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

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INTRODUCTION

Availability of a comprehensive timely and standardized mainstream statistical information on any variable at any point of time for a particular area, region or country is a key for informed decision making. A variety of information could be collected and disseminated for specific purposes. However, establishing economic performance indicators that would facilitate the monitoring and evaluation of policy measures that have national scope require standardized, comprehensive and reliable statistical information at national level. This would help avoid confusion among users of statistical information.

Currently, a substantial amount of scattered and unorganized bits and pieces of agricultural information is made available in the country by a number of data generating organizations to satisfy their specific needs within their scope of activity. Among these producers of statistical information, the Central Statistical Authority (CSA) is expected to satisfy the requirements of a wide range of users as its national mandate is to collect, compile and disseminate statistical information of national scope. One thing in common among all those producers of statistical information is that they are supply driven not demand driven or user oriented. Further, there is often a lack of coordination among themselves. Lack of coordination in the generation of agricultural statistical information by the various suppliers creates at least two kinds of problems: resource wastage and anarchy of statistical information (confusion of users). Thus, it is high time to alleviate the problem through coordinated efforts and resources so as to be able to supply standardized, user oriented and timely agricultural information in Ethiopia.

To achieve this goal, the ministry of Agriculture (MOA) has taken the initiative to establish a National Agricultural Information System in consultation with pertinent government organizations representing both information producers and users. In this connection, MOA commissioned a number of thematic and institutional position papers to be presented at the workshop scheduled to take place during the first weeks of November 1997. The thematic papers are meant to address wide ranging issues around agricultural information in Ethiopia. The topic that is going to be addressed by this paper is "Agricultural Information Situation in Ethiopia: Historical perspective from users' perspective".
The study will be presented as follows. Part one outlines the objective of the study. Part two summarizes the method of study. Part three deals with the scope and coverage of Agricultural Information. Part four reviews the status of Agricultural information in Ethiopia: Historical perspective from users' points of view. Part five provides an assessment of the agricultural information needs and gaps. Part six deals with the need for streamlining agricultural information in Ethiopia with particular reference to the envisaged National Agricultural Information System. Part seven outlines conclusions and recommendations.
1. OBJECTIVES OF THE STUDY

The objectives of the study shall be to:

i) provide a comprehensive review of historical development of agricultural information in Ethiopia,

ii) make user needs assessment and identify gaps; and

iii) suggest ways and means of improving the situation so as to ensure efficient, effective and sustainable use of agricultural information.

To achieve the above objectives the following tasks, among others, can be foreseen:

a) Assess historical developments in the generation, coordination, compilation and dissemination of agricultural information in Ethiopia.

b) Review government organizations that were involved in the collecting, compilation and dissemination of agricultural information in Ethiopia.

c) Identify the components of Agricultural Information that have been/being collected from primary sources (surveys, censuses, special studies, etc.) and those obtained from administrative records.

d) Identify the uses these information have been put to.

e) Assess the reliability, quality and comprehensiveness (in terms of covering all aspects of that particular activity from which the data are generated) of agricultural information in Ethiopia.

f) Assess the complementary or supplementary nature of agricultural information collected, compiled and disseminated by different organizations undertaking agricultural information collection activities in Ethiopia.

g) Review the methodologies of data collection, compilation and dissemination by these organizations.
2. METHOD OF STUDY

The method adopted in this study is the review of the data generating systems associated with the agricultural sector that have prevailed from the late 1950's to date. The fundamental task of statistical service was more seriously recognized since the late 1950's when the First Five Year Plan (1957-62) was drafted. At that time statistical data were generated under the jurisdiction of some Ministries. For instance, in 1956 and later in 1962 an attempt was made to make head counts of the nation's population by the Ministry of Interior simply to have an idea on the size of the population eligible for participating in parliamentary elections. There was no coordinating body for the statistical work and hence the data compiled were on ad hoc basis and were to some extent misleading and contradictry.

The period since the late 1950's is taken as a bench mark for the historical review of the agricultural information situation in Ethiopia which is the subject of this study. To this end, an attempt was made to review reports of ad hoc studies, surveys and censuses as well as administrative records associated with agriculture to the extent that they have been accessible to the authors. This study has benefited a lot from the review of the reports of the consecutive Agricultural Surveys undertaken by MOA from 1975-1979. The 1974/75 Agricultural Sample Survey (MOA) and the 1978/79 Crop Production Survey (MOA) have prominently surved as a basis to review the Agricultural Information Situation of the late 1970s. The 1979/80 Agricultural Sample Survey conducted jointly by CSO and MOA has also been used as a source material in the preparation of this study. The CSA's annual Agricultural Sample Surveys and pre-harvest crop forecast results outside of CSA were starting points to reviewing the status of agricultural information in the 1980s, early 1990s and recent developments.

Agriculture being the mainstay of the Ethiopian economy contributes up to 50% to overall GDP. The basis for the identification of data needs and gaps in the agricultural sector in each sub-period is the volume of agricultural statistics required at least in the compilation of Value Added for agriculture and allied activities.
3 SCOPE AND COVERAGE OF AGRICULTURAL INFORMATION

3.1 Agriculture & Agricultural Information (concepts & definition)

In practice, terms like agriculture sector, output of agricultural commodities, agricultural output and agricultural activity are used interchangeably and result in confusion regarding what "agriculture" stands for. It is therefore, essential to define the scope of the subject and state the recommended concept in the light of the standard classification systems presently in use.

In order to have a better understanding of the problem it is necessary to examine the distinction between the economic activity undertaken in the agricultural sector, and total volume of all agricultural commodities and services produced. There are two approaches to do this. One is the sectoral approach and the other is the commodity approach (FAO, 1986).

In the sectoral approach, economic activity in the agricultural sector refers to every aspect of this sector, including production of all agricultural commodities and production of some non-agricultural goods and services which result as by-products. In essence, activity in the agricultural sector is defined as the totality of activity of all individual economic units or entities that belong to this sector. Under this approach, some agricultural production resulting from secondary activities of a sector with major activity in manufacturing, trade, etc., are not recorded under agricultural sectoral output. Such output is recorded together with the many activities of the sector concerned.

An alternative to the sectoral approach described above, referred to as the "Commodity approach", defines agriculture as the totality of output of all agricultural goods and services. This concept of agriculture is akin to a layman's understanding of agriculture, and it embraces all agricultural output whether it is produced by economic units that belong to the agricultural sector or units belonging to other industrial units and non-agricultural house-holds. In principle, this approach excludes all non-agricultural activities, and output
resulting from such activities of the economic units belonging to the agricultural sector from the total output of agriculture.

Furthermore, to understand the sectoral approach and delineate the concept of agriculture, it is necessary to examine three aspects. First, it is important to identify all the activities that are generally classified as agricultural activities. Once the activities are classified, the next task is to define appropriate economic units that undertake such activities. From the measurement side, it is necessary to determine appropriate statistical units that are used in the estimation of total activity in the sector. Finally, in order to gain full knowledge of the economic operations of such units, it is necessary to examine all the activities, other than agricultural activities, which are undertaken by these units.

Information regarding the "three" aspects relating to classification of activities and identification of economic units is examined within the framework of the International Standard Industrial Classification (ISIC) and the World Census Programme.

Under ISIC, economic units are classified according to the kind of economic activity they are engaged in. The main criteria employed in arriving at the classification are: (a) the characteristics of goods and services produced; (b) the uses to which the goods and services are disposed; and (c) the process, technology and organization of production. As a result, degrees of similarity in cost-structure, relative magnitude of fixed capital and labour employed, and the relative production and scale of operation play an important role in the classification process.

Based on the draft revision of ISIC, the following constitute economic activity in agriculture. The relevant divisions are:

**Major division 0: Agriculture (including hunting), Forestry and Fishing**

01 Agriculture (including hunting); agricultural services
011 Growing of temporary and permanent crops; market gardening, horti-culture, agricultural services, except animal husbandry services.
012  Farming of livestock; hunting and trapping; animal
      husbandry services, except veterinary services.
02  020  Forestry and logging (including forestry services)
03  030  Fishing, fish hatcheries and services to fishing.

With respect to the specification of the economic unit, the main
economic and statistical unit is the "establishment" or "holding" which
includes agricultural activities by households.

The other important source of information concerning the classification
problems and identification of the statistical unit is the World Census of
Agriculture. This census uses classification similar to that in ISIC but it is not
concerned with the subdivision on agricultural services. The basic unit for
observation recommended in the World Census Programme is a "holding" and its definition is "the holdings land may consist of one or more parcels,
located in one or more separate areas or in one or more territorial or
administrative divisions, providing the parcels share the same production
means utilized by the holding, such as labour, farm buildings, machinery or
drought animals" (FAO, 1986).

Particular attention should also be given to the definition and scope of
agriculture in relation to the existing systems of National Economic
Accounting. The two overall systems of national accounts are: the system of
National Accounts (SNA) adopted by the UN statistical commission used by
countries with market economies, and the system of Balances of National
Economy, usually referred to as the Material Product System (MPS)
developed by the standing committee on statistics of the council of Mutual
Economic Assistance, which has been devised for countries with a centrally
planned economy.

SNA's recommendations are that the classification of economic activity
is the United Nation's ISIC and that agriculture be defined by the activities
indicated above in Major division of ISIC.

In the MPS agriculture includes fish farming and veterinary services
and the statistical unit employed is the Enterprise which is confined to sphere
of agriculture only. However, household agricultural activities on personal
plots are also included.
Considering the two main definitions used in practice, the final choice is to be made on grounds of consistency and homogeneity of the concept, and applicability of the results. The final recommendation is that all activities in the sub-groups 011 and 012 (including hunting) of the ISIC Major Group 0: be considered as "Agriculture" (FAO, 1986). The economic unit is the "establishment" used in the SNA or agricultural "holding" used in the World Census of Agriculture. The boundary of production in agriculture consists of:

a) production of primary products independent of the type and size of holdings where they are produced;
b) agricultural capital formation on holding;
c) non-agricultural own account capital formation;
d) output of commodities and services resulting from ancillary and quasi-agricultural activities for sale or own account capital formation which are produced with labour and capital mainly employed in genuine agricultural activities.

3.2 The Institutional Set up of Agriculture & its direct Bearing on Agricultural Information in Ethiopia

The set up of agriculture in Ethiopia has been subject to repeated and profound changes during the past two decades in accordance with the Ethiopian political and economic structures.

Up to 1979, the Ministry of Agriculture (MOA) was responsible for all aspects of agriculture. In that year, the Ministry of State Farms and the Ministry of Coffee and Tea Development were established and excised from MOA. At the time also, the Institute of Agricultural Research (IAR), and Crop Marketing Services were removed from direct MOA control. However, MOA remains responsible for developing the peasant sector, comprising 95% of the agricultural resources and production.

Presently the decision making and technical support functions of MOA are being decentralized to Regional Agricultural Development Bureaus (RADBs) MOA's mandates are concentrated on agricultural policy formulation and regulatory functions.
The frequent changes in the set up of agriculture lead to the existence of many data generating institutions regarding agriculture. The lack of coordination among these organizations have a direct bearing on the nature and quality of agricultural information making it difficult for obtaining standardized and timely information on agriculture.

3.3 Broad classification of agricultural statistics

Agriculture being the mainstay of the Ethiopian Economy; Information on agriculture may be required for a variety of purposes. One of the most important areas where agricultural information is needed is the compilation of Economic Accounts for Agriculture: value Added and related aggregates which help measure the contribution of agriculture to the overall economy. Other agents that require agricultural information are traders (both domestic and exporters), consumers and producers. Policy makers and planners also need agricultural information to designing plans and formulate sectoral policies. In general, the following are the broad outline of agricultural information that policy makers, planners, business agents as well as National Accountants need for their respective purposes.

a) Land Resources and use patterns
b) Pre-Harvest crop statistics (Forecast)
c) Statistics on area, production and yield.
   • Temporary Crops
   • Permanent crops
d) Agricultural inputs and practices.
e) Agricultural machinery and equipments (tools and implements)
f) Cost of production of crops
   • Labour cost
   • Material cost
   • cost of traction power (oxen, cow, horse)
g) Pre and post-harvest grain losses by causer or reason.
h) Crop residues and their uses.
i) Statistics on livestock and livestock products.
j) Animal feed and Nutrition
k) animal Health
l) Fisheries statistics
m) Bechives statistics
n) Farm buildings
o) Forestry statistics
p) Farm consumption (own) and marketable surplus of agricultural products
   • Crop
   • Livestock
   • forestry
   • fishery
   • Hunting
q) Statistics on agricultural extension.
r) Statistics on agricultural research
s) Statistics on agricultural training
t) Statistics on agricultural credit
u) Statistics on peasant Institutions
v) Statistics on technical coefficients related to agriculture.
4. REVIEW OF THE STATUS OF AGRICULTURAL INFORMATION IN ETHIOPIA: HISTORICAL PERSPECTIVE

4.1 Background

Statistical service as a specialized task of government in Ethiopia is of recent origin. Most of the official statistical data currently available are based on the works carried out following the establishment of the then Central Statistical Office (CSO) and the now Central Statistical Authority (CSA) in June 1960 as a Statistical Unit in the Ministry of the then Commerce and Industry of the Imperial Government of Ethiopia (Mitik, 1989). The first Statistical Program in Ethiopia was formulated by an Inter-Ministerial committee of Statisticians covering the period 19961 to 1965 (Mitik, 1989). Previous data collection attempts (before the establishment of the CSO) were very much limited to administrative reporting of data on population and export statistics.

The first coordinated multi-subject Survey Program: the National Sample Survey First Round (1964-67) was launched by the CSO in 1964 in cooperation and consultation with major potential users of the results (Mitik, 1989). This was followed in 1968 by the “National Sample survey Second Round (1968-71).

Other surveys of limited scope and coverage destined to meet specific needs were conducted following the two rounds of surveys mentioned above. Since then several attempts have been made towards bridging statistical gaps through a sound and coordinated statistical programs. The late 1970s, the 1980s and 1990s have witnessed developments in the statistical system of Ethiopia, albeit, with differing degrees of intensity in the respective sub-periods. A National Integrated Household Survey Program (NIHSP) initiated in 1980 was, for instance, one of the main strategies for laying the foundation for the development of statistical capability in the country. Although data gaps have been significantly narrowed since the launching of the NIHSP, much more needs to be done still to improve the status of socio-economic information in Ethiopia in terms of comprehensiveness, timeliness and levels of disaggregation. More important in this regard is also the problem of duplication of information which has currently become a potential problem in
Ethiopia as a number of organizations are involved in the collection and compilation of information on the same sector or economic activity. A case in point in this regard is the current situation of agricultural information.

Having given a glimpse of the developments of the statistical work in Ethiopia, it would be logical to address the core subject of this paper "The status of Agricultural Information in Ethiopia (historical perspective)". The approach adopted is as follows. The presentation is divided into three sub-periods: before 1975 with particular emphasis on the period 1960-1974, 1975-1979 and 1980-1997 encompassing the nearly four decades running from 1960 to 1997. The reason for selecting the cut-off year of 1960 as a benchmark year from below is obvious. For one thing, this is the time that coincided with the establishment of the CSO. It was also a turning point for a systematic approach towards data collection and dissemination through the launching of the First Statistical Program in Ethiopia.

4.2 Agricultural Information Situation Before 1975: Review of Data Sources

Apart from the two rounds of well-thought-of and systematically Planned National Sample Surveys undertaken during this period, an inventory of field works carried out to generate agricultural and related information consisting of the following sporadic Censuses and Surveys conducted on ad hoc manner and of limited scope, coverage and methodology:

a) Agricultural survey of the then Shoa province (1959/60);
b) Limu Coffee survey (1961/62);
c) Cattle survey in southern Ethiopia (1961/62);
d) Ada survey (1960/61);
e) Addis Ababa Household Budget Survey (not a random sample), 1957-59;
f) Addis Ababa population census (1961);
g) Addis Ababa Household income Consumption & Expenditure Survey (1963);
h) Asmara Household and Income consumption Expenditure survey (1963/64);
i) Nazareth population census (1964);
j) Population census of the then Welamo sub-province;

These surveys and censuses were undertaken before and after the establishment of the CSO. Moreover, any interested institutions either individually or in collaboration with the CSO were involved in collecting data. Under such circumstances, for the estimation of almost every parameter that had national scope in the agricultural arena, the size of population based on administrative reporting from provinces along side technical coefficients derived from sporadic surveys cited above were the starting point. The then Planning Board (PB) in its estimation of National Income for 1961/62 made the assumption that the population for 1961 was around 21 million and the rate of natural increase 1.6 percent per annum (CSO, 1965). The basis for the PB's estimates of population of 21 million for 1961 was the 1956/57 population reporting by the then Ministry of Interior from the lower to the higher administrative units for the election of the first parliament under the revised constitution of 1955 (CSO, 1965)

As there were no production data on crops, firm data on livestock number and livestock products forestry products and fishery products the contribution of these sub-sectors to the national economy was evaluated based on population data and average per capita consumption per year established from the Addis Ababa Household Income consumption Expenditure Survey of 1963 and a combination of related surveys cited above.

4.2.1 Quantity Of Crop Production

In the estimation of Gross value added of agriculture for the period 1961-63, the crop production data for 1961 were arrived at by assuming a total per capita food grain consumption of 180 kgs per year on the basis of a daily consumption of 2 "injeras" per day per person established based on estimated food consumption habits and technical factors (CSO, 1965). This information had to be converted back to physical quantity of food grain in order to arrive at the total amount of production after augmenting it for home processing and feeding (at 10% of total production), for Seeding, wastage and losses in storage (at 5% of total production) (CSO, 1965). After the gross production of agricultural crops had been established in this manner estimates for individual crops were done by making use of the relative
proportion of such crops in the preparation of "Injera" as revealed in the First Five Year Plan and other documents. The proportion was established as follows:

<table>
<thead>
<tr>
<th>Crop type</th>
<th>1957 Ministry of Agriculture</th>
<th>1961 Planning Board</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teff</td>
<td>58.8</td>
<td>39.5</td>
</tr>
<tr>
<td>Wheat</td>
<td>4.4</td>
<td>5.7</td>
</tr>
<tr>
<td>Barley</td>
<td>24.6</td>
<td>16.6</td>
</tr>
<tr>
<td>Maize</td>
<td>4.9</td>
<td>14.8</td>
</tr>
<tr>
<td>Sorghum</td>
<td>7.3</td>
<td>23.4</td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Source: CSO (1965)

One can easily observe how the physical quantity of production for each grain crop would be affected through the two approaches. For the data from the Ministry of Agriculture "teff" and barley had the lion's share (more than 75%) where as for the data from the Planning Board "teff" production was far more smaller than that from the Ministry of Agriculture. Sorghum, maize and barley in that order were important following "teff" according to the Planning Board estimates. "Teff" production was smaller as per the Planning Board estimates by as much as 20%. One can easily observe how erratic the estimates of crop production (for individual crops) could be under either of the sources described above. The method ultimately adopted for the compilation of National Accounts for 1961 was that of the Planning Board. Accordingly, cereals production which was estimated at 45.3 million Quintal was given by type of cereals as follows (Table 2):
Table 2. Estimates of crop production (1961-63)

<table>
<thead>
<tr>
<th>Crop</th>
<th>1961</th>
<th>1962</th>
<th>1963</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teff</td>
<td>1793</td>
<td>1824</td>
<td>1883</td>
</tr>
<tr>
<td>Barley</td>
<td>748</td>
<td>760</td>
<td>785</td>
</tr>
<tr>
<td>Wheat</td>
<td>255</td>
<td>260</td>
<td>268</td>
</tr>
<tr>
<td>Maize</td>
<td>670</td>
<td>682</td>
<td>704</td>
</tr>
<tr>
<td>Sorghum</td>
<td>1064</td>
<td>1081</td>
<td>1117</td>
</tr>
<tr>
<td>Total</td>
<td>4530</td>
<td>4607</td>
<td>4757</td>
</tr>
</tbody>
</table>

Source: CSO (1965)

Estimates for subsequent years (1962-1963) were set based on assumed growth rate of 2 percent per annum which had no factual basis either from field work or crop cutting experiments.

Data on industrial crops, oil seeds, pulses, vegetables, orchards and crop by products were also made available from a variety of sources: from export statistics for oil seeds and pulses as well as for some industrial crops, from enterprise and from the variety of sporadic surveys cited above. Total crop production for 1961 (excluding straw and crop by-products) was estimated at 70.7 million quintals (CSO, 1965).

4.2.2 Prices of crop production and values

The valuation of crop production also presented formidable problems due to lack of consistent and reliable data collected on producers' prices of crops on a country-wide basis. At that time, the following price series were available:

a) monthly wholesale prices of selected agricultural commodities for about a dozen provincial centers or capitals collected by the National Bank of Ethiopia available for the period 1957-64;

b) prices of agricultural products (presumed to be producers' prices) collected by extension agents of the MOA, the collection and processing of data being irregular;
c) Monthly whole sale prices for Addis Ababa and Asmara for selected export commodities collected by the CSO and available for 1954-1964;

d) prices of Agricultural products for traders' purchases and consumers' purchases for small market towns collected in the course of the National Sample Survey

As one of the main purpose of collecting producers' prices is their use in the compilation of value added for the crop sub-sector, none of the above mentioned four types of prices were considered ideal for use as producers' prices for the compilation of National Accounts at that time. Prices mentioned under type (a) above were internally consistent over time and readily available, though with rather a limited number of locations and hence lacked national scope. Type (b) prices were very valuable but most unavailable with the tendency of being geographically concentrated in a few provinces where MoA's extension workers happened to be stationed. Type (c) prices were useful to serve as indicators of what accrues to the farmres from his produce. However, it includes trade and transport margins (TTM). Type (d) prices also suffer from limited geographic scope.

Type (a) prices with or without adjustment for TTM were used as a basis for valuation of output for agriculture.

4.2.3 Livestock and livestock products

As in the case of the crop-subsector, the status of data on livestock during this period is evaluated from the point of view of the need for the compilation of the gross value of output of this subsector and hence the corresponding value added. Data on livestock number for the compilation of national accounts from 1961 to 1963 were those of the MOA. The data were displayed in the First Five Year plan Document after some adjustments.

Attempts to substantiate the livestock figures were made though assessing the livestock number obtained from the Cattle Survey carried out in Southern Ethiopia (1961-62) which covered the whole of Arssi, Sidamo, Gemugofa provinces, Bale province (excluding the El care district and Charcher district and one wereda from the Adal and Issa district of the then Harar province put the estimate of total cattle population at 8-10 million. the surveyed areas were believed to cover 1/3 of the whole conuntry (CSO,
From the survey of 6 Awrajas of the then Shoa province average number of cattle, sheep and goats per household and per person was also established. Based on the number of the different types of livestock, the amount of livestock products was established through simple manipulation using technical coefficients such as the age and sex distribution of livestock, estimated liveweight and dressed weight per animal. However, these coefficients had no objective foundation as they were based on judgments of livestock experts at their very best and export statistics. In this way, annual production of meat, milk, and milk products, hides and skins and data on increase in stocks were made available.

4.2.4 Prices of livestock and livestock products.

Except for the producers' prices of hides, skins and animal fats which were readily available from external trade statistics, other prices of livestock and livestock products were assessed by the Planning Board for 1961. For instance; the producers price of meat was assessed at 0.547 Birr/kg for 1961. The estimate was ingeniously arrived at by deducting the value of hides from the quoted price of live cattle and then dividing by the estimated weight of dressed meat per cattle. These estimates had been confirmed by the Addis Ababa Household Income Consumption Expenditure Survey of 1963 which gave a provisional meat consumption of 20kgs per year per capita at the average price of Birr 0.73 per kg. Retail meat prices collected from traditional type butcheries in Addis Ababa were also available. This was not very far from what was established already.

The Addis Ababa Survey of 1963 gave an average consumption of milk per head of 11.5liter per year at the unit price of 0.40 Birr per liter. The cost price of un-sterilized milk to Shola Farm was 25 cents per litre. The planning Board in its compilation of National Accounts for 1961-63 assessed the price of milk at national level at 12 cents per liter and had been considered a reasonable estimate for 1961 and subsequent years (CSO, 1965).
4.2.5 Data on the quantity and prices of other Agricultural products

Data on domestic consumption of forest products were based on the Family Budget Study of Addis Ababa in 1957-59 which was established on the basis of a per capita annual consumption level of firewood. Quantities of cow dung and straw and stalk as a source of energy were estimated by the Ministry of Agriculture to arrive at the total domestic consumption of forest products. The actual bulk purchase prices after making allowance for transport costs was taken as a proxy for producers' prices of firewood. Data on quantity and value of industrial wood and poles were made available from the annual survey of manufactures.

Quantity of inland fish and marine fish was built up from estimated local fish consumption and the production for export fish meal expressed in fresh fish equivalent. The 1963 Addis Ababa Household Income Consumption Expenditure Survey results with adjustments for transport costs was the producers' price ruling at that time for the valuation of physical output in the evaluation of the contribution of this subsector to the overall economy.

Data on hunting products was exclusively based on export statistics for wild animals and their skins with arbitrarily assumed rates to augment for total output for that portion of hunted animal skins used domestically. Gross value was discounted for 30% trade margin to arrive at the gross value of output of hunting.

4. 2. 6 Data on inputs and Input prices

For almost all items of agriculture and allied activities: crop, livestock, forestry, fishing, and hunting; direct data on both quantity and price of inputs were at the best grossly incomplete and at worse non-existent. In the estimation of the value added for the respective sub-sectors of agriculture where data on inputs are almost non-existent gross-output was slashed by arbitrary proportions to arrive at value added.
4.3 Status of Agricultural Information (1975-79) : Review of data sources

4.3.1 The 1974/75 Agricultural Sample Survey (MOA)

As has been pointed out above, the agricultural statistics in the 1960s and early 1970s were collected on ad-hoc basis by the MOA and were quite deficient. A notable attempt to rectify this problem was the conduct of the 1974/75 Agricultural Sample Survey by the Ministry of Agriculture. In the preparation of the survey program a Statistical Working Group was set up in the Planning and Programming Department of the MOA. The Agricultural Sample Survey was conducted as a nation-wide random sampling survey and about 3,500 households were randomly selected for interviewing excluding Eritrea and Tigray. A qualitative Crop Production Survey was also incorporated in this survey largely for the consumption of the then Relief and Rehabilitation Commission (RRC). State Farms/Commercial Farms and Cooperative Farms were excluded from this study. The emphasis of this survey was on private peasant holdings. This survey did not cover the livestock subsector.

4.3.1.1 Data collected through the Survey

**Farm population**

Data on farm population based on Samples from the 452 agriculturally important Weredas (excluding nomadic areas and commercial farms) were collected during the survey. For all members of households in the sample, data on their demographic and economic characteristics such as sex, age, residency literacy, participation on the farm and other occupation were collected. Data on the following aspects of farm population were collected and published in the Survey Report:

- a) estimates of number of households and total farm population;
- b) farm population by sex and age;
- c) literacy of farm population;
- d) farm households by size;
- e) members of households by work on the farm (as permanent temporary and not working at all on the farm);
f) heads of households and their characteristics (age versus literacy)
g) permanent workers on farm by sex and age;

Number, area and size of Holding

For the purpose of the 1974/75 survey a "holding" was defined to include all land operated by one household. The land included under a holding covered both the land owned privately or communally and land rented for crop production. Since the survey covered only crop production (growing of crops), only holding with crop land was surveyed. This means that households that did not have any crop land but land used for livestock and other activities were excluded from the survey and hence no data on livestock and livestock products were available.

Data generated through the survey were outlined below:

a) Number and area of holdings by size of holding: this result was supported by objective field measurements carried out on sub-samples of holdings to correct for under estimation biases by farmers' reporting

b) Fragmentation: excessive dispersion of parcels forming part of one field when a single farm consists of numerous separate parcels, often scattered over a wide area. Hence data on holdings by number of parcels was collected and published in the Survey Report.

c) Land tenure: as the survey was conducted just before the Land Reform Bill was passed, the results were very useful input to serve as a guide to the activities of the Land Reform. The survey provided data on the size of total area by tenure (private, Communal, owner/tenant and tenant)

d) Use of fertilizers: during the survey information was obtained on the number of farmers that applied fertilizers on their fields under different crops and on the kinds of fertilizers they applied (natural or commercial or both). The survey also provided information on the intensity of utilization of these fertilizers by the different types of crops.
Land Utilization

Data were collected and published on land utilization through classifying land into three land use categories: crop land, fallow land and "other" land. The Survey Report contained data on the following aspects of land use:

a) Total area of holding by type of land (crop land, fallow land and others). The results were also corrected for bias through deriving correction coefficients based on actual field measurement carried out on sub-sample of holdings (holders),

b) Land use in different holding sizes (area of holdings by size of total area and type of land),

c) Land use pattern on different tenures (private owner, communal, owner/tenant and tenant),

d) Utilization of oxen for farming in different holding size (data on the number of oxen were obviously understated as the survey excluded most of the low lands and nomadic areas where number of oxen is supposed to be very high).

The results of the Survey were presented at national and regional level for the 12 investigated Regions as well as assessments for the whole country for all types of farms and both seasons. Comparisons with the previous year's results were also made and presented in the Reports.

Area, yield and production of major crops

The crops covered in the survey were the so called "major" crops: teff, barley, wheat, maize sorghum, millet, horsebeans, haricotbeans, chickpeas, field peas, lentils, flax, neug and sesame. These crops are mainly cultivated by peasant holdings while Commercial Farms mainly cultivate crops such as cotton, Sugar cane-, Coffee and only a small percentage of the total production of major crops listed above. As the survey was confined to private peasant holdings, data concerning area, yield and production for major crops were collected and presented in the 1974/75 Agricultural Sample Survey Report. Data on area, yield and production were estimated based on farmers' subjective reporting during interview corrected for likely downward bias based on field measurements and crop-cutting experiments carried out
on sub-samples of holdings albeit, with very limited coverage. It was planned to obtain results from nearly 1500 fields where as only 126 plots were cut in time according to instruction.

Data on the following items were generated and published in the Survey Report:

a) Number of holdings reporting different crops and area cultivated under these crops (major crops),

b) Field measurement results average area per field according to farmers' reporting and area correction coefficients. In this survey, it was planned to cover a sample of 3000 fields but only 65% of these selected fields were measured correctly,

c) Corrected area under major crops,

d) Average yield estimated both according to farmers' reporting and crop-cutting experiments,

e) Average yield for major crops adjusted based on crop-cutting corrections,

f) total crop production estimates according to yield estimated by farmers' reporting, crop-cutting correction and adjusted crop-cutting correction.

Cost of crop production

At the initial stage of the survey it was planned to interview the heads of households about costs of production for each selected crop the household is cultivating. Ultimately, it was only possible to collect data on crop production only on the 20% of the selected households for the 1974/75 survey. Each household was interviewed crop by crop for each stage of crop production starting from clearing of land, preparing the land for seeding sowing and so on up to transportation of the grain and by-products to the market and on how much farmers incurred on material, oxen power (in oxen-days) and labour inputs (in man-days).

Data on the following aspects of costs of production was obtained from the survey and published in the Survey Report of 1974/75.

a) Cost of production for major crops decomposed into material, oxen and manpower for each of the major crops per quintal.
b) Cost of production for major crops decomposed into material, oxen and manpower per hectare.

It was noted in the survey report that without exception the manpower component of the cost of production accounts for a lion's share for each type of crop covered in the Agricultural Sample Survey (MOA, 1975). It was also recommended to use the data on cost of production per hectare as it was thought to be more stable than cost of production per quintal which might be greatly influenced by variations in yield rates.

4.3.2 The 1978/79 Crop production Survey

Apart from incorporating state farms that once used to be commercial farms and the production of the "Belg" (small rainy season), the 1978/79 survey was much narrower in scope than the 1974/75 survey as its emphasis was on area, yield and production of the major crops. In addition to these data items, the 1978/79 survey furnished information on influence of factors on crop production which include crop production changes brought about by different factors that either caused an increase or decrease in the production of major crops by individual crops. As outlined in the previous section, the 1974/75 Agricultural Sample Survey was much more comprehensive in terms of coverage of data items: data on farming population, tenure, and cost of crop production were most prominent.

This survey was a continuation of the 1974/75 Agricultural Sample Survey. A number of surveys had been carried out between 1974/75 and 1978/79. The results published in the Survey Report were based on the basis of the findings of the 1978/79 crop production survey conducted from the middle of March to the middle of May 1979. What distinguishes the results of this survey from earlier surveys (surveys carried out since 1974/75) is the fact that all the agriculturally important Weredas were studied on complete enumeration basis and data were collected by interview method at Wereda level. Nearly 400 weredas were covered out of 450 agriculturally important weredas in 12 Regions of the country excluding Tigry and Eritrea the then province of Ethiopia. Wereda officials were asked to assess the changes compared to the previous year for area under crop and production of the major crops grown in the Wereda for private peasant holdings. The data on area production and yield for the State Farms were compiled from the
documents produced by the then State Farm Development Authority (SFDA). Area, production and yield of major crops for Cooperatives were also collected and presented in the Survey Report for 1978/79.

Another notable development in the late 70's in maintaining the momentum in supplying agricultural information is the 1979/80 Agricultural Sample Survey conducted jointly by MOA and CSO. This survey was much more comprehensive than the previous consecutive surveys carried out by the MOA since 1974/75. Some of the new data items included and published in the 1979/80 survey report were: type and amount of commercial fertilizers applied by crop type, amount of marketed production and its value by crop type; number, value age and expected duration of farm buildings and implements and women's fertility. Estimates were provided both at national level (for the twelve Regions excluding Eritrea and Tigrai) and for individual Regions. All types of producers: Private Holdings, State Farms and Cooperatives were covered in both seasons. Data on Private Holdings and Cooperatives were collected on sampling basis whereas State Farms were on complete enumeration basis based on data provided through the records of SFDA.

On top of methodological problems (lack of appropriate frame for selecting samples, smaller sample size, etc.), the results of the consecutive surveys carried out until 1979/80 did not quite meet the requirement of users at least from the point of view of National Accounts. For instance, data collection on livestock and livestock products, forestry, fishery, output prices (producers' prices), input prices (retail prices) had not been attempted throughout the above mentioned consecutive surveys conducted by the MOA. This is the minimum requirement for the compilation of Economic Accounts for Agriculture.

4.4 Agricultural Information Situation in the 1980s

Under ideal circumstances, the sources of agricultural statistics are census of agriculture including livestock and other allied activities supplemented with inter-censal surveys including crop forecast, early warning activities, price survey, cost of production survey, survey of farm management practices and administrative records.
As is already outlined in the foregoing discussions, before 1980 MOA was the main source of agricultural statistics. Since the beginning of the 1980's, however, CSO was given the authority for the collection and dissemination of official and agricultural statistics. The government bodies responsible for the agricultural sector: MOA, the then Ministry of State Farms Coffee and Tea Development (MSFCTD) and RRC to compile statistics pertinent to their activities. At times they also conducted some specialized surveys.

The first Agricultural Census was planned to be undertaken in 1985 exactly one year after the 1984 population and Housing Census but did not materialize for a number of reasons. It was also planned to be carried out in 1989/90 but did not take place. No Agricultural Census has yet been undertaken in the country to date. Although no Agricultural Census has ever been conducted, the 1980's signify an important period in the development of statistical work. It is the period when statistical work in general was firmly recognized by the government as a fundamental base for sound economic and social planning. The Ten Year Perspective Plan (1984-1994) called for a greater strengthening of the entire national statistical service with Central Statistical Office and its successor the now Central Statistical Authority as the main focal point. Budgetary allocations were relaxed and man-power development strengthened.

During the 1980's besides the Population and Housing Census, the National Integrated Household Survey program (NIHSP) - one of the main strategies for the development of statistical capacity in the country- constituted the main sources of socioeconomic data for the country. One of the major component of the NIHSP-Rural Integrated Household survey program (RIHSP) has been and still is the main sources of the prevailing agricultural information base in the country.

The major agriculture related surveys conducted in the 1980's side by side with the planning and implementation of the 1984 Population and Housing Census are summarized below:

a) Annual Crop Production Forecast and Agricultural Sample Survey including livestock which has been conducted since 1980;
b) collection of producers' prices of agricultural commodities in rural areas since 1981;
c) The Rural Household Income Consumption expenditure survey of 1981/82;
d) Collection of retail prices of goods and services in Rural Areas since May 1981;

The MOA, being the main sources of all agricultural statistics before 1980, continue to produce statistics related to its activities. RRC has been running an Early Sarning System (EWS) in collaboration with many other government agencies including the CSA beginning 1977. RRC and the now Disaster Prevention and Preparedness (DPPC) took full responsibility for coordination of the EWS activities including analysis of data and dissemination of the results.

4.4.1 Overview of Agricultural Information Generated through CSA's Annual Sample Surveys

The current Agricultural Sample Survey has been conducted annually by the CSA since 1980. This survey constituted the major source of statistical information as far as the country's current state of agricultural production is concerned. All three types of farms i.e. private peasant farms, cooperative farms and state farms for both seasons were covered by this annual survey.

The scope of the survey include: agricultural practices, measurement of area under crop and yield for major crops, livestock and poultry and beehives and cost of production surveys. The livestock component of the annual agricultural sample survey had never included nomadic and lowland areas where livestock is believed to be highly concentrated. Apart from this, some Regions like Eritrea and Tigrai were not included for security reasons until the end of the civil war in 1991.

For cooperatives and state farms only interview method was used for gathering data where as for private holdings crop areas are physically measured for a sub sample of holders and estimates of yield were made by crop cutting techniques for twenty one crops classified under cereals pulses and oilseeds. For other permanent crops like coffee, enset, sugarcane, tobacco, etc. only area under individual crops were estimated. Livestock and
poultry data were collected and generated by type, age, sex for private holdings and cooperatives. Two attempts were made in 1987 and 1989 to collect data on costs of agricultural production. However, results were not published for a variety of technical problems faced while undertaking the study.

The result of the annual agricultural sample surveys have been published regularly though with a lag of about 1-2 years on average. A time series data on area, production and yield of major crops and livestock, poultry and beehives were published by CSA.

Data were also generated on Producers' and Retail Prices through Producers' and Retail prices survey. These included regular collection of Producers' and Retail Prices in rural areas of the country since 1982. Producers' prices were collected on ten broad categories of unprocessed agricultural goods: cereals, pulses, oilseeds, vegetables, fruits, spices, meat and eggs, dairy products, hides and skins and animals on a monthly basis. Retail Prices were collected on a monthly basis for food, drinks, tobacco, household items, clothing, foot wear, transport and communication, medical care, education, recreation, building materials and other goods and services.

Another important price data which have direct impact on urban population but indirect impact on the agricultural sector is the urban price behavior. For this very reason, CSA has been collecting Retail Prices of goods and services for Addis Ababa and published monthly as "Retail Price Index for Addis Ababa" and retail prices for twenty-three Urban Centers outside Addis Ababa on quarterly as well as monthly basis since 1988. Results of Producers' prices were also published regularly in its Statistical Bulletins.

Pre-harvest crop forecast results being the most crucial element in planning and decision making concerning the food situation of the country, the CSA was the main source of this information during the 1980s. The pre-harvest crop forecast estimates were obtained through a combination of objective and subjective methods. Pre-harvest forecast results were made available in the month of December (by the earliest) so as to enable policy makers take decisions on the food situation of the current year.
4.4.2 Pre-harvest Crop Forecast Outside of the CSA

Another important activity of pre-harvest forecast outside of the CSA was the famine Early Warning System (EWS) which was coordinated by RRC beginning 1977. There were also a number of agencies with specific responsibilities participating in EWS. These agencies collect and transmit data on crop production and marketing information (monthly), pastoral information (quarterly) and rainfall information (daily). Most of the data collection (essentially qualitative) was made by CSA field supervisors. Reports of EWS were published on monthly and quarterly basis. The EWS was recognized as an effective instrument for monitoring and handling drought impacts. Another development worth mentioning with regard to pre-harvest forecast was CSA's Food Information System (FIS) Project which started in October 1986. This Project was based in CSA with participating agencies including MOA, RRC, NMSA, AMC and ENI. The project, among other activities, attempted to provide an overall assessment of the crop and food situation including regional deficits and surpluses and marketing information. Preliminary reports on crops, weather and food situation was usually made available in the month of November followed by revised reports.

FAO/WFP Crop and Food Supply Assessment Mission Reports usually issued during December of every year also provided information on pre-harvest crop forecast for cereals and pulses. USAID’s Famine Early Warning System (FEWS) pre-harvest crop assessment results have been also sources of pre-harvest agricultural information in the 1980s.

4.5 Agricultural Information situation in the early 1990's and Recent Developments

4.5.1 Data Generated through CSA Surveys

Almost all the surveys pertaining to agricultural activities that were commenced in the wake of the 1980's by the CSA within the framework of the NIHSP have continued to date except for 1992/93 and 1993/94 interruptions due to the 1994 population and Housing Census preparatory activities. However, not much significant improvement have been made in terms of scope, coverage and content of the Annual Agricultural Sample Surveys.
The Annual Agricultural Sample Surveys have been limited to small holder peasant farmers in the sedentary rural areas of the country. Besides some Regions of the country like Tigrai and Eritrea (up to 1991) and the Ogaden area had not been covered.

Permanent crops (Coffee, Chat, Enset, Sugarcane, Vegetables, Fruits, etc.) have not been covered in the Annual Surveys. Livestock data collected through these surveys still remained to be incomplete in coverage as nomadic and lowland areas which are believed to be important livestock belts have not been incorporated in the surveys. Data on state farms which used to have been compiled by the CSA up to the mid-1980's had been discontinued through the early 1990's. This gap used to be filled by the annual reports of the Ministry of State Farms up to 1991/92. No survey to mention (at least by the CSA) has been conducted to date on forestry, fishing and hunting subsectors except some fragmented information from Population Censuses and Household Income Consumption Expenditure Surveys (1963 and 1981/82). Data on cooperatives (area and production) used to be collected until the beginning of the 1990's when they were presumably dissolved into private small holders' holdings.

To give a clear indication as to where the CSA currently is in terms of supplying agricultural information to users, the current agricultural sample surveys furnished statistics on area cultivated under major crops (annual or temporary crops), production on the same crops, land utilization for agricultural households, agricultural practices (fertilizer application, irrigation, improved seed), number of livestock and poultry by type, purpose, age and sex; number of bee-hives by type (traditional). Producers' and Retail prices data are also being generated. In addition, it was attempted for the first time to collect information on the yield of permanent crops per tree, frequency of harvest in the crop year and number of yielding trees during the 1994/95 Survey year. An independent specialized Enset survey was also conducted covering the southern part of the country where Enset production and consumption is supposed to be prevalent. The 1995/96 Household Income and Consumption Expenditure Survey (HICEs) which provided data at country, Rural and Urban levels has also provided useful information on the amount and pattern of use of agricultural goods which thereby would help establish production data not provided by CSA's annual surveys after some adjustments where necessary.
Interms of methodology of data collection which has a direct bearing on the reliability of data generated by the CSA (reflected on sampling errors), improvement has been effected since the 1994/95 Agricultural Sample survey by changing frames for primary sampling units from Farmers’ Association areas to Enumeration Areas established through cartographic studies for the 1994 Population and Housing Census.

In terms of timeliness of agricultural statistics on the already covered data items cited above, the CSA is currently able to supply them with almost no lag for both pre-harvest forecast results and actual survey estimates. There is, however, still a lag in the supply of producers’ price statistics.

4.5.2 Overview of data sources outside of the CSA

With the setting up of Regional Administration and allocation of budgets and projects to National Regional Self-Governments, the bulk of agricultural information is currently being generated by Regional Agricultural Development Bureaus (RADB). As it stands now, the Federal Ministry of Agriculture apart from providing technical advice to Regional Bureaus remains to be a liaison between Regions and a third party.

With a good deal of agricultural statistics (outside of the CSA) being generated by RADB, the matter for concern is the lack of a coordinated transmission (flow) of agricultural information to policy making bodies at national level. Most important of all, its reliability and consistency could not be judged as data generated by individual Bureau has not been accompanied by standard methodologies adopted while collecting these data. Moreover, checklists of data items covered during data collection is not known. Under such circumstances it would be difficult for users to identify what information is/is not available with RADBs.

Other government agencies that are currently generating agricultural statistics pertinent to their own activities are: the DPPC (the successor to the then RRC), the EGTE (the successor to the then AMC), Coffee and Tea Development Authority, the Grain market Research Project (housed in MEDaC), Agricultural Research Institutions of the FDRE and other related national organizations. The data generated by these agencies being specific
purpose oriented, may not be of much use for economic analysis and policy decisions objectives of national scope.
5. AN ASSESSMENT OF THE AGRICULTURAL INFORMATION NEEDS AND GAPS

5.1 Assessment of Agricultural Information Needs

The process of agricultural planning, strategy designing, policy formulation and analysis, capital budget preparation, project implementation, appraisal, monitoring and evaluation require a large volume of statistical data/information.

The data requirements of agricultural development planners and policy makers range from agricultural resource base which includes human resource (rural population), land, water, forest, wild life, livestock, poultry, beehives and fisheries to agricultural services, production and marketing which include the small-holder, pastoral-nomadic and commercial farming systems.

Data on rural population need be dis-aggregated into agricultural and non agricultural population, nomadic, agricultural labour force, economically active and inactive. Land resource should indicate holding and use including total geographic area. The total geographic area could be classified as agricultural land, wood land or forest, area under meadows and pasture, arable land and all other land. Utilized arable land classification can be made by area under temporary and permanent/perennial crops and system of agriculture (rainfed and irrigation), which can further be dis-aggregated by crop type grown. Land holding should indicate private peasant holdings, state farm holdings, private commercial farm holdings, joint ventures (state and private) and others.

To assess the country's food situation, possible intervention and emergency preparedness, the agricultural sector requires early forecast of crop statistics which should indicate conditions of rainfall, input supply, pest outbreaks, availability of farm oxen and crop production estimate. This is required annually by crop type, region and zone. One of the major data/information set required by this sector is crop statistics. Crop statistics involves area and production of all crop types (temporary and Permanent). Temporary crops statistics should be collected and compiled annually by crop type, producer type, season, rainfed, irrigated, region and zone. For
permanent crops the data should be made available by crop type, producer
type, rainfed, irrigated, region and zone. Quantity of crop by-products or
residues; proportion of crop, livestock and mixed farmers; proportion of
farmers practicing irrigation and total irrigated area should also be included in
this category (data category). These information could largely be obtained
from agricultural sample surveys (Crop Production Forecast and Crop
Production survey), survey of state and private commercial farms and
national agricultural census.

Agricultural sector value added estimation is an essential exercise to
obtain the agricultural sectors contribution to the country's overall GDP. For
this and other purposes we need to have data/information on inputs such as
chemical and organic fertilizers, improved seeds, herbicides, pesticides, etc.
by type and crop type; amount and cost of inputs and their usage by region,
zezone, season, producer type and crop type; and also cost of labour, oxen,
other means of traction and capital inputs incurred in the production process.
Data/information on the area and number of farmers using chemical and
organic fertilizers, improved seed, herbicides and pesticides; seeding rates
and rate of chemical application and average household consumption,
proportion of fertilized area and improved seed area by type of crop are also
required. Increased food production may cause strain on existing methods of
handling, storing and processing of crops, with the result of increased food
grain losses. In order to create a full awareness and appreciation of the
magnitude of losses and to plan investments in appropriate post-harvest
technologies for the prevention of such losses, we require data on pre-and
post harvest grain losses at different stages (harvesting, threshing, drying,
transporting, storage, processing and preservation) every 5 years or so by
crop type, producer type, region and zone. Such data/information are also
important to calculate the amount of crop output available for consumption,
seed for next production and marketable surplus. The data on agricultural
inputs could be obtained from survey of agricultural inputs and practices and
administrative records; and those of food grain losses from surveys of pre-
and post harvest grain losses.

Data/information on cost of crop production is also needed as it helps
to evaluate profitability of small holder activities. Crop production cost
components include land tax, depreciation on farm machinery and
implements, storage, material inputs (seed, fertilizer, pesticides, herbicides,
etc.), transport to local market, oxen (for plowing and other tasks), labour and others. These data are required by crop type, producer type, region, zone, per hectare and per quintal. Such data could be obtained from surveys of cost of crop production.

Farm Buildings and Implements data such as offices and houses of development agents, stores, clinics (plant and animal), laboratories (plant, animal, soil), state farm and private commercial farm establishments, agricultural machinery, transport equipment, farm implements, etc. are required every ten years or so by type, number, ownership, region and zone. These data are important to estimate the capital input of the sector and production functions. The statistics could be obtained from farm buildings and implements survey, national agricultural census and administrative records.

The other major set of data/information required by the agricultural sector is the livestock, poultry and beehives statistics both in the highlands and nomadic areas by type, number, sex, age, region and zone; amount of products and by-products by type, region and zone; productivity per head; grazing and improved forage land by region and zone in hectares. Animal health/veterinary services and amount and cost of inputs such as vaccines, animal and poultry feed, cost of capital and labour inputs information are very essential for the determination of the sub-sector's value added. They are also needed for the sub-sector's planning, policy formulation, analysis and to take appropriate measures of intervention. Such data/information could largely be obtained from livestock, poultry and beehives surveys, national agricultural census and administrative records. A related information set required is fishery statistics. Numbers of fishermen and type of boats used, amount of products and by-products, their value, quantity sold, receipts from sale and value of home consumed products by region and zone, cost of labour and capital inputs and major marketing/distribution constraints are essential set of statistics needed for planning, policy formulation, analysis and determination of value added of the fishery sub-sector.

It is in the interest of agricultural development planners and policy makers to know the status of the already existing peasant institutions, although they are on the process of reorganization. Peasant institutions are expected to undertake a broad range of business and development activities
such as agricultural output marketing, distribution of consumer goods and agricultural inputs and provision of credit to their member farmers, construction of schools, clinics, roads and other infrastructures which would have significant contributions to the well being of the rural people and to the national economy as well. To initiate ways and means of strengthening to enable them further expand the size and diversity of their business and development activities and also to assess their impact on future rural development, we require data/information on their profile every five years or so. These data/information should include the number of peasant associations and their members (female and male), service cooperatives, their PA members, individual members (by sex), registered Service Cooperatives (SCs), their members (sex), amount of capital, number of debited members, number of employees, type and number of establishments (office, store, school, clinic, etc.) by region and zone. Such data/information could be obtained from surveys of profile of peasant institutions, national agricultural census and administrative records.

Another type of data/information that are of paramount importance in establishing physical production and inputs in agriculture are technical coefficients. These include seeding rates of temporary crops by crop type and per hectare (traditional and recommended), rate of expansion of cultivated area by crop type (if possible), number of seedlings planted per hectare (for permanent crops), yield per hectare, fertilizer (organic and inorganic) application rate by crop type per hectare (traditional and recommended), pesticides and herbicides application rate per hectare by crop type, etc.; Livestock (cattle, sheep, goats, camels) off take rate with off take structure, milk yield/head/average lactation period (months), average live weight, average carcass weight, etc. In the case of Poultry,- egg production per laying hen per year, egg used for hatching, etc.; Beehives - amount of honey (Kg.) produced per beehive (traditional and modern), amount of wax produced (Kg/Kg. of honey), etc.; amount of feed (crop residues, hay and improved feed) per head per year and other relevant information for the sector.

A number of data/information is also required in the areas of agricultural research, extension, rural credit and agricultural marketing. Data/Information on macro-economic and employment trends are also very essential for optimum resource allocation and planning of the sector. These
statistics include population size (rural and urban) by economic activity, growth rates, migration (rural-rural and rural-urban), value added for crop, livestock and fisheries.

Annual Capital Budget allocated to and utilized by the agricultural sector and domestic and foreign investment in the sector by source of finance are vital for planning and policy formulation of the sector. Information on amount of domestic credit received and paid back by farmers during a year are required for optimum allocation of the country's domestic credit. Stock of agricultural products and inputs at the beginning and end of a year by type of product and input are essential statistics to analyze the country's food and input situation, take appropriate measures of intervention and emergency preparedness. Information on domestic and world prices of agricultural commodities; quantity and value of exported (by destination) and imported (by origin) agricultural commodities by type are required for sectoral planning, policy formulation and analysis. These data are also helpful to analyze and formulate macro-economic policies such as exchange rate, formulation of export promotion policies and analysis of government tax revenue.

Additional data required for medium and long-term demand projections for agricultural production, exports and debt servicing requirements of the country include population projections for both urban and rural population, urbanization projections, income and price elasticity's of demand, nutritional requirements projection converted into aggregate commodity volumes, projection of world/regional demand, supply and trade in agricultural products, and national commodity situation and potential. Most of these statistics are derived based on historical data, and are of paramount importance to establish sound projections of the country's future economic situation.

Having identified the data need for agricultural sector planning and policy making, the next logical step would be to examine the current data situation and identify the gap.

5.2 Review of Data Gaps

Efforts were made by CSA and MOA to satisfy the agricultural data requirements and narrow the gap. Five nationwide agricultural production
and forecasting surveys and related studies were carried out by MOA during the 1974-80 (MOA, 1979). Similarly CSA has made several efforts in producing agricultural statistics through the "Integrated System of Food and Agricultural Statistics" Project and carried out over 13 annual agricultural sample surveys since 1980. Yet, the data/information generated through such surveys are still inadequate to fill the gap.

Data/information generated by different agencies often lack compatibility. For example, the CSA's estimate of area, yield and production of major temporary crops differ from the estimates of MOA/FAO Crop assessment Mission Reports, RADBs and other sources. The recent Agricultural Sample Surveys of CSA have not included State and Private Commercial Farms. It also lacked area and production of temporary crops of peasant holdings such as vegetables (potato, tomato, carrot, etc.), spices and others and production of all types of permanent/perennial crops such as coffee, fruit crops (orange, banana, papaya, etc.), root crops (Enset, cassava, etc.) and others. The partial non availability of these statistics have severe impact on planning and policy analysis of the agriculture sector. Information on agricultural inputs such as fertilizers, improved seeds and pesticides used in the production process are available partially. Data on agricultural labour force and Land use vary from one source to another. The major reason for the variation of land use data may be the absence of comprehensive national land use survey. According to the Land Use and Regulatory Department of MOA, the total land area of the country is estimated at 111.5 million hectares of which 14.8% or 16.5 million hectares (14.6 million under annual crops) is under cultivation. Grazing and browsing land constitute some 56.9 million hectares or 51% of the total land surface. It is estimated that forest, shrubs, etc. account for 11.7%, currently unproductive land 3.8%, and currently unutilizable wasteland 18.7%.

The average estimate for period 1980/81 - 1991/92 provided by CSA is on the low side with only 5.53 million hectares of land under annual crops (excluding Eritrea and Tigray). Based on CSA's Report on crop land utilization: the proportion of land under permanent crops (fruit trees and trees used for beverages such as coffee and tea) is 5.3% of the total cultivated area. An additional 0.31 million hectares of land is under permanent crops. This gives a total cultivated area (both temporary and permanent) of 5.84 million hectares (CSA, 1993). In addition, capital inputs are also available
partially though they are not in the required form for planning and policy analysis. Available data on pre and post harvest grain losses are inadequate and unreliable. Data on cost of production of crops and peasant institutions are not available.

In the area of livestock, poultry, beehives and fisheries statistics the situation is even worse. The cattle, sheep, goats, equines, camels and poultry population quoted from year to year remained unchanged for several years. It has been claimed for a long time that Ethiopia ranks first in Africa and ninth in the world in terms of livestock number. However, no comprehensive data on the number of livestock, poultry and beehives and fishery stock as well as livestock products and by-products are available. In fact policy makers oftentimes ask what impact the services provided by the government have on the performance of this sub-sector. But due to lack and inconsistencies of information no one has the answer to these kinds of questions. CSA through it's annual livestock surveys has been providing limited information on livestock and poultry numbers although it doesn't include the livestock population of nomadic areas. Animal health services, animal feed and fishery statistics are partially available in pieces and bits and not in the required form. On the other hand, data on labour and capital inputs in the livestock and poultry production process are unlikely to be available even in fragmented form.

Information on farm buildings and implements such as DA houses and offices, stores, plant and animal health clinics and others; machineries such as tractors, combine harvesters, etc.; improved farm implements such as mould board ploughs, harrows, planters, etc.; transport equipment such as ox carts, wheel barrow, etc. are partially available from administrative records.

In general most of the statistical data/information required for agricultural planning, policy formulation, analysis and projection of future sectoral situation are either unavailable or partially available in fragmented form. Hence, there is a need to strengthen the existing statistical base through carrying out statistical development programs and enhancing the data collection and processing capacity of institutions involved.
6. STREAMLINING AGRICULTURAL INFORMATION IN ETHIOPIA: THE NEED FOR A NATIONAL AGRICULTURAL INFORMATION SYSTEM

As has been outlined in the discussions so far, statistical data are also generated by government agencies outside of the CSA. In the agricultural sector CSA conducts surveys dealing with agricultural systems: crop production and forecasting surveys, livestock poultry and beehives surveys, producers' and retail price surveys, Enset survey, etc. MOA (until the Establishment of Regional self- Governments in 1993) and RADBs currently collect agricultural statistics using their extension staffs to assess the performance of their respective development programs. In addition to these, they collect data on crop production, area under crop, land use pattern, yield, livestock number for their own specific purposes.

Agricultural statistics are also being collected/generated by agencies such as the Ethiopian Grain Trading Enterprise (EGTE) which provides data on stocks, sales and purchases, and sales as well as purchase prices. The Grain Market Research project housed in the Ministry of Economic Development and cooperation (MEDaC) also Collects price data on market outlets of major towns. The DPPC also collects data on the likely magnitude of crop production shortfalls through its early warning systems to plan food aid requirements for deficit areas for the year under consideration. Non-government organizations: Food and Agricultural organization (FAO), United States Agency for International Development (USAID), Christian Relief Development Agency (CRDA), World Vision International, etc, also collects data within their own domain of activity for their own specific purposes.

However, in terms of methodology the collection and analysis of these data need standardization and harmonization with the works of the CSA. In those areas of data collection activities outside of the CSA, the main task of the Authority is to standardize and harmonize the data collected outside of the CSA and provide methodological support in order to avoid confusion on the part of the users. For various reasons little has been done in this regard by the CSA towards discharging such a responsibility.

In Ethiopia statistical law governing the collection analysis and publication of statistical data by CSA was passed in 1970 which was further
modified in 1972. According to this law the authority was given the legal mandate for the development of statistical works in the country through the provision of standardization and classification of statistical works, the guidance of statistical works, advising government bodies on statistical work through the exercise of its coordinating role on matters related to statistics. As regards to "Designated Statistics" (to be collected through surveys or censuses), the Law provides for CSA to be responsible for statistical data collection. In 1978, following the establishment of the office of the then National Committee for Central Planning (ONCCP) the now MEDaC, additional legal provisions were made to re-emphasize the importance of statistics in policy formulation, planning and economic analysis. The 1987 proclamation that defined the powers and responsibilities of the then peoples Democratic Republic of Ethiopia had further augmented the legal basis of statistical works. Despite all these provisions, the CSA has not adequately exercised its mandate with regard to coordination of statistical work being carried out outside of the CSA. Further more, there is also a need for the revision of the statistical law of the country so as to be able to reflect the current administrative and economic set up of the country.

The foregoing historical review of the agricultural information situation in Ethiopia has revealed that data generation through ad hoc studies, Surveys, Censuses as well as specialized studies and administrative records have not been user-oriented. They have been rather supply-driven. An attempt to rectify this short coming is already made through the launching of the Short to Medium Term Statistical Program (1998/99 to 2002/03) in November 1994 through the coordination of MEDaC representing the users side and the CSA representing the producers side.

In the course of formulating the Five Year Statistical Program cited above, severe data gaps in terms of non-availability, fragmented sources, untimeliness, inadequate levels of disaggregation lack of access and over all data quality was observed in the agricultural-sector. One of the hallmark of any statistical data is its comprehensiveness and comparability over time as well as across producers. Hence, an efficient utilization of agricultural statistics supplied through the CSA and RADBs as well as any other sources calls for streamlining of sources and methodologies in the collection, analysis and dissemination of agricultural statistics.
MOA at the Federal level and RADBs are entrusted with the responsibility of promoting the development of the private peasant sector. Thus, policy makers at the Federal level (MOA) and planners as well as analysts at Regional, Zonal and Wereda levels need regular and timely flow of agricultural information for monitoring and assessment of the performance of the agricultural sector in general and the peasant sub-sector in particular.

In view of this the conduct of the workshop on National Agricultural Information system Initiated and organized by MOA is timely and purpose-oriented.

The CSA has had a wealth of technical expertise in designing census and survey methodologies where as the RADBs have Development Agents (DAs) stationed at the farm level. The CSA through providing thorough training to the DAs and the Bureaus by relieving DAs during the survey period could complement/supplement resources so as to render the data collection and dissemination process cost effective and standardized. The analysis and publication could be done by the CSA alone or jointly with the MOA and RADBs. The level of reporting (Regional, Zonal, Wereda) and the possibility of cost sharing for conducting surveys/censuses could be worked out through consultation among participating agents mentioned above in the collection and dissemination of agricultural information.
7. CONCLUSION AND RECOMMENDATIONS

Review of agricultural information situation in Ethiopia in recent years conveys at least two most important messages: the existence of severe data gaps on one hand and lack of coordination and standardization of methodologies for data collected or generated through agencies outside of the CSA. Lack of coordination and standardization is a double-edged sword. It results into a wastage of resources on the one hand and confusion of users (especially at national level) on the other. There is no doubt that part of the reason for the data gaps and imbalances is the absence of a well documented National Statistical Work Program as well as producer-user committees. This problem has been already addressed through the launching of the Short to Medium Term Statistical Program cited in the previous section. This would help the CSA face new challenges and objectively address the local demands of agricultural statistics in view of the new administrative and economic set up of the country. The information demand both at national and regional level is immense. As some Regions have already started the compilation of Regional GDP, timely and regular flow of comprehensive agricultural information is of paramount importance at least at the zonal level. Formulation of policies, macroeconomic analysis and planning at national level also demands the timely availability of pre-harvest crop forecast results and subsequent actual crop production data for each fiscal year under review. Coordination and standardization is vital for an efficient and uninterrupted flow of agricultural information that would satisfy users both at national and regional levels. The National Agricultural Information System whose institutional home is not yet identified is at the heart of an efficient and steady flow of comprehensive and standardized agricultural information in Ethiopia.

The success and sustainability of the envisaged National Agricultural Information System (NAIS) solely depends on the supply of standardized agricultural statistics (in terms of quantity and quality) from its sources mainly the CSA and RADBs, agricultural research institutions, etc. The primary users of the system are high level policy makers, the MOA, RADBs Research Institutions, CSA, Higher Education Institutions, etc.

Data quality and reliability from basic sources is a pre-requisite for proper functioning and sustainability of the NAIS. The CSA in collaboration
with RADBs are the likely focal institutions for the supply of mainstream agricultural information. The following recommendations seem to be in line with the objective of the NAIs: regular and timely flow of standardized and comprehensive agricultural information that would meet the demand of various users. The recommendations are outlined below:

a) Regularly update the already prepared Medium Term Statistical Program so as to be able to accommodate data items that might have been overlooked while preparing this Program or that may arise as a result of institutional or structural changes in the agricultural sector.

b) Conduct the long overdue agricultural census as per the schedule set under the Short to Medium Term Statistical Program already cited above. The modes-operandi for the participation of RADBs and the CSA as well as other participating agencies during the conduct of the census should be worked out well in advance.

c) Strengthen Regional statistical Offices in terms of man-power and equipment so as to reduce the workload in processing data at head quarter (CSA) and thereby reduce the time lag in the publication of the results of surveys and censuses. This may call for reorganization of the already existing offices according to the new administrative set up of the country. This also may call for the revision of the existing Statistical Law of the country.

d) Issue new legislation or enforce existing ones to ensure regular flows of administrative data pertinent to the activities of the agricultural sector from RADBs to the MOA.

e) If Regional RADBs are to undertake surveys or censuses unilaterally without consultation with the CSA, it is worth
documenting methodologies of data collection and analysis while issuing results. Regular reporting mechanisms to policy makers at the national level (MOA) should be devised.

f) For the CSA to be a clearing house of statistical data in general and agricultural statistics in particular, the analytical capacity of the same should be strengthened in terms of manpower and equipment. The testimony for lack of analytical capacity in the CSA currently is that while data on producers' price for agricultural commodities in rural areas is available for a fairly long period of time, no producers' price index has been developed to date.

g) The institutional house of the envisaged NAIS is not yet identified. Given the sector's critical role in the economy, an autonomous information storage and dissemination unit seems to be desirable.

h) If annual agricultural surveys are to be continuously conducted, independent sample design should be devised for crop and livestock subsectors for private holdings. A separate survey need be conducted for State/ Commercial Farms.

i) Given the various Agencies involved in agricultural data collection and dissemination there is a need for the establishment of a Statistical Standard Unit at the CSA. One of its functions should be the establishment of quality control schemes in all phases of the data collection and compilation process. It should also be responsible for ensuring that standards established in classification systems as well as common concepts and definitions are used in all data collection operations.
j) Establishment of Museum of Statistics in order to promote public understanding/awareness of the use of statistics in general and agricultural statistics in particular.

k) Organize and conduct Statistical "Appreciation" Seminar to chief Executives of National, Regional, Zonal and Wereda administrations. The seminar is aimed at sensitizing particularly decision makers on the importance of statistics in making critical decisions by governments.
8. REFERENCES


