots of 10 x 5 sq. meters. Training was conducted for surveyors. Data processing was carried out manually after thorough training of the surveyors. The estimated area and crop production with variances and standard errors were produced in
about 12 months including the fields work. This activity was discontinued after 1969 owing to shortage of trained manpower and funds.

a) The Role of EPID (MoA) in Collecting Agriculture Statistical Data

Extension and Project Implementation Development (EPID) of the MoA was one of the institutions that was involved in collecting agricultural statistics data. Starting from around 1970s EPID had carried out crop cutting surveys of major crops in areas under its jurisdiction with fair results. In 1970/71 and 1971/72 EPID had conducted two crop sample surveys in almost all provinces of the country except in Arussi and Eritrea for two most important crops of each area. The statistical methodology used was illustrated in the instruction manuals and is presented as follows:

- out of 50 farmers' fields two most important crops were selected,
- crop cutting was conducted on plot size 2 x1 sq. mt.
- five sub areas around the Extension agents' office have to be selected i.e. taking 3 to 4 km north, south, west, and east of the office and just around the office was considered,
- then five farmers were selected randomly from each sub area.

From the above methodology it is hard to investigate how the sample size was determined. The statistical validity of the result was also questionable (MoA, 1973). Similar methodology was adopted for the survey conducted in 1971/72. For reference, a report from the survey result is presented in Appendix I, item 1.

Prior to the establishment of EPID, the FAO fertilizer program conducted crop sample survey for the major crops in nine provinces. This survey was basically designed to observe the responses of fertilizer on different crops on demonstration plots. The sample yield estimates from this study helped EPID to adopt its extension program towards those crops and fertilizer inputs. However, no details have been given about the statistical methodology followed in selecting the demonstration areas (MoA, 1973).
3.1.3 Central Statistical Office and Its Crop Statistics

Central Statistical Office (CSO) was among those institutions which was involved in collecting statistical data on agriculture and on other primary economic activities. It is worth looking into the evolutionary growth of the CSO with respect to its institutional capacity and its development with regards to its current agricultural statistical data. CSO was established in June 1960 and during the first three years of its existence, however, the progress was comparatively slow. It was not until 1964 and in particular the beginning of 1965 when the cumulative effects of accomplishments of the statistical service began to grow at a rapid speed. (CSO, 1967)

a) The National Sample Survey of the CSO

The first and the second rounds of multi-purpose National Sample Survey (NSS) were conducted starting from 1963 to 1969. The first round covered 12 provinces out of 14 provinces of Ethiopia. The emphasis of the first round of NSS was on obtaining structural data from the provinces at a rate of about three provinces a year. It took four years to be completed. The second round NSS covered 13 provinces and the survey was undertaken simultaneously in all provinces over 12 months period of time. First round NSS was the first attempt ever by the CSO to conduct a survey of any sort. It is not difficult to see the short comings of the survey in terms of organization, technical planning and execution. However, it had produced useful data and more importantly it had provided for the first time, field experience that helped in the second round. In the second round, the objective measurements of fields were done in a much better fashion based on experience gained from the first round. Moreover, the concept and definition were clearly pronounced in the instruction manuals which improved the quality of the survey results. It was after the second round NSS that the CSO placed its emphasis on obtaining annual information for the whole country on the rural as well as urban economy (e.g. agricultural production, consumption, savings ...etc.)
Regarding the data processing facilities, the CSO did not have its own mechanical data processing equipment until the beginning of 1965. However, after the installation of mechanical electronic IBM data processing equipment the office had multiplied its pace. The office had two 421 accounting machines (tabulator), 2 sorters, 1 collator, 1 reproducing punch and some accessory equipment. The NSS and other surveys were processed using this mechanical punch-card equipment. The second round NSS reports were produced and printed in several volumes where some of the reports related to agriculture are shown in Appendix I, items 2-5.

b) Recommendation of Agricultural Statistics Sector Review Committee

Towards the end of 1972, the Agricultural Statistics Sector Review Committee (ASSRC) was established to assess the status of agricultural statistics of that time and to recommend specific programs for further development of statistics. The committee's report indicated that from the standpoint of providing a comprehensive data in the crop sub-sector which show what was taking place at national level, the data were seriously deficient. In this respect, the information was unreliable, restricted in coverage, collected only sporadically and published late if indeed published at all. Especially data regarding the output of major crops nationally or regionally were trouble inadequate (CSO, 1974).

The ASSRC's report indicated that the annual series of crop production data which were published in the Statistical Abstract of the CSO were also inadequate and questionable. They were not obtained based on objective and comprehensive method of data collection approach on yearly basis. They were simply projections based on population growth of old and questionable bench-
mark estimates of output. The bench-mark figures were derived from an expert committee's impression of consumption level adjusted later in the light of early and partial results on cropping pattern from the First Round National Sample Survey of the CSO. (CSO, 1974)

3.1.4 Livestock Statistics Collected by Different Institution

Regarding livestock statistics three organization were mainly responsible for livestock statistics namely Livestock and Meat Board (LMB) the CSO and the MoA. Data collected by the LMB include number of livestock, grazing conditions, stock migration, market, husbandry practices, livestock diseases and slaughtering and agricultural characteristics of livestock area. Similarly, the CSO has produced provincial estimates on number of cattle, sheep, goats and other animals based on the two rounds of NSS. The data on livestock numbers regularly published in the Statistical Abstract. However, the results of CSO from NSS were in serious conflict with the series on livestock numbers published in the Abstract and figures quoted from LMB. It was ASSRC's expert's opinion that such surveys as the NSS which attempted to collect a range of data on demographic, economic and social conditions appear unsuited to producing reliable information on livestock sub sector in Ethiopian conditions. The Livestock data which were produced by MoA included number of rinderpest inoculations given to cattle under Animal Health Division and Price of livestock and livestock products.

As in the case of crop statistics, it was found that the data which were compiled by different institutions were seriously deficient in providing an accurate picture of the conditions in the livestock sub-sector. Apart from the most serious gaps in the livestock data, the conflicting nature of the data from different sources made the situation worse (CSO, 1974).
3.2 The Status of Annual Agricultural Sample Surveys

During 1974 - 1979

Efforts were made by concerning agencies to satisfy the agricultural statistics data requirements with regards to crop and livestock data and narrow the existed data gaps. Six nation-wide agricultural sample surveys including small scale agricultural sample census of 1976/77 were conducted by MoA. Prior to 1980, the agricultural surveys and related data collection activities were the responsibility of the MoA. Especially, when the MoA started conventional type of annual agricultural survey starting from 1974 to 1979 with the assistance of FAO/UNDP, the preparation of a broad survey plan, the preparation of schedules, instruction manuals and other survey documents were undertaken by the MoA. The field work was undertaken by regional and field supervisors of the MoA and temporary enumerators, during each survey. The CSO co-operated very closely with the MoA by supplying supervisors, vehicles and equipment. The collected data were processed by MoA staff members manually.

The first two surveys, i.e., 1974/75 and 1975/76, were processed using only four-operation calculators by copying survey results on special processing sheets. For the remaining four surveys, programmable HP desk calculators were utilized. For each survey a special "Editing and Data Processing Instruction Manual" was prepared. Reports of each survey result was prepared separately and disseminated to users. Some selected reports of the Agricultural Sample Survey results are shown in Appendix I, items 6-12.

Information in Table 1 shows the status of agricultural statistics of the country during the period mentioned above with regards to gradual development of the sample size of each year and subjects addressed in the surveys. The method of data collection the sample design, he sample size and topics covered in each survey in shown in Table 1.
<table>
<thead>
<tr>
<th>Year</th>
<th>Type of survey</th>
<th>Areal coverage</th>
<th>Methods data collection</th>
<th>Type of sample design</th>
<th>Sample size</th>
<th>Topics covered</th>
<th>measure No. of crop cutting</th>
</tr>
</thead>
<tbody>
<tr>
<td>1974/75</td>
<td>sample survey</td>
<td>14 Regions all regions</td>
<td>Interview and objective method</td>
<td>3 stage sampling design</td>
<td>3500 holdings</td>
<td>-farm population -land utilization -crop production -land tenure -cost of production -use of fertilizer</td>
<td>3000 fields measured 120 crop-cutting</td>
</tr>
<tr>
<td>1975/76</td>
<td>sample survey</td>
<td>13 Regions</td>
<td>Both interview and objective method</td>
<td>Similar to 1974/75 with partial rotation of woredas</td>
<td>4500 holding</td>
<td>-land utilization -crop production - use of fertilizer &amp; irrigation</td>
<td>3460 fields measured 870 crop cutting</td>
</tr>
<tr>
<td>1976/77</td>
<td>Small Scale sample census</td>
<td>12 Regions</td>
<td>-Private holding both subjective and objective -cooperative and state farms subjective</td>
<td>-Private holding 2 stage sampling -cooperative and state farms complete enumeration</td>
<td>5,000 holdings (225 FAs) from private holding</td>
<td>-rural population and employment -area &amp; production -livestock &amp; poultry -agricultural machinery -selected practice</td>
<td>4,000 fields measured 1000 crop cutting</td>
</tr>
<tr>
<td>1977/78</td>
<td>Sample survey</td>
<td>10 Regions</td>
<td>Interview method only</td>
<td>2 stage sampling design</td>
<td>4,500 holding</td>
<td>-farm population -fertility of women -crop production -land utilization -use of fertilizer -cost of production -actual and planned use of product</td>
<td>None</td>
</tr>
<tr>
<td>1978/79</td>
<td>Sample survey</td>
<td>12 Regions</td>
<td>Interview method only</td>
<td>all woredas covered all agricultural important woredas</td>
<td>all agricultural area and production of major crops</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>1979/80</td>
<td>Sample survey</td>
<td>12 Regions</td>
<td>Both interview and objective method</td>
<td>2 stage sampling design</td>
<td>10,000 holdings</td>
<td>-crop production cost of production -land utilization -marketed production -use of fertilizer</td>
<td>9,000 fields 2,000 crop cutting</td>
</tr>
</tbody>
</table>
Prior to 1980, the available socio-economic and demographic data in Ethiopia were seriously deficient and largely out of date. Most of the statistical surveys undertaken were ad-hoc and subject to various shortcomings. There was no national statistical program to ensure a continuous flow of socio-economic and demographic data needed in development planning monitoring and evaluation of development program.

On the other hand, due to the fundamental social changes that has taken place in the country, the demand for reliable data had been increased. In view of this National Integrated Household Survey Program (NIHSP) was initiated in 1980 by the CSO with the assistance of FAO/UNDP and UNICEF. The cost effectiveness, flexibility and rich analytical potential of a continuous survey program based on a permanent statistical infrastructure was taken into consideration. Further, since the country's economy is based mainly on agriculture the development and improvement of food and agricultural statistics was also taken into account to establish the Rural Integrated Household Survey Program (RIHSP) in 1980 as a component of NIHSP.

3.3.1 Rural Integrated Household Survey Program 1980-1992

After careful consideration of the need for optimal utilization of available resources in the production of statistics, it was found necessary to entrust the CSO to conduct surveys on agriculture. Thus, the CSO (Now CSA) has made several efforts in producing agricultural statistics data through, the Integrated System of Food and Agricultural Statistics Program and carried out 13 annual agricultural sample surveys since 1980/81. Some of these reports from these surveys may be available in the CSA documentation. Samples of these reports are presented in Appendix I, items 13-15.

However, the annual agricultural sample survey was interrupted for two years when the CSA was fully engaged in undertaking the preparatory activities

3.3.2. Rural Integrated Household Sample Survey, 1994 to date

The scope and coverage of the survey are constantly under review and necessary improvements are effected from time to time in an effort to incorporate different items in the survey questionnaire. Regarding the sample size the RIHSP started with 500 sample sites covering 12,500 households in 1980/81 and currently the sample size has increased to 1385 sample sites covering about 34,600 households in the survey of 1997/98. Nevertheless, the increment of the sample size goes with the availability of budget and the organizational capacity of an institution that carry out survey in a particular period of time. The type of reports produced from these surveys improved in quality and the numbers increased especially in the last four years. These reports are available at the CSA documentation. Samples of these reports shown in Appendix I, items 16-21.

Under current agricultural sample survey (1997/98) the result of the survey data are planned to be generated at zonal level. In the past years CSA could only present its agricultural statistical data at regional and at group of zones level due to limitation of resources. On the other hand, planners and policy makers of Regional States require agriculture statistical data at woreda level not only at regional or zonal levels. Some users think the use of CSA data would be limited at the Federal Government level.

3.3.3 Methodologies of Data Collection of CSA and Regional Agricultural Bureaux

The method of data collection of the CSA is both subjective and objective which generally follow acceptable statistical procedures. However, refinement in the methodology to ensure representative coverage and to speed up the availability of results need to be incorporated. Regarding the objective method of yield estimate through crop-cutting which is currently performed is time consuming and needs detailed studies to optimize the plot size and collect the desired information. The reference period for data on area under crops relates
to harvesting period, while data on livestock and poultry pertains to the date of enumeration.

In addition, data on agricultural statistics are also collected by MoA through Regional Agricultural Bureaux (RAB) and generate data at woreda level. Despite the availability of these data at woreda level the quality of data cannot be defended with objective means. It is mostly subjective and open to individual interpretation of a few persons and biased by non-objective procedures.

3.3.4 Facilities of Data Processing of the CSA and MoA/RAB

Regarding the data processing facilities of agricultural statistics of CSA, prior to 1995, the data collected for survey have been processed by a relatively old mainframe computer system. However, after the introduction of personal computer-based software for both data entry and processing activities, the timeliness of the data is relatively in a much better situation. It is recommended that decentralization of data processing activities could also improve both the timeliness and the quality of data since the problems of data could be detected earlier and corrected when it is possible to contact the enumerators at the field. On the other hand, the data collected by RAB through extension agents are processed and compiled by those personnel who collected the data manually.

3.3.5 Area to be Considered in Future Development of Agricultural Statistics of the CSA

The shortcomings of the current agricultural statistics program of CSA are the exclusion of several important crops such as coffee, enset, fruits and vegetables. It also excludes livestock and crop statistics in the non-sedentary areas of the country. Other key components of land utilization such as pasture land and fallow land are not adequately covered. It is essential to have complete set of important agricultural commodities to strengthen current estimates and expand them to account for the entire country. For the first time the CSA conducted a special survey of enset in 1996/97 in enset growing areas of the
The data are being processed and the report will be produced separately in a foreseeable future.

3.3.6 Expected Collaboration Efforts between CSA and MoA/RAB

Currently the CSA and the MoA/RAB are the primary sources of agricultural data. Both organizations have personnel in the field at the grass-root level who can collect information from the farmers. It seems inefficient for the two organizations to perform similar tasks. In this regards, the data collection compilation and processing activities of these two organization need to complement with each other. It is suggested that since MoA/RAB has infrastructure capable of quick assessment on the pulse of agriculture across the country, it can best provide information which is essential to short-term assessment of crop within a season. This kind of information is valuable to the CSA for it could provide an insight into the survey results. Furthermore, it is suggested that collaborative effort between the MoA/RAB and the CSA would benefit to complete data base available to agricultural planners.

On the other hand, as the Government of Ethiopia is developing capabilities in agricultural extension, different departments within the Ministry of Agriculture need to develop their capacity of data collection, analysis and sharing activities. For example, among data collected by the Crop Production and Protection Department some are ground survey of pest breeding area, chemical efficacy, potency and etc. Similarly, data obtained from Animal and Fishery Resource Department include ground survey of disease and pest epidemics, medicines and supplies production and promotion, artificial insemination services ...etc.

These types of data are important that need to be shared amongst the Departments of the Ministry. However, it is hampered by the non-existence and incompatibility of the data base with in the Ministry (UNDP/ECA, 1997). As a matter of fact, due to the increased planning and research activities of the Ministry these data need to be accessible not only to the Departments within the
Ministry but also to other users nationally and internationally so as to limit duplication of efforts and wasting the scarce resources of the country.

From the above discussion, one could easily realize that the MoA research based data focus on how agricultural inputs perform on a given crop, while the CSA data show how far these agricultural inputs are being adopted and utilized by farmer throughout the country. More importantly, these research based data could enrich the statistical data that are collected by the CSA. Thus, in the process of establishing the NAIS the integration of these two sets of data and making accessible to all users should be considered.

3.4 The Development of Crop Production Forecast Survey

To assess the country's food situation, for possible intervention and for emergency preparedness, the agricultural sector requires early forecast of crop statistics which should take into consideration conditions of rainfall, input supply, pest outbreak ...etc. and mainly crop production estimates. It has become increasingly necessary to forecast the size and quality of harvesting particularly for cereal crops which remain to be the basic source of food in most parts of the world. Forecasts are very important to help both the crop producing countries and the international donor agencies to know the food procurement possibilities and requirements in advance so as to organize emergency food assistance programs in the best possible ways.

3.4.1 Crop Production Forecast Survey of MoA

In Ethiopia, after studying different methods of crop production forecast survey, the first survey of forecast was conducted in 1976. Prior to this period due to lack of field organization and experience in this field such surveys were not attempted. In this survey a large number of woreda were selected. The data were collected using interview methods. Woreda officials and farmers who had the knowledge of crop production situation of the woreda were interviewed. They were asked about expected changes in crop production and area under crop production with the reasons for such expected change comparing to the
preceding survey year (FAO, 1980). The list of reports on crop production forecast survey is presented in Appendix I, items 22 and 23.

The reports of the above mentioned forecast surveys were prepared by enumerators for each crop separately and by region. Four such surveys were conducted and reports were produced for each survey during the periods of 1976 to 1979. In addition, one preliminary crop production forecast report based on time series data was also made available to users in 1979.

3.4.2 Crop Production Forecast Survey of the CSA

After the introduction of RIHSP, CSA conducted crop production forecast surveys on annual basis starting from June - July 1981. The survey of June-July 1981 has been conducted in all of the 500 sampled Farmers Association (FAs). Out of the 25 randomly selected holders for the agricultural sample survey of 1980/81, the first 10 holders were selected and information was collected using interview and objective methods. The area under major crops for the selected holder were measured objectively. With regard to estimating expected production, previous results of crop-cutting for yield estimate were utilized. The same methodology is adopted for the years proceeding 1980/81 to conduct annual crop production forecast surveys. The reports on crop production forecast survey are shown in Appendix I, items 24 and 25. The timeliness of the forecast survey is relatively improving compared to the last few years.

3.4.3 Pre-harvest Crop Production (Forecast) Assessment of the RAB/MoA

The Regional Agricultural Bureaux conduct pre-harvest assessment on annual basis. The data for the crop production assessment are collected by the development agents (DAs) or extension agents in their respective Farmer Associations. Their method of data collection is subjective.

Apart from the DA's data collection, the assessment is accompanied by a group of experts from the MoA of the Federal Government, DPPC and FAO each
year to amend the DA's report and bring up to the level of expectation. Each year around the month November the data are released to the users.

3.5 Statistics of Agricultural Prices and Its Development

The term "agricultural prices" is a general concept covering prices of all agricultural products and requisites for agricultural transacted at all stages of marketing. Prices of agricultural products cover prices quoted for all farm products at all stage of marketing. Prices paid by farmers covers all prices paid by farmers as they participate in the transaction of goods and services in their capacity as buyers (Salem H.K. 1978).

Price statistics provides an essential part of the pictures which must be held in mind by the farmers, the middlemen, the consumers and the government. The study of price of trends and price relations, price flexibilities and rigidities constitute the starting point for socio-economic legislation to remedy the unbalance in the distribution of the national income. (H.C. Taylor, 1939) As society gets more involved in market economy, prices become important economic variable; for it is the price relations that are mainly used in deciding upon the type and volume of the productive activity in a market economy. (FAO 1978)

Price statistics consist of a systematic collection, processing and publication of price data, in such away as to facilitate their use for different purposes. Some principal uses of price statistics in agricultural fields are:-

a) to study the level of prices charged by producers and retailers;

b) to assess changes in the economy

c) to help policy makers in taking decision on production and distribution of goods and services
3.5.1 Price Data Collected by Different Institution

Assessment was made by ASSRC regarding the development of price statistics in Ethiopia (CSO 1974). The report indicated that information on prices available prior to 1974 was more satisfactory than the information on agricultural output. Major efforts in this area included Ethiopian Grain Corporation’s daily or weekly collections of wholesale prices for cereals, pulses and oilseeds in ten markets centers, wholesale and export prices of cereals, pulses, oilseeds and oilcakes collected weekly by Ethiopian Grain Board, and the National Coffee Board’s daily collection of coffee prices in Addis Ababa and of f.o.b. coffee prices. The MoA started in Sept. 1971 to collect retail prices, wholesale and producers prices of a large number of agricultural products on a weekly basis but the system was not fully operational and no data have been published thus far. On the other hand, CSO collected and published monthly an index of retail prices in Addis Ababa on cereals, pulses, fruits and vegetables, spices and other food items as part of its consumer’s retail prices index. However, farmgate (producer’s prices) i.e., prices received by farmers were not collected by any organization in those period of time. (CSO, 1974)

3.5.2 Collection of Price Statistics at the CSA

However, after the introduction of RIHSP since 1980/81, the CSA has been conducting rural price survey which covers both retail and producers’ prices on a monthly basis. Information on retail prices is collected from retail outlets in the selected sample FAs or Enumeration Areas, if exists or in adjacent areas to the sample sites if there is no retail outlet in the selected sites. Whereas, data on producers prices are collected from selected peasant households residing in the sampled site.

The monthly retail price data collection first started in Addis Ababa together with the consumption and expenditure of 1963 in CSO. The coverage of price survey of the urban centers which was started in Addis Ababa was increased stage by stage and currently, 26 major urban centers are covered throughout the country.
The movement of prices overtime is one of the important variables which has to be measured in a regular basis. Price indices are one of the macro-economic indicators which can be used to observe the overall price trend and the underlying inflation rates based on a representative market basket of goods services. Currently CSA produces four monthly consumer price indices starting from Sept. 1996 with a base year of 1995/96.

For the timely construction of these four indices (namely, country level, rural, urban and Addis Ababa consumer price indices) current monthly retail price surveys that are conducted both in urban and rural areas are utilized. Reports of these surveys are available at the CSA documentation.

4. **Establishment of Agricultural Information System in Ethiopia**

4.1 **Conceptual Framework of Information System**

Correct application of information technology is a critical factor for the competitive and successful functioning of an organization. There should be a good adjustment between possibilities offered by new technology on one hand and the requirement of an organization on the other (UNDP/ECA, 1997).

Information system development is the process of planning, designing, implementing, installing and maintaining an information system. In order to communicate and efficiently interpret the environment for different purposes one of the devices is naming objects and developing concepts such as units of measurement, land use ...etc. By applying analytical models one could be able to quantify and describe objects and process of interest. This formalized expression of the real world generates facts referred to as data. As Paresi (UNDP/ECA, 1997) indicated an answer to a specific question about anything constitutes an information.
A system may be described as a set of elements which form a more complex entity when combined. From the above premise, it follows that an information system may be defined as a collection of people, hardware, software, and procedures organized to collect data and generate information from it.

4.2 Some Important Points to Consider in the Establishment of Agricultural Information System

The most critical task of developing information system is to establish a data base. The data base establishes a history of productivity for the country and establishes a reference point for future planning. Before any type of analysis or planning can begin, a core set of information is required. A reliable set of statistics for agricultural products of economic significance is necessary for strong decision making. Research has shown that any organization would undergo into a series of stages in the development of information system.

The first stages starts with the establishment a survey program which provides reliable and timely information to build a basic set of agricultural data. The most important information for policy and planning is focusing on macro data for products of economic importance. These data include items such as total area under production by crop type, total quantity produced by crop type, total inventory of each livestock specie, and the basic economic statistics such as prices paid for goods and supplies and prices received. These items are essential at the global or country levels. In the first years of development of agricultural information system one should concentrate on designing a program that produces credible macro statistics for the purposes of policy analysis, planning and agricultural reform. The emphasis of the survey program should be to ensure that these data are accurate and complete. The ability to forecast production and assess stocks is a derivative of a strong historical survey program. If the design is in place to estimate post harvest production, follow-up (forecast) surveys can be designed to provide a pre-harvest production estimates of economically important crops.
The second stage of building an agricultural information system should include the development of the forecast survey program. A series of crop production forecasts for potential food supplies must be designed for an important set of crops.

The third stage of agricultural information system should attempt to broaden the scope of the data series. This phase begins the long-run development of a statistical program. Adding to the data base which usually depicts characteristics that are not as dynamic as crop production such as land utilization cropping practices, labor, environmental statistics and... etc. By developing a cyclical survey program, different areas can be targeted each year that provides analysts valuable long-run planning information. Moreover, economic analysis plays an integral part of an information system. As part of a long-run development plan of the information system, the capacity of economic analysis should be strengthened.

The fourth element of agricultural information system relates to micro data which describes minor commodities, rare items not covered in other surveys, local level information and special purpose data. These data complete an information system and are typical for special interests.

Parallel to the establishment of a complete data base, procurement of a computer and development of its application is an important stage that need to be considered for the networking purposes. The next stage is a location where strong data administration and management is needed such that the data could be easily accessible to users.

System development is best undertaken as a program with a budget of its own if it is to succeed. It requires proper management with its various stages of development. Users' participation is emphasized during information
requirement, determination, validation and changes at each stage of its development.

4.3 Relationship Between Producers and Users of the Agricultural Information System

As discussed earlier the method of data collection of the CSA which follows generally acceptable statistical procedures and scientific methods would qualify the CSA to be the focal institution of the information system. The data handling and management ability of the collected data by the data processing department of the CSA would make the Authority the central processor of the agricultural information nationally. While the other organizations serve as providers and/or receivers of the information. The two arrows show the direction of the flow of information/data exchange between the CSA and a given organization as illustrated in Fig.1.
Establishment of Agricultural Information System (AIS)

Fig. 1  Relationship between Producers of Agricultural Information and the focal institution (CSA)

CSA - Central Statistical Authority
RAB - Region of Agricultural Bureaux
NMSA - National Meteorology Service Agency
NMA - National Mapping Agency
NSIA - National Seed Industry Agency
NFIA - National Fertilizer Industry Agency
MoA - Ministry of Agriculture
ILRI - International Livestock Research Institution
IAR - Institute of Agricultural Research
FAO - Food and Agricultural Organization
Others - eg. Agricultural University/Colleges
Fig. 2  Relationship of the focal institution of NAIS/CSA and major users of Agricultural Information.

AIS - Agricultural Information System
MEDaC - Ministry of Economic Development and Cooperation
DPPC - Disaster Prevention and Preparedness Commission
UNDP - United Nations Development Program

As it can be seen from Fig. 1 and 2, all relevant institutions including the data producers and users are represented in the system. The data which come from different sources would be processed, stored and retrieved at the CSA.
5. Conclusion and Recommendation

5.1 Conclusion

Generally, accurate data are essential to formulate policy and forecast the economic growth rates with or without policy intervention. Presently, there are considerable deficiencies in doing the aforementioned tasks due to lack of major macro-indicators, lack of uniformity in data reporting, duplication and irregularity of data flows, low staff morale owing to inadequate incentives, inadequate computer and software facilities and absence of information network.

To overcome the above mentioned drawbacks, an attempt has been made to design a medium term statistical program by organizing a Working Team comprising experts from data users and producers. The main objective was to formulate a medium term statistical program (1998/99-2002/3) of the country. The formulation of such a medium term program has got a number of advantages which helps to:

- improve the present unco-ordinated and cost ineffective approach of data collection,
- identify the necessary resources requirement which would help mobilize resources,
- systematize data generation and processing in the country,
- introduce a loose working environment between data producers and users (MEDaC, 1997)

In the process of designing statistical program, the users' need assessment and gap identification was carefully done by the experts as shown in Appendix II. The program was designed that a large number of agricultural surveys to be carried out within the span of five years. As indicated in the proposed program the CSA is the focal institution which conducts and handles more than 95 percent of the agricultural sector statistics.
In conclusion, the argument of establishing the agricultural information system within the CSA would be feasible from the following standpoint of view. These are:-

- Currently, the CSA has a survey program which provides information to build a set of agricultural data on macro products that have significant economic importance.

- It has also developed a survey program from which the forecast survey is being conducted on an annual basis.

- In the process of broadening the scope of the data series, CSA has been constantly trying to improve both the scope and coverage of its annual agricultural statistics to meet the users' requirements with available resources.

- As it is mentioned above, in the formulation of a medium-term statistical program, attempts were made to make agricultural statistics user-oriented or user-driven such that the data series include micro data and minor commodities in the survey program by the focal institution (i.e., CSA) which would minimize the existing data gaps.

- With regard to availability of computer technology, the existing situation of CSA would be favorable to build strong data administration and management.
5.2 Recommendation

1. Government should build the capacity (both human and material) of the statistical agencies in order to communicate with one another efficiently and to establish the Agricultural Information System in the country.

2. The major data/information sources (such as RAB and CSA) should start working together as early as possible, in order to avoid confusion created by the data users as a result of producing two sets of data. This effort calls for the supports of Regional as well as the Central Governments.

3. Efforts should be made to develop a user friendly software which could be utilized by the system in order to make data/information accessible to all.

4. Attempts should also be made to develop a network system between the major users of the data.

5. Finally, the government needs to allocate the necessary budget in order to establish the proposed national agricultural information system in Ethiopia.
References


Ministry of Agriculture, EPID/Extension Division, Addis Ababa, April 25, 1973


Appendix I


### 2.1 STATISTICAL GAP/NEED MATRIX

**Sector:** Agriculture

<table>
<thead>
<tr>
<th>No.</th>
<th>Indicator/Data</th>
<th>Statistical Gap</th>
<th>Required form and Frequency</th>
<th>Focal Institution</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><strong>Land Resource &amp; Use</strong></td>
<td>Inadequate</td>
<td>By region, zone, holder</td>
<td>CSA</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total geographic area</td>
<td></td>
<td>every 3 yrs.</td>
<td></td>
<td>Need to be continued as it helps for the assessment of food supply, import requirements &amp; food aid needs. Some secondary data could be obtained from National Meteorological Services Authority (NMSA) and MOA. Publication has to be released in October</td>
</tr>
<tr>
<td></td>
<td>- Land holding: private peasant holdings, state farm holdings, private commercial farm holdings and others</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Land use: agricultural land, wood land or forest, area under meadows &amp; pasture, arable land and all other land; average arable land holding</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td><strong>Early Forecast of Crop Statistics (main season)</strong></td>
<td>Inadequate</td>
<td>By crop type, region and zone</td>
<td>CSA/NMSA/MOA</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Conditions of rainfall, input supply, pest out breaks, Availability of farm oxen, and Crop production estimate</td>
<td></td>
<td>Annually</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No.</td>
<td>Indicator/Data</td>
<td>Statistical Gap</td>
<td>Required form and Frequency</td>
<td>Focal Institution</td>
<td>Remark</td>
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<td></td>
<td></td>
<td></td>
<td>Level of disaggregation</td>
<td>Frequency</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Crop Statistics</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>Area &amp; production of all temporary crops including vegetables (potato, tomato, etc.), spices and others</td>
<td>Incomplete &amp; Inadequate</td>
<td>By crop type, producer type, season, rainfed, irrigated, under the new extension package program &amp; under the normal extension program; region and zone</td>
<td>CSA</td>
<td>Release of reports: For Main season crops: February, For Belg season crops July, For Permanent crops - end of crop year</td>
</tr>
<tr>
<td></td>
<td>Area &amp; production of all types of permanent/perennial crops: Coffee, Fruits (orange, banana, papaya, etc.), Root crops (Enset, Sweet potato, etc.) and others. Amount of crop by-products or residues</td>
<td>Partially available</td>
<td>By crop type, producer type, rainfed, irrigated, region &amp; zone</td>
<td>CSA</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Proportion of crop, livestock &amp; mixed farmers</td>
<td>Not available</td>
<td>By crop type, producer type, region &amp; zone</td>
<td>CSA</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Proportion of crop growers practicing irrigation &amp; total irrigated area</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Agricultural Inputs &amp; Practices</td>
<td>Partially available</td>
<td>By type, amount, cost of inputs and their usage by region, zone, season, producer type &amp; crop type</td>
<td>CSA/NFIA</td>
<td>Some secondary data could be obtained from National Fertilizer Industry Agency (NFIA) and from National seed Industry Agency (NSIA).</td>
</tr>
<tr>
<td></td>
<td>Chemical &amp; organic fertilizers, improved seeds, herbicides, pesticides, etc.</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Area &amp; number of farmers using chemical fertilizer, improved seed, herbicides &amp; pesticides; seeding rates (traditional &amp; recommended), rate of chemical application and average household consumption. Cost of labour, oxen, other means of traction &amp; capital inputs</td>
<td>Partially available</td>
<td>By region, zone &amp; Season</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Not available</td>
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<tr>
<td>No.</td>
<td>Indicator/Data</td>
<td>Statistical Gap</td>
<td>Required form and Frequency</td>
<td>Focal Institution</td>
<td>Remark</td>
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</tr>
<tr>
<td>5</td>
<td>Agricultural Machinery &amp; Equipment</td>
<td>Not available</td>
<td>By type, number, ownership, region &amp; zone</td>
<td>Every 10 years</td>
<td>CSA</td>
</tr>
<tr>
<td></td>
<td>Agricultural machinery such as tractors, combine harvesters, etc.</td>
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<tr>
<td></td>
<td>Improved farm implements such as mould board plough, harrow, planter, etc.</td>
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<tr>
<td></td>
<td>Transport equipment, such as ox carts, wheel-barrow, etc.</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>6</td>
<td>Cost of production of crops</td>
<td>Not available</td>
<td>By crop type, producer type, national, regional &amp; zonal, per hectare &amp; per quintal</td>
<td>Annually</td>
<td>CSA</td>
</tr>
<tr>
<td>7</td>
<td>Pre-and post harvest food grain losses</td>
<td>Inadequate &amp; unreliable</td>
<td>By crop type, producer type, region &amp; zone</td>
<td>Every 5 yrs</td>
<td>CSA</td>
</tr>
<tr>
<td></td>
<td>Amount of loss at different stages (harvesting, threshing, drying, transporting, storage &amp; others)</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>8</td>
<td>Livestock, Poultry, Beehives &amp; Fisheries</td>
<td>partially available</td>
<td>By animal type, region and zone</td>
<td>Annually</td>
<td>CSA</td>
</tr>
<tr>
<td></td>
<td>Number of pure exotic &amp; cross-bred animals</td>
<td>partially available</td>
<td>&quot;   &quot;   &quot;   &quot;</td>
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<td></td>
<td>Number of draught animals</td>
<td>partially available</td>
<td>&quot;   &quot;   &quot;   &quot;</td>
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<tr>
<td></td>
<td>Poultry number &amp; production,</td>
<td>Partially available</td>
<td>&quot;   &quot;   &quot;   &quot;</td>
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<tr>
<td></td>
<td>Amount of livestock &amp; fishery products &amp; by-products &amp; their value, quantity sold, Beehives (traditional &amp; modern)</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Grazing &amp; improved forage land</td>
<td>Partially available</td>
<td>By region &amp; zone in hectares</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* CSA: Central Statistical Agency.
<table>
<thead>
<tr>
<th>No.</th>
<th>Indicator/Data</th>
<th>Statistical Gap</th>
<th>Required form and Frequency</th>
<th>Focal Institution</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Animal health/veterinary services and amount and cost of inputs (vaccines, animal &amp; poultry feed, labour and capital in puts), Number of fishermen &amp; type of boats used.</td>
<td>Partially available</td>
<td>By type, region &amp; zone</td>
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<td></td>
<td></td>
<td>Partially available</td>
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<td></td>
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<tr>
<td>9</td>
<td><strong>Farm Buildings</strong></td>
<td>Partially available</td>
<td>By type, region &amp; zone</td>
<td>Every 10 yrs.</td>
<td>CSA</td>
</tr>
<tr>
<td></td>
<td>Development Agents' offices &amp; houses</td>
<td></td>
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<tr>
<td></td>
<td>Stores, Clinics (Plant &amp; Animal)</td>
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<tr>
<td></td>
<td>Laboratories (Plant, Animal, Soil)</td>
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<tr>
<td></td>
<td>Others (crashers, quarantine stations, sheds for straw, forage &amp; concentrates); State &amp; private commercial farm establishments.</td>
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</tr>
<tr>
<td>10</td>
<td><strong>Farm level consumption &amp; Marketing of agricultural products &amp; by-products (crop &amp; Live stock)</strong></td>
<td>Inadequate</td>
<td>By type of product, producer type, region &amp; zone</td>
<td>Every 5 years</td>
<td>CSA</td>
</tr>
<tr>
<td></td>
<td>Amount for own consumption (seed, food, feed &amp; others)</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Amount of marketable product &amp; by-product</td>
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<tr>
<td></td>
<td>Quantity of Live Animals &amp; Poultry Sold</td>
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<tr>
<td>No.</td>
<td>Indicator/Data</td>
<td>Statistical Gap</td>
<td>Required form and Frequency</td>
<td>Focal Institution</td>
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</tr>
<tr>
<td>11</td>
<td>Peasant Institutions</td>
<td>Not available</td>
<td>By region &amp; zone</td>
<td>Every 3 yrs</td>
<td>CSA</td>
</tr>
<tr>
<td></td>
<td>Number of PAs &amp; their members (Female &amp; Male)</td>
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<tr>
<td></td>
<td>Service Cooperatives</td>
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</tr>
<tr>
<td></td>
<td>- Number, PA members, Individual members (F&amp;M), registered SCs, their members</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>(F&amp;M), amount of capital, amount of debt, number of debited members, number of</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>employees, type &amp; number of establishments (offices, stores etc.)</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>12</td>
<td>Technical Coefficients</td>
<td>Inadequate</td>
<td>By commodity type, traditional &amp; modern, region &amp; zone</td>
<td>Every 10 yrs.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Seeding rates of temporary crops, rate of expansion of cultivated area, number</td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>of seedlings planted per hectare (for permanent crops), yield per ha., fertilizer &amp; other chemicals application rate, Live stock (cattle, sheep, goats, camels) off take rate, milk yield/head/lactation, etc., poultry: egg production/laying hen/year, egg used for hatching, etc; Beehives: amount of honey (kg) produced per beehive (traditional &amp; modern), amount of wax produced (kg/kg of honey), etc; amount of feed (crop residues, hay &amp; modern feed) per head per year and others</td>
<td></td>
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</tr>
</tbody>
</table>
## 2.2 SHORT TO MEDIUM TERM PROGRAM MATRIX TO FILL THE STATISTICAL GAP

### Sector: Agriculture

<table>
<thead>
<tr>
<th>NO</th>
<th>STATISTICAL PROGRAM</th>
<th>PROBLEM OF THE INFORMATION</th>
<th>CAUSE OF THE PROBLEM</th>
<th>OBJECTIVE OF THE PROGRAM</th>
<th>PROGRAM STRATEGY</th>
<th>EXPECTED OUTPUT</th>
<th>MAJOR ACTIVITIES</th>
<th>FOCAL INSTITUTION</th>
<th>PRELIMINARY COST ESTIMATE (₵₅ BIHR)</th>
<th>REMARK</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Crop Production Forecast</td>
<td>Unreliable &amp; Inadequate</td>
<td>Uncoordinate assessment among different organizations</td>
<td>Alleviate the problem of coordination and indicate the availability of food grain</td>
<td>Enhance data collection and capacity</td>
<td>Seasonal agricultural highlights regarding rainfall and pest conditions, availability of inputs and farm oxen and production estimate</td>
<td>Field assessment, data collection, processing and forecasting</td>
<td>CSA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Crop Production Survey</td>
<td>Inadequate</td>
<td>Production of some temporary crops and all permanent crops are not considered</td>
<td>Collect basic quantitative data on the nation's agriculture</td>
<td>Increase the coverage of the data collection</td>
<td>Basic data on area, production and yield of all types of crops</td>
<td>Preparations of survey questionnaires, sample design, data collection, processing &amp; dissemination</td>
<td>CSA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Land Utilization Survey</td>
<td>Inadequate</td>
<td>Data on land utilization by type of holders &amp; system of agriculture (rainfed, irrigation) are not indicated</td>
<td>Fully indicate the country's land utilization practices</td>
<td>Make the data collection exhaustive</td>
<td>Obtain full information on and utilization</td>
<td>Data collection, processing &amp; dissemination</td>
<td>CSA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NO</td>
<td>STATISTICAL PROGRAM</td>
<td>PROBLEM OF THE INFORMATION</td>
<td>CAUSE OF THE PROBLEM</td>
<td>OBJECTIVE OF THE PROGRAM</td>
<td>PROGRAM STRATEGY</td>
<td>EXPECTED OUTPUT</td>
<td>MAJOR ACTIVITIES</td>
<td>FOCAL INSTITUTION</td>
<td>PRELIMINARY COST ESTIMATE (ETH BIRR)</td>
<td>REMARK</td>
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<td>4</td>
<td>Cost of Production of Crops Survey</td>
<td>Unavailable</td>
<td>Not given due attention</td>
<td>To compare with selling or market prices</td>
<td>Conduct survey</td>
<td>Up-to-date &amp; reliable data on cost of crop production</td>
<td>Develop questionnaire, collect data, process &amp; disseminate</td>
<td>CSA</td>
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<tr>
<td>5</td>
<td>Livestock, Poultry and Beehives Survey</td>
<td>Inadequate</td>
<td>Animal products and by-products, veterinary services, labour &amp; capital inputs, nomadic areas not considered</td>
<td>Make available the required information for planning and policy formulation</td>
<td>Enhance capacity &amp; increase the coverage of the data collection</td>
<td>Comprehensive data for the sub-sector planning &amp; policy formulation</td>
<td>Mobilize resources, conduct survey both in the highlands and nomadic areas of the country</td>
<td>CSA</td>
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<td>6</td>
<td>Fishery Statistics Survey &amp; Compilation</td>
<td>Not available</td>
<td>No survey conducted</td>
<td>To collect and compile the necessary information</td>
<td>Strengthen focal institution</td>
<td>Basic data on fishery statistics</td>
<td>Data collection, processing &amp; dissemination</td>
<td>CSA</td>
<td></td>
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<tr>
<td>7</td>
<td>Pre- and Post Harvest Grain Losses Survey</td>
<td>Inadequate and not up-to-date</td>
<td>Not given due attention</td>
<td>To plan investments in appropriate prevention technologies</td>
<td>Enhance data collection capacity</td>
<td>Indicate the availability of food grain</td>
<td>Questionnaire design, data collection, processing and dissemination</td>
<td>CSA</td>
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<tr>
<td>8</td>
<td>Agricultural Inputs &amp; Practices Survey</td>
<td>Inadequate</td>
<td>Limited data coverage</td>
<td>Make available the required data</td>
<td>Increase the coverage of the data collection</td>
<td>Detailed information on agricultural inputs</td>
<td>Prepare questionnaire, collect &amp; disseminate data</td>
<td>CSA/ NFIA/ NSIA</td>
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<tr>
<td>NO</td>
<td>STATISTICAL PROGRAM</td>
<td>PROBLEM OF THE INFORMATION</td>
<td>CAUSE OF THE PROBLEM</td>
<td>OBJECTIVE OF THE PROGRAM</td>
<td>PROGRAM STRATEGY</td>
<td>EXPECTED OUTPUT</td>
<td>MAJOR ACTIVITIES</td>
<td>FOCAL INSTITUTION</td>
<td>PRELIMINARY COST ESTIMATE (₶. BIRR)</td>
<td>REMARK</td>
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<td>9</td>
<td>Farm Buildings and Implements Survey</td>
<td>Inadequate</td>
<td>Not given due attention</td>
<td>To provide the necessary data</td>
<td>Allocate the necessary resource</td>
<td>Estimation of the capital input of the sector &amp; production functions</td>
<td>Develop questionnaire, collect &amp; disseminate data</td>
<td>CSA</td>
<td></td>
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<td>10</td>
<td>Profile of Peasant Institutions</td>
<td>Insufficient</td>
<td>Not given due attention</td>
<td>Make available the required information</td>
<td>Provide the necessary support to focal institutions</td>
<td>Basic data on the status of peasant institutions</td>
<td>Questionnaire designing, data collection &amp; disseminate data</td>
<td>CSA</td>
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<td>11</td>
<td>Survey of State and Private Commercial Farms</td>
<td>Inadequate</td>
<td>Not given priority</td>
<td>Collect the necessary information</td>
<td>Increase the coverage of the data collection</td>
<td>Basic data on state &amp; private commercial farms</td>
<td>Develop questionnaire, collect and disseminate data</td>
<td>CSA</td>
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<td>12</td>
<td>National Agricultural Census</td>
<td>Has never been undertaken</td>
<td>High resource requirement</td>
<td>Broaden the data spectrum and upgrading the existing agricultural information</td>
<td>Provision of sufficient resources</td>
<td>Data related to the characteristics of the organizational structure of agriculture and the use of agricultural resources such as manpower, land &amp; water, livestock, poultry &amp; fishery, machinery, farm buildings and other fixed assets</td>
<td>Prepare questionnaire, undertake census, process data, evaluate/analyze census data</td>
<td>CSA</td>
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