



**METADATA FOR  
NATIONAL AGRICULTURAL STATISTICS**

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**INDIA**

## TABLE OF CONTENTS

	<b>Page</b>
<b>List of Acronyms</b>	iii
 <b>CHAPTER 1. NATIONAL SYSTEM OF AGRICULTURAL STATISTICS</b>	
1.1 Legal Framework and Statistical Advisory Bodies .....	1
1.2 Structure and Organization of the Major Agricultural Statistical Agencies .....	1
1.3 Outputs and Dissemination of Agricultural Statistics.....	6
1.4 Dialogue with Data Users and Cooperation with International Organizations..	7
1.5 Strategic Framework .....	7
 <b>CHAPTER 2. MAJOR DOMAINS AND SELECTED INDICATORS OF AGRICULTURAL STATISTICS</b>	
2.1 List of Major Domains and Selected Statistics and Indicators .....	9
2.2 Metadata for Each of the Major Domains.....	10
 <b>2.2.1 Production</b>	
2.2.1.1 Concepts, Definitions and Classifications .....	10
2.2.1.2 Coverage, Availability, Data Sources and Responsible Agencies .	11
2.2.1.3 Data Processing, Estimation and Revision Methodology .....	11
2.2.1.4 Other Reference Information.....	14
 <b>2.2.2 Land Use</b>	
2.2.2.1 Concepts, Definitions and Classifications .....	15
2.2.2.2 Coverage, Availability, Data Sources and Responsible Agencies .	17
 <b>2.2.3 Food Consumption</b>	
2.2.3.1 Coverage, Availability, Data Sources and Responsible Agencies .	17
 <b>2.2.4 Prices</b>	
2.2.4.1 Coverage, Availability, Data Sources and Responsible Agencies .	18
 <b>2.2.5 Fertilizer</b>	
2.2.5.1 Coverage, Availability, Data Sources and Responsible Agencies .	18
 <b>2.2.6 Labor and Employment</b>	
2.2.6.1 Coverage, Availability, Data Sources and Responsible Agencies .	18
 <b>2.2.7 Agricultural Credit</b>	
2.2.7.1 Coverage, Availability, Data Sources and Responsible Agencies .	19
 <b>2.2.8 Trade</b>	
2.2.8.1 Coverage, Availability, Data Sources and Responsible Agencies .	19
 <b>2.2.9 Others</b>	
2.2.9.1 Coverage, Availability, Data Sources and Responsible Agencies .	19

## CHAPTER 3. MAJOR DATA SOURCES FOR AGRICULTURAL STATISTICS

3.1 List of Major Agricultural Censuses, Surveys and Registers .....	20
3.2 Metadata for Each of the Major Censuses.....	20
<b>3.2.1 Agricultural Census</b>	
3.2.1.1 Overview .....	20
3.2.1.2 Census Design .....	20
3.2.1.3 Conduct, Operations, Data Quality Control .....	21
3.2.1.4 Statistical Report .....	22
<b>3.2.2 Marine Fisheries Census</b>	
3.2.2.1 Overview .....	22
3.2.2.2 Census Design .....	22
3.2.2.3 Conduct, Operations, Data Quality Control .....	23
3.2.2.4 Statistical Report .....	23
<b>3.2.3 Livestock Census</b>	
3.2.3.1 Overview .....	23
3.2.3.2 Conduct, Operations, Data Quality Control .....	23
3.2.3.3 Statistical Report .....	23
3.3 Metadata for Each of the Major Surveys	
<b>3.3.1 Input Survey</b>	
3.3.1.1 Overview .....	24
3.3.1.2 Survey Design .....	24
3.3.1.3 Conduct, Operations, Data Quality Control .....	24
3.3.1.4 Statistical Report .....	24
<b>3.3.2 Land Use Survey</b>	
3.3.2.1 Overview .....	24
3.3.2.2 Survey Design .....	25
3.3.2.3 Conduct, Operations, Data Quality Control .....	25
3.3.2.4 Statistical Report .....	25
<b>3.3.3 General Crop Cutting Estimation Survey</b>	
3.3.3.1 Overview .....	26
3.3.3.2 Survey Design .....	26
3.3.3.3 Conduct, Operations, Data Quality Control .....	26
<b>3.3.4 Integrated Sample Survey of Major Livestock Products</b>	
3.3.4.1 Overview .....	27
3.3.4.2 Survey Design .....	27
3.3.4.3 Conduct, Operations, Data Quality Control .....	27
3.3.4.4 Statistical Report .....	28
3.4 Metadata for Major Administrative Records .....	28

## **List of Acronyms**

APCAS	Asia Pacific Commission on Agricultural Statistics
AS	Agriculture Statistics
CACP	Commission on Agricultural Costs & Prices
CCE	Crop Cutting Experiments
CPD	Coordination & Publication Division
CSO	Central Statistical Organization
CWWG	Crop Weather Watch Group
DAC	Department of Agriculture & Cooperation
DAHD&F	Department of Animal Husbandry, Dairying & Fisheries
DES	Directorate of Economics & Statistics
DGCI&S	Directorate General of Commercial Intelligence & Statistics
DPD	Data Processing Division
EARAS	Establishment of an Agency for Reporting Agricultural Statistics
ESA	Economic & Statistical Adviser
FOD	Field Operations Division
GCCE	General Crop Cutting Experiments
GCES	General Crop Estimation Surveys
IASRI	Indian Agricultural Statistics Research Institute
IMF	International Monetary Fund
MIU	Market Intelligence Unit
NHB	National Horticultural Board
NIRD	National Institute of Rural Development
NSC	National Statistical Commission
NSSO	National Sample Survey Organization
RBI	Reserve Bank of India
RDES	Regional Data Exchange System
RGI	Registrar General of India
SASAs	State Agricultural Statistics Authorities
SDDS	Special Data Dissemination Standards
SDRD	Survey Design & Research Division
SERC	Socio-Economic Research Center
TRS	Timely Reporting Scheme
UTs	Union Territories
WCA	World Census of Agriculture

## **CHAPTER 1: NATIONAL SYSTEM OF AGRICULTURAL STATISTICS**

### **1.1 Legal Framework and Statistical Advisory Bodies**

There is no specific legal act in India for periodic enumeration of crops and compilation of land use statistics or agricultural census. Acts exist for population census and the collection of industrial statistics. In India, the Collection of Statistics Act 1953 is created to facilitate the collection of statistics related to industries, trade and commerce. Under the provision of the Act, statistics are collected for any matter related to any industry or class of industries of any commercial or industrial concern and in particular, related to factories. The Act also mentions that the statistics are to be collected on matters like prices of commodities, employee attendance, their living conditions including housing, water, sanitation, indebtedness, rents of dwelling houses, wages and other earnings, provident and other funds provided for labour, benefits and amenities provided for labour, hours of work, mandays employed and unemployed, industrial and labour dispute, labour turn-over. If any person is found guilty for not providing any information or refuses to answer or gives false answers to any questions for obtaining any information required to be furnished under the Act, he is liable to punishment with fine. The Act does not specifically cover agricultural activities as such. However, some of the items like prices of (agricultural) commodities, indebtedness etc. pertain to the domain of agricultural statistics.

Collection of statistics under Agricultural Census, which is conducted every five years to collect data mainly on area and number of operational holdings, is not covered under the purview of any Act, as such.

The National Statistical Commission (NSC) is the apex advisory body of India. It assumed charge on 12<sup>th</sup> July 2006. The present NSC is envisaged to become a statutory commission within a year of its assuming charge. It is composed of a part-time Chairman and four part-time members. The Secretary of Planning Commission is ex-officio member of the NSC. One of the members is from the field of economic statistics with specialization and experience on agriculture, among other things.

To contact the NSC, send correspondence to [nsc-secretariat@nic.in](mailto:nsc-secretariat@nic.in). The E-mail address of the Chairman is [suresh.tendulkar@gmail.com](mailto:suresh.tendulkar@gmail.com) and of the member (Agriculture) is [drpadamsingh@epos.in](mailto:drpadamsingh@epos.in).

### **1.2 Structure and Organization of the Major Agricultural Statistical Agencies**

#### **Directorate of Economics & Statistics (DES)**

Agricultural statistics system in India is decentralized both horizontally and vertically. Primary statistics are collected by the State governments (provincial or sub-national) and consolidated for the country as a whole by the Directorate of Economics &

Statistics (DES), under the Department of Agriculture & Cooperation, Union Ministry of Agriculture. Because of the decentralized character and non-earmarking of funds specifically for agricultural statistics, it is difficult to furnish data on financial resources. This system, which has evolved over the course of time, provides various sets of statistics, data, indices and indicators. Agricultural statistics are also generated through various surveys and statistical operations conducted by different institutions and government departments. The DES is the nodal agency for compiling, documenting and disseminating the basic data and the key indicators at the national level.

The Directorate of Economics & Statistics (DES) established in the year 1948 is headed by the Economic & Statistical Adviser (ESA). The ESA is supported by six Advisers, two from Statistics discipline and four from Economics discipline (with formal knowledge of statistics). The next hierarchy consists of three Additional Statistical Advisers and three Additional Economic Advisers. They are supported by two Deputy Statistical Advisers and seven Deputy Economic Advisers. Below this hierarchy, there are three Deputy Directors of Statistics and four Assistant Economic Advisers. It is to be mentioned that data on financial (budgetary) resources specific to agricultural statistics are not maintained.

DES releases every year estimates of production and yield of foodgrain crops, oilseed crops, sugarcane, fibre crops and important commercial and horticultural crops. Data on nine-fold land use classification, irrigation (crop-wise and source-wise) are also collected and compiled at the national and sub-national levels on an annual basis. Weekly data on wholesale/retail prices and farm harvest prices are collected from agriculture markets and used for the compilation of wholesale price index for agricultural commodities.

DES produces an annual publication entitled 'Agricultural Statistics at a Glance'. The publication also covers data relating to agriculture on national income and social economic indicators, outlay and expenditure, capital formation, area, production and yield of principal crops, cost estimates, procurement by public agencies, per capita net availability, consumption and stocks, import/ export, tariff, wholesale price index, land use statistics, census of agricultural inputs, wages of agricultural workers, livestock population and fish production in country, inter-alia. This publication is based on the data collected which are compiled by the Directorate of Economic and Statistics and various Ministries and Departments in the Government of India. Agricultural Statistics at a Glance is available in the website at <http://agricoop.nic.in> and <http://dacnet.nic.in/eands>. The E-mail address of the contact person is [advisor.vk@nic.in](mailto:advisor.vk@nic.in). The E-mail address of other contact person for land use statistics is [madhu.bala@nic.in](mailto:madhu.bala@nic.in). The website address of the DES is <http://dacnet.nic.in/eands>. The E-mail address of the present ESA who is the key contact person of the DES is [neog@nic.in](mailto:neog@nic.in).

In addition to the Directorate of Economics and Statistics of the Department of Agriculture, the other major departments at the national (all-India) level which collect

and compile data on various items relating to agricultural statistics and allied sectors, are as follows:

**(a) Central Statistical Organization (CSO)**

The CSO was established in the year 1951. The CSO is responsible for coordination of statistical activities in the country, and evolving and maintaining statistical standards. Its activities consist of National Income Accounting, including the agriculture sector, conduct of Annual Survey of Industries, Economic Censuses and follow-up surveys, compilation of Index of Industrial Production, as well as Consumer Price Indices for Urban Non-Manual Employees, Human Development Statistics, Gender Statistics; preparation of Five Year Plan relating to Development of Statistics in the States and Union Territories; imparting training on Official Statistics, dissemination of statistical information, work relating to trade, energy, construction and environment statistics, revision of National Industrial Classification, etc.

The CSO compiles data on value of crop production, livestock, poultry production, fishery production and forest produce. It also compiles, inter-alia, data on value of output, value of inputs, gross value added, and gross domestic product from agriculture and allied sectors. The data on crop production are supplied basically by the ESA.

The CSO is headed by the Director-General who is assisted by 2 Additional Director-Generals and 4 Deputy Director Generals, Directors & Joint Directors and other supporting staff. They are all from the Statistics discipline. The information are available at the website [www.mospi.nic.in](http://www.mospi.nic.in) and the e-mail address is [dgcso@nic.in](mailto:dgcso@nic.in). The contact person, at present, is the Deputy Director General, who is the nodal officer. His E-mail address is [surindera@nic.in](mailto:surindera@nic.in). It is to be mentioned that data on separate budgetary allocation for the CSO in the area of agricultural statistics as such are not available. It is to be mentioned that periodic statistical data are also released through Press Note from time to time and can be accessed from the website [www.pib.nic.in](http://www.pib.nic.in).

**(b) Department of Animal Husbandry, Dairying and Fisheries**

This Department in its present form came into existence on January 02, 1991. The organizational structure consists of Adviser (Statistics) as the overall in-charge of animal husbandry statistics, including livestock census. It collects and compiles, among other things, quantitative data on livestock population and products as of 2003 which include cattle, poultry, wool, meat, and meat products. Further, it furnishes production data on milk, egg, wool, fish & fish seed. The website of this Department is <http://dadf.gov.in>. It has a web-based system for accessing State-wise and district-wise livestock census data and agricultural machinery of the country. Data on marine fisheries resources, inland water resources and livestock products are available up to 2004-05. The sources of these data are the State (sub-national)

and Union Territory Governments. At the national (all-India) level, all matters relating to Fisheries are looked after by a Joint Secretary in the said Department. It may be mentioned that data on separate budgetary allocation for the Statistical Wing as such are not available.

**(c) National Sample Survey Organization (NSSO)**

The Directorate of National Sample Survey was established in 1950. However, the NSSO in its present form was established in the year 1970. Organizational structure of the NSSO consists of Director General & Chief Executive Officer, having four divisions, namely, Survey Design and Research Division (SDRD), Field Operations Division (FOD), Data Processing Division (DPD) and Coordination & Publication Division (CPD). A Deputy Director General heads each division except FOD. An Additional Director General heads FOD. It is mentioned that in the FOD, there is Agriculture Statistics (AS) Wing. All these are manned by personnel of Statistics discipline. Its role is to make survey design, conduct fieldwork, process data, publish report and maintain data warehouse and dissemination among other things. The Wing has 97 professional staff and 35 support staff. It collects data on food consumption in both rural and urban households. Surveys are conducted at national and sub-national levels to collect data on consumption expenditure of farm households. It collects details of item-wise average quantity and value of consumption per person of farm households at national and sub-national levels. It collects data on rural employment. The data on financial resources in such operations are not available. The e-mail address of the present contact person is [adgfod@sify.com](mailto:adgfod@sify.com).

**(d) Directorate General of Commercial Intelligence and Statistics (DGCI&S)**

The DGCI&S collects and compiles, inter alia, data on the quantity and value of export and import of all commodities including agricultural items. Data are collected from customs administrative records. These are available at the website <http://dgciskol.gov.in>. The DGCI&S is headed by the Director General.

The contact persons are the Director General and other Directors, whose E-mail addresses of the present incumbents are given below:

- (i) [dg@dgcis.gov.in](mailto:dg@dgcis.gov.in)
- (ii) [pcs@dgcis.gov.in](mailto:pcs@dgcis.gov.in)
- (iii) [gmukherjee.dgcis@nic.in](mailto:gmukherjee.dgcis@nic.in)
- (iv) [dtr@dgcis.gov.in](mailto:dtr@dgcis.gov.in)
- (v) [jp.dgcis@nic.in](mailto:jp.dgcis@nic.in)

It may be mentioned that data on separate budgetary allocation for the DGCI&S in the area of agricultural statistics are not available.

**(e) Ministry of Rural Development**

The National Institute of Rural Development (NIRD), an autonomous body, under the Ministry of Rural Development of the Government of India collects and compiles statistics relating to the rural sector. The NIRD is headed by the Director General. Its website is [www.nird.org.in](http://www.nird.org.in). Its E-mail address is [ciec@nird.gov.in](mailto:ciec@nird.gov.in). The NIRD publishes "Rural Development Statistics", which contains data on rural/urban population, vital statistics, population projections, employment, unemployment, literacy and migration, wages and debt, consumption and poverty, agriculture and allied activities, irrigation and other agriculture inputs, rural development programmes, rural infrastructure etc. The latest publication is for the year 2004-05. The Ministry of Rural Development, Government of India in its website [www.rural.nic.in](http://www.rural.nic.in) publishes a lot of statistics on the rural sector of Indian economy. On the other hand, <http://rural.nic.in> is an umbrella portal.

**(f) Office of the Registrar General of India**

It collects data on human population of the country by age, sex, rural, urban location, demographic characteristics of the population, work force by activity status and village level data. It provides comprehensive data profile on village authorities such as rural population including agricultural workers, number of cultivators etc. Data are available in the Data Dissemination Wing of the office. The website is <http://www.censusindia.net/>. The e-mail addresses are [rgoffice@censusindia.net](mailto:rgoffice@censusindia.net) and [rgoffice@censusindia.gov.in](mailto:rgoffice@censusindia.gov.in).

**(g) Ministry of Environment and Forests**

The Department of Environment was established in 1980, which became the Ministry of Environment and Forests in 1985. The Acts and the Rules are available in the website <http://edugreen.teri.res.in/explore/laws.htm>. It provides forestry and environment statistics including forest produce in the country at the national and sub-national levels. A lot of data and information are available in the compendium of "Environmental Statistics India 2003" published in May, 2005 by the Ministry of Statistics & Programme Implementation and is also available in the website: [www.mospi.nic.in](http://www.mospi.nic.in).

**(h) Reserve Bank of India (RBI)**

The RBI also generates various statistics including that on Agriculture. These are accessible from its website on internet URL [www.rbi.org.in](http://www.rbi.org.in). An important annual publication of the RBI is the "Handbook of Statistics on Indian Economy" which covers among other things, statistics on national income, output and prices (including agriculture), money and banking, financial markets, public finance, trade and balance of payment, currency and finance and socio-economic indicators.

### 1.3 Outputs and Dissemination of Agricultural Statistics

Title of Publication	Medium	Format	Periodicity Frequency	Release Calendar	Remarks
Agricultural Statistics at a Glance	English	Book/ Web-based	Annual	Usually November	Latest copy for the year 2005
Agricultural Situation in India	English & Hindi (National Language)	Journal	Monthly	No fixed date	Latest copy July, 2005
Agricultural Prices in India	English	Book	Periodically	No fixed date	Publication for 1999 & 2000 (latest)
Index of Agricultural Production, area and Yield	English	Book	Periodically	No fixed date	Last publication July, 2000
Agricultural Wages in India	English	Book	Periodically	No fixed date	-
Cost of Cultivation of Principal Crops	English	Book	Periodically	No fixed date	Last publication Feb, 2000
District-wise Area and Production of Principal Crops in India	English	Book/ Web-based	Periodically	No fixed date	Last publication May, 2001
Land Use Statistics at a Glance	English	Book/ Web-based	Periodically	No fixed date	Last publication in 2005 covered data for 2001-02 & 2002-03
Bulletin on Food Statistics	English	Book	Periodically	No fixed date	Last publication 1998-2000 released in July, 2002
Farm Harvest Prices of Principal Crops in India	English	Book	Periodically	No fixed date	Publication for 1997-98 & 1998-99 released in August, 2001 (latest).

#### Additional Notes on Information Dissemination

These publications are for sale, except for the complimentary copies given to departments, research organizations, universities and scholars. The writers, whose

articles are accepted by the editorial board are paid honorarium in cash. No press conference held or announcement made about their release. However, users are aware of the publications.

#### Contact Details:

The e-mail addresses of the contact persons for the information on the publications are neog@nic.in, [advisor.vk@nic.in](mailto:advisor.vk@nic.in) madhu.bala@nic.in.

### **1.4 Dialogue with Data Users and Cooperation with International Organizations**

Interaction with data users is a continuous exercise. Whenever required and feasible, modifications in the design, coverage etc. are done. This makes data more user-friendly. As for example, there is demand for more number of crop cutting experiments with the introduction of crop insurance scheme. The Commission on Agricultural Costs and Prices (CACP) who is one of the major users of agricultural also gives suggestions/recommendations for improvement. Planning Commission is another user. It is mentioned that in the case of NSSO, with the formation of the National Statistical Commission (NSC), the Governing Council of the NSSO got dissolved. The inter-face between the data users and data producers is envisaged through the NSC in the time to come.

The DES organized an international conference, namely the 20<sup>th</sup> session of Asia and Pacific Commission on Agricultural Statistics (APCAS) in September, 2004, with the objective of improving Agricultural Statistics in the member nations. APCAS advises the member nations on the development and standardization of agricultural statistics within the general framework of FAO's work in the field of food and agricultural statistics. APCAS, which holds its session every two years, reviews current development in the compilation, analysis and dissemination of data on different facets of food and agriculture. The discussions in the 20<sup>th</sup> Session focused on agriculture in its broad sense covering crop production, livestock, forestry and fishing in the member countries. The subjects on the agenda included application of remote sensing in the forecast of crop area and production, forestry and fisheries, use of trade flow data in agriculture policy formulation, development of CountrySTAT as a vehicle for organizing national agriculture sector, strengthening Regional Data Exchange System (RDES) in food and agriculture statistics in Asia and Pacific countries, analysis of agricultural census and surveys, including livestock census data and plan for forthcoming world census of Agriculture in 2010.

### **1.5 Strategic Framework**

In India, the National Statistical Commission (NSC), which is the nodal and empowered body for all core statistical activities of the country, is in the process of

evolution. It is to evolve, monitor and enforce statistical priorities and standards and to ensure statistical coordination among the different agencies involved. It is envisaged to decide and direct the future action plan, among other things.

The functions of the NSC, inter alia, are to identify the core statistics, to evolve national policies and priorities relating to the statistical system; to evolve standard statistical concepts, definitions, classifications and methodologies in different areas in statistics and lay down national quality standards on core statistics; to evolve national strategies for the collection, tabulation and dissemination of core statistics, including the release calendar for various data sets; to evolve national strategies for human resource development on official statistics; to evolve measures for improving public trust in official statistics; to exercise statistical audit over the statistical activities to ensure quality and integrity of the statistical products; to recommend measures to the Union (national) Government, or any State (sub-national) Government, as the case may be; to effectively implement the standards, strategies and other measures; to advise the Government on the requirement of legislative measures on statistical matters including the statute for the National Statistical Commission; to monitor and review the functioning of the statistical system in the light of the laid down policies, standards and methodologies and recommend measures for enhanced performance.

It is mentioned that the NSC was set up very recently, i.e. on 12<sup>th</sup> July 2006. It is taking presentations from the statistical organizations about their activities. The strategic plans and actions of the NSC would follow from the functions assigned to them and their directions to the statistical organizations/offices. The challenges, however, are the priority given to timeliness, reliability in the compilation of agricultural statistics, agricultural census and surveys at the State level, technical manpower and logistics provided at the field level. This calls for capacity building first at the country level and flow of resources and expertise under international cooperation and technical assistance.

## CHAPTER 2: MAJOR DOMAINS AND SELECTED INDICATORS OF AGRICULTURAL STATISTICS

### 2.1 List of Major Domains and Selected Statistics and Indicators

Domain	Statistics/Indicators
Production Crops  Livestock  Macroeconomic Indicators	Foodgrain production Index numbers of area, production and yield Cost of cultivation Livestock population Production of milk, eggs and wool Livestock production and value Agricultural GDP/Share of Agriculture & allied in GDP
Food Consumption	Per capita availability of foodgrains Food balance sheets
Prices	Index number of prices
Land Use	Gross/Net cropped area Area irrigated
Fertilizer	Fertilizer usage per hectare
Agricultural Machinery	Number of machineries
Labor and Employment	Rural population Active population (in agriculture) Labour force (in agriculture) Cultivator and agricultural workers Minimum wages for agriculture
Agricultural Credit	Flow of credit to agriculture
Trade	Agricultural Export: quantity and value Agricultural Import: quantity and value Share of agricultural exports in total exports Share of agricultural imports in total imports Terms of Trade (domestic)

## 2.2 Metadata for Each of the Major Domains

### 2.2.1 Production

#### 2.2.1.1 Concepts, Definitions and Classifications

**Crop production** - are obtained by multiplying the area estimates by corresponding yield estimates (based on scientific crop cutting experiments).

**Crop area**- from the point of view of collection of area statistics, the 35 (Sub-National Geographical Units) States including Union Territories (UTs) in the country are divided into three broad categories namely:

- i. The first category covers 13 States and 4 Union Territories (UTs) which have been cadastrally surveyed and where area and land use statistics are built up as a part of the land records maintained by the revenue agencies (referred to as “Land Record States” or temporarily settled states). These States/UTs account for about 86% of reporting area.
- ii. The second category covers 7 States where area statistics are collected on the basis of sample surveys. A scheme for Establishment of an Agency for Reporting of Agricultural Statistics (EARAS) has been introduced in these states. The scheme envisages, inter-alia, estimation of area through sample surveys in a sufficiently large sample of 20% villages/investigator zones. These states account for about 9% of reporting area.
- iii. In the remaining areas where no reporting agency has been functioning, the work of collection of Agricultural Statistics is entrusted with the village headmen. The area statistics in these states are based on impressionistic approach. These states account for 5% of the reporting area.

**Yield estimates** – of major crops are obtained through analysis of Crop Cutting Experiments (CCE) conducted under scientifically designed General Crop Estimation Surveys (GCES). At present, over 95% of the production of foodgrains is estimated on the basis of yield rates obtained from the CCEs. The results of Crop Estimation Surveys are analyzed and annual publication titled “Consolidated Results of Crop Estimation Surveys on Principal Crops” is brought out by the NSSO regularly.

**Kharif crops** - are crops sown in the months of June to September

**Rabi crops** – are crops sown in the months of October to February

### 2.2.1.2 Coverage, Availability, Data Sources and Responsible Agencies

Statistics/ Indicators	Coverage	Availability	Data Source	Responsible Agency
Foodgrain production	National	1993-94 to 2005-06	Estimation	DES
Index numbers of area, production and yield	National	1993-94 to 2004-05 (base year triennium ending 1993-94 = 100)	Compilation	DES
Cost of cultivation	National & Sub-National	1980-81 to 2003-04	Survey	DES
Livestock population	National & Sub-National	1950-51 to 2003-04	Livestock Census	Department of Animal Husbandry
Production of milk, eggs and wool	National	1983-84 to 2004-05	Survey	Department of Animal Husbandry
Agricultural GDP/Share of Agriculture & Allied Sectors in GDP	National & Sub-National	1950-51 to 2005-06	Estimation	CSO; DAHD&F; DES

### 2.2.1.3 Data Processing, Estimation and Revision Methodology

#### Estimation and Compilation Methodology

#### Advance Estimates of Crop Area and Production

Final estimates of production based on complete enumeration of area and yield through crop cutting experiments become available with a time lag only after the crops are actually harvested. However, the Government requires knowledge of advance estimates of production for making various policy decisions relating to pricing, buffer, marketing, export/import, distribution, etc. Considering this, a time schedule of releasing the advance estimates has been evolved. These estimates of crops are prepared and released at four points of time during a year as enumerated below:

#### First Advance Estimates

The first official estimate of area and production of kharif crops (crops sown during June to September) is prepared in September every year when southwest monsoon season is about to be over and kharif crops are at an advanced stage of maturity. This coincides with the holding of the National Conference of Agriculture for Rabi

Campaign where States (sub-national) give rough assessment of their respective kharif crops. Although there is no specific guideline/methodology issued by the Department of Agriculture & Cooperation (DAC) to make the assessment, it is made by the State Governments based on the reports from the field offices of the State Department of Agriculture. They are mainly guided by visual (eye-inspection) observations. These are validated on the basis of inputs from the Space Application Center, Ahmedabad, the proceedings of Crop Weather Watch Group (CWWG) meetings, and other feedback such as relevant availability of water in major reservoirs, availability/supply of important inputs like fertilizer, credit, insecticides, etc to farmers.

### **Second Advance Estimates**

The second advance estimate is made sometimes in the month of January every year when the advance estimates of kharif crops prepared during the National Conference of Agriculture for Rabi Campaign may undergo a revision based on the flow of more precise information from states. During this time, the first advance estimates of rabi crops are also prepared. The Second Advance Estimates then cover the second assessment in respect of Kharif Crops and the first assessment in respect of Rabi Crops.

### **Third Advance Estimates**

The third advance estimates are prepared towards the end of March/beginning of April every year when the National Conference on Agriculture for kharif campaign is convened and the states come up with their assessments for both kharif and rabi crops. The earlier advance estimates of both kharif and rabi seasons are firmed up and validated with the information available with State Agricultural Statistical Authorities (SASAs), remote sensing data, reports of Market Intelligence Units (MIU) as well as the proceedings of CWWG.

### **Fourth Advance Estimates**

The fourth advance estimates are prepared in the month of June every year when the National Workshop on Improvement of Agricultural Statistics is held. Since most of the rabi crops get harvested by the end of May, SASAs are in a position to supply the estimates of both kharif and rabi seasons as well as likely assessment of summer crops during the National Workshop. Like third advance estimates, the fourth advance estimates are duly validated with the information available from other sources.

It is added that generation of quarterly estimates of agricultural statistics is warranted by the obligation of providing quarterly estimates of GDP at the national level to International Monitoring Fund (IMF) under the Special Data Dissemination Standards (SDDS).

The estimates of quarterly crop production generated by DES are used by the Central Statistical Organization. In the absence of direct data, quarterly production is estimated by using the estimates of Kharif and Rabi seasons in conjunction with crop calendar.

In order to improve the quality of quarterly estimates by way of refining the estimation procedure and cross validation of results, available data from other sources such as Timely Reporting Scheme (TRS), Market Intelligence Unit of DES, National Sample Survey Organization etc. are used.

The field data for cost of cultivation (covering 30 major crops) under the scheme are collected on the **Cost Accounting Method** under which daily entries of debit/credit for the expenditure/income are made in order to assess the total cost incurred/benefit accrued by/to each farmer covered under the scheme. The field data are collected by the fieldman. The detailed questionnaire is filled up/updated on the monthly/annual basis after making inquiries on daily basis from 10 farm holdings which consists of 2 each from 5 different size classes viz. up to 1 hectare, 1-2 hectares, 2-4 hectares, 4-6 hectares and above 6 hectares allotted to each fieldman.

### **Estimation Procedure for Missing Information While Compiling the Data at the National Level**

In the case of non-receipt of data on area under crops directly from Land Record Authorities, the estimates available from the State Agricultural Statistics Authorities are used; and in the remaining cases the latest available data are repeated for the current year as a matter of practice.

### **Data Processing**

Data processing is done manually at the field level.

### **Improvement in Methodology**

Improvement in compilation methodology has been effected from time to time. Recently, India has introduced New Series of National Accounts Statistics with the base year 1999-2000. The CSO released the same in February 2006.

The important procedural changes made in the Agriculture sector under the new series are: (i) using the production data provided by the National Horticultural Board (NHB) for horticultural crops and using the price data provided by the State Directorate of Economics & Statistics; (ii) inclusion of goat milk, buffalo milk and camel milk having economic value, duck eggs, and (iii) meat production from unregistered slaughtering. The data on the livestock items are provided by the Department of Animal Husbandry, Dairying and Fisheries. The CSO has also updated the yield rates of meat products and its by products through the Studies

conducted by the CSO and Socio-Economic Research Centre (SERC), a New Delhi based NGO. Further, the CSO revised upwards the yields rates of camel hair and pig bristles on the basis of Studies. The latest 2003 livestock census data have been used to estimate the production of livestock and dung production in the New Series. It may be added that for estimating the market charges paid by the farmers, the CSO has used the findings of a Study done by the DES on 8 crops (paddy, wheat, maize, gram, ginger, mango, potato and onion) which accounts for 2.358% of total value of output of agriculture sector.

#### **2.2.1.4 Other Reference Information**

Some of the important reference information are listed below:

1. New Series of National Accounts Statistics (Base Year 1999-2000), C.S.O., February 2006; ([www.mospi.nic.in](http://www.mospi.nic.in), e mail: [dgcso@nic.in](mailto:dgcso@nic.in))
2. Economic Survey (2005-2006), Government of India, Ministry of Finance.
3. Tenth Five Year Plan (2002-2007), Volumes II and III, Planning Commission, Govt. of India.
4. Mid-Term Appraisal of Tenth Five Year Plan (2002-2007), Govt. of India, Planning Commission, June 2005.
5. Economic & Political Weekly (EPW) Research Foundation, Mumbai ([epwrf@vsnl.com](mailto:epwrf@vsnl.com)).
6. Reports of the Commission for Agricultural Costs and Prices on Price Policy for various crops, (released from time to time), Ministry of Agriculture, Govt. of India.
7. Report of the Task Force on Terms of Trade, Directorate of Economics & Statistics, Govt. of India (1995).
8. Report of the National Statistical Commission (Vol. I&II) (August 2001), Ministry of Statistics & Programme Implementation, Government of India
9. Index Numbers of Wholesale Prices in India (Base 1993-94 = 100), March 2005, Office of Economic Adviser, Ministry of Commerce & Industry, Govt. of India.

It may be mentioned that the sources of statistics, which are of sensitive nature like absolute prices of commodities, are kept confidential. Regarding Manuals on methodology, the Ministry of Statistics has engaged some expert institutions like Indian Agricultural Statistics Research Institute (IASRI) and Non-Governmental Organizations to update and bring them out in some areas.

## 2.2.2 Land Use

### 2.2.2.1 Concepts, Definitions and Classification

**Geographical area** - the latest figures of geographical area of the State/Union Territories are those provided by the Office of the Surveyor General of India.

**Reporting area for land utilization statistics** - reporting area stands for the area for which data on land use classification of area are available. In areas where land utilization figures are based on land records, reporting area is the area according to village papers, i.e. the papers prepared by the village accountants. In some cases, the village papers may not be maintained in respect of the entire area of the State. For example, village papers are not prepared for the forest areas but the magnitude of such area is known. Also, there are tracts in many States for which no village paper exists. In such cases, ad-hoc estimates of classification of area are derived to complete the coverage.

**Forest area** - includes land classified either as forest under any legal enactment, or administered as forest, whether State-owned or private, and whether wooded or maintained as potential forest land. The area of crops grown in the forest and grazing lands or areas open for grazing within the forests remain included under the "forest area".

**Area under non-agricultural uses** - includes land occupied by buildings, roads and railways or under water, e.g. rivers and canals, and other lands put to uses other than agriculture.

**Barren and unculturable land** - includes land covered by mountains, deserts, etc. Land which cannot be brought under cultivation except at an exorbitant cost is classified as unculturable whether such land is in isolated blocks or within cultivated holdings.

**Permanent pasture and other grazing land** - includes grazing land whether it is permanent pasture and meadows or not. It also includes the village common grazing land.

**Land under miscellaneous tree crops, etc.** - includes cultivable land which is not included in 'Net area sown' but is put to some agricultural uses. Land under casuarina trees, thatching grasses, bamboo bushes and other groves for fuel, etc. which are not included under 'Orchards' are classified under this category.

**Culturable waste land** - includes land available for cultivation, whether taken up or not taken up for cultivation once, but not cultivated during the last five years or more in succession including the current year for some reason or the other. Such land may be either fallow or covered with shrubs and jungles which are not put to any

use. They may be accessible or unaccessible and may lie in isolated blocks or within cultivated holdings.

**Fallow land other than current fallow** - includes land which was taken up for cultivation but is temporarily out of cultivation for a period of not less than one year and not more than five years.

**Current fallow** - represents cropped area which is kept fallow during the current year.

**Net area sown** - refers to the total area sown with crops and orchards. Area sown more than once in the same year is counted only once.

**Total cropped area** - refers to the total area sown once and/or more than once in a particular year, i.e. the area is counted as many times based on the number of sowings in a year. This total area is known as gross cropped area.

**Area sown more than once** - refers to the areas on which crops are cultivated more than once during the agricultural year. This is obtained by deducting Net Area Sown from Total Cropped Area.

**Cropping intensity** - is the ratio of Net Area Sown to the Total Cropped Area multiplied by 100.

**Irrigated area** - the area is assumed to be irrigated for cultivation through such sources as canals (Government & Private), tanks, tube-wells, other wells and other sources. It is divided into two categories:

i. **Net irrigated area** – refers to the area irrigated through any source once in a year for a particular crop.

ii. **Total/Gross irrigated area** - is the total area of crops, irrigated once and/or more than once in a year. It is counted as many times as the number of times the areas are cropped and irrigated in a year.

**Total/Gross unirrigated area** - refers to the area arrived at by deducting the gross irrigated area from the gross sown area.

**Total cultivable area** - consists of net area sown, current fallows, fallow lands other than current fallows, culturable waste and land under miscellaneous tree crops.

**Total uncultivable area** - is the area arrived at by deducting the total cultivable area from the total reported area.

**Total cultivated area** - consists of net area sown and current fallow.

**Total uncultivated area** - is the area arrived at by deducting the total cultivated area from the total reported area.

**Agricultural land/Total culturable land** is the same as cultivable area.

Most of the data collected and compiled by Ministry of Agriculture and various administrative Ministries are available at National and sub-national levels. However, data on agriculture production, area under major crops and yield per hectare, land use and area under irrigation crop-wise and source-wise are also available at sub-national level. The units adopted in India are the same as FAO. The time reference for statistics on area and production of crops adopted by FAO is based on the calendar year whereas in case of India the area and production of crops is maintained as per agriculture year i.e. July-June. Under the definition of land use categories, FAO is using one of the category as 'Arable land'. This category is not classified under nine-fold classification in Indian context. Net area sown which represents total area sown with crops and orchards (area sown more than once is counted only once) is one of the categories as per land use classification in India. Arable land used in FAO terms is equivalent to Agricultural land/Cultivable land/Culturable land in India.

### 2.2.2.2 Coverage, Availability, Data Sources and Responsible Agencies

Statistics/ Indicators	Coverage	Availability	Data Source	Responsible Agency
Gross/Net cropped area	National & Sub-National	1950-51 to 2003-04	Agriculture Census	DES, Ministry of Agriculture
Area irrigated	National & Sub-National	1951-52 to 2003-04	Agriculture Census	DES, Ministry of Agriculture

### 2.2.3 Food Consumption

#### 2.2.3.1 Coverage, Availability, Data Sources and Responsible Agencies

Statistics/ Indicators	Coverage	Availability	Data Source	Responsible Agency
Per capita availability of foodgrains	National	1951 to 2004	Estimation	DES
Food Balance Sheets	National	Not released	Estimation	Department of Food & Public Distribution

## 2.2.4 Prices

### 2.2.4.1 Coverage, Availability, Data Sources and Responsible Agencies

Statistics/ Indicators	Coverage	Availability	Data Source	Responsible Agency
Index number of wholesale prices	National	1993-94 to date (base year 1993-94 = 100)	Market Survey	DES

## 2.2.5 Fertilizer

### 2.2.5.1 Coverage, Availability, Data Sources and Responsible Agencies

Statistics/ Indicators	Coverage	Availability	Data Source	Responsible Agency
Fertilizer usage per hectare	National	1951-52 to 2004-05	Estimation	Fertilizer Association India

## 2.2.6 Labor and Employment

### 2.2.6.1 Coverage, Availability, Data Sources and Responsible Agencies

Statistics/ Indicators	Coverage	Availability	Data Source	Responsible Agency
Rural Population	National and Sub National	2001 to present	Population and Agri Censuses	RGI and DAC
Cultivator & agricultural workers	National	1951 to 2001	Population and Agri Censuses	State Governments
Minimum wages for agriculture	Sub-National	As of the December end of latest year	Estimation	Sub-national Governments

## 2.2.7 Agricultural Credit

### 2.2.7.1 Coverage, Availability, Data Sources and Responsible Agencies

Statistics/ Indicators	Coverage	Availability	Data Source	Responsible Agency
Flow of credit to agriculture	National	1997-98 to 2004-05	Administrative Records	RBI, national and sub-national Governments

## 2.2.8 Trade

### 2.2.8.1 Coverage, Availability, Data Sources and Responsible Agencies

Statistics/ Indicators	Coverage	Availability	Data Source	Responsible Agency
Share of agricultural exports in total exports	National	1991-01 to 2005-06.	Administrative Records	DGCI&S
Share of agricultural imports in total imports	National	1991-01 to 2005-06	Administrative Records	DGCI&S
Terms of Trade (Domestic)	National	1981-82 to 2003-04 ( base year triennium ending 1990-91=100)	Market Survey	DES

## 2.2.9 Others

### 2.2.9.1 Coverage, Availability, Data Sources and Responsible Agencies

Statistics/ Indicators	Coverage	Availability	Data Source	Responsible Agency
Consumption of electricity for agricultural purpose	National	1982-83 to 2004-05	Administrative Records	Central Electricity Authority, Govt. of India

## **CHAPTER 3: MAJOR DATA SOURCES FOR AGRICULTURAL STATISTICS**

### **3.1 List of Major Agricultural Censuses, Surveys and Registers**

#### **Censuses**

- (i) Agricultural Census
- (ii) Livestock Census
- (iii) Marine Fisheries Census

#### **Surveys**

- (i) Input Survey
- (ii) Land Use Survey
- (iii) General Crop Estimation Survey.
- (iv) Integrated Sample Survey of Major Livestock Products.

### **3.2 Metadata for Each of the Major Censuses**

#### **3.2.1 Agricultural Census**

##### **3.2.1.1 Overview**

Agricultural census in India is conducted as part of the World Census of Agriculture (WCA). Though the WCA is conducted once in 10 years, in India, the agricultural census is conducted once in 5 years. The first Census was conducted in the year 1970-71. The last census was conducted in 2000-01 and is near completion. The eighth Agricultural Census for 2005-06 has been launched and the work is in progress.

##### **Objective**

The objective of agricultural census is to generate basic agriculture statistics on operational holdings by gender, social group and size classes.

##### **3.2.1.2 Census Design**

For number of holdings, all villages in land record States are selected. In non-land record States, 20% of villages are selected. For area, 20% of villages in land record States and 20 to 25% of holdings in non-land record States are selected. When the State is small, 100% holdings in all villages are taken. Simple random sampling is adopted for selection of number of operational holdings in non-land record States, and also for area operated both in land record and non-land record States. Village is the lowest administrative unit.

## **Main Data Items and Variables for Operational Purposes**

Main data items covered in the agriculture census are number of operational holdings, by size class, size group, social group and gender, data on term of tenancy, land use, irrigation status, sources of irrigation, number of wells and tubewells, cropping pattern, dispersal of land, number of parcels, multiple cropping, area fertilized and quantity of fertilizer applied by irrigated and unirrigated crops, livestock, agriculture machinery and implements, agriculture credits and seeds.

### **3.2.1.3 Conduct, Operations, Data Quality Control**

The Agricultural Census in India is conducted in three phases of Census operation. In Phase-I, the basic data on number of operational holdings and the area operated by them are collected. In the case of land records, all villages, the lowest administrative units in India, are selected and entire list of operational holdings are re-tabulated by size class, gender, social groups. In the case of non-land records States, 20% of villages from each Tehsil are selected at random and all the operational holdings from these selected villages are enumerated directly by contacting each house in the village.

In Phase-II, the data on area operated by the operational holdings are collected from all the operational holdings in 20% of the villages from each Tehsil which are selected by simple random sampling procedure in land record States. In non-land record states, 20-25% of operational holdings are selected from each size class for collection of detailed information. If the size of the State is small, 100% of the operational holdings in all the villages are selected.

Phase-III which is also known as input survey, a sample of 7% villages is selected at random from each Tehsil and a maximum of 4 operational holdings are selected (through simple random sampling) from each size group of operational holdings for collection of data on number of parcels of land operated, multiple cropping, area fertilized, area applied with pesticides, livestock, agriculture implements and machinery, agriculture credit from Cooperative and Commercial Banks, seed application etc. This phase is conducted in the succeeding year of phase II for operation conveniences.

Agricultural Census is conducted under the guidance of Director (Agricultural Census) at the Central government level. There is a corresponding mechanism at the State level. Full Agricultural Census is conducted only in 20% villages. Input survey is conducted only in 7% of villages selected from the 20% sample of villages. This leads to sampling errors. As a result, estimates are sometimes found to be inconsistent with results from other sources. Errors due to difference in concepts and definitions also creep in. Census gets low priority at the State government level. Legal Act for Agricultural Census does not exist. However, census operations also suffer from lack of adequate administrative and technical supervision over the work

of the primary agency carrying out the census/survey. Village level land data suffer from lack of complete up-to-date records. This then affect the reliability and accuracy.

The results are checked for quality like comparability with related results of other output trends between different Censuses.

### **3.2.1.4 Statistical Report**

All India Report on Agriculture Census

## **3.2.2 Marine Fisheries Census**

### **3.2.2.1 Overview**

The 2005 Census for Marine Fisheries covered 3 potential classes of water bodies with a view to provide reliable and statistically sound database on inland fishery. The scope of the census was to include water bodies classified as follows: Group I comprises of ponds and tanks, brackish impoundment, water logged area, Group II comprises of large irrigation tanks, reservoirs and check dams, lakes and Group III comprises of rivers, canals, lagoons and backwaters.

### **3.2.2.2 Census Design**

The State was divided into three nearly homogeneous groups called strata which were based on climate, rainfall, soil quality etc. From each stratum, a sample of 30% districts was selected at random for the sample survey. In Group I category, stratified 3 stage sampling was adopted with districts clusters and ponds as first, second and third stage unit of selection. In Group II, a total inventory of resources under each stratum was prepared for a sub group of small, medium and large units. About 25-30% of water bodies at random from each sub group under each stratum were selected for collection of data on fish catch. In Group III, sampling frame was prepared by enlisting district with all the fishing villages/landing centers in each of the strata. About 25-30% of these units were selected by random sampling from the selected district of each stratum at the second stage. For each selected unit, 4-6 sampling days within a month were further selected at the third stage for collection of catch data.

## **Main Data item and Variable for Operational Purposes**

Fish Catch

### **3.2.2.3 Conduct, Operations, Data Quality Control**

This Census was conducted by the Central Marine Fishery Research Institute and Fishery Survey of India. Data processing was done manually. Data were subject to non-sampling errors.

### **3.2.2.4 Statistical Report**

Marine Fisheries Census 2005

## **3.2.3 Livestock Census**

### **3.2.3.1 Overview**

Historically, the first census of cattle was organized during the year 1919-1920 to be followed quinquennially thereafter. The latest census included various species of livestock along with their breeds, infrastructure related to livestock sector, agriculture equipment and implements.

### **Objective**

The objective of Livestock Census is to collect detailed information on livestock population categorized by age, sex, composition etc. It also provides disaggregated information on poultry, agricultural implements & machinery.

### **3.2.3.2 Conduct, Operations, Data Quality Control**

The Department of Animal Husbandry, Dairying & Fisheries of the Government of India provides technical guidance for the survey. The conduct of livestock census is the ultimate responsibility of the State Governments. At the State level, different agencies are involved in conducting the census such as: Directorate of Economics & Statistics, Department of Animal Husbandry, Board of Revenue, Office of the Land Record, D/O Finance, D/O Planning, Statistics & Evaluation etc. The Central Government coordinates the work of the States and gives necessary guidance to ensure uniformity in the collection of census data. This scheme is given full assistance by the Central Government. Data are collected through direct interview of the respondents. The census work from enumeration to data processing was strictly monitored and supervised by trained personnel.

### **3.2.3.3 Statistical Report**

17<sup>th</sup> Indian Livestock Census

### **3.3 Metadata for Each of the Major Surveys**

#### **3.3.1 Input Survey**

##### **3.3.1.1 Overview**

The input surveys are follow-up surveys after the agricultural census. The list of input surveys are those with base years 1976-77, 1981-82, 1986-87, 1991-92 and 1996-97. The Input Survey with the base year 2001-02 has been launched in India. The field work is completed and data processing is going on.

##### **3.3.1.2 Survey Design**

The survey design is two stage random sampling with village as the first stage and operational holding as the second stage. In a State, 7% of the total villages are selected. In the selected village, all the operational holdings are grouped into five size groups. Maximum of 4 operational holdings from each size group are selected. The ultimate sampling unit is an operational holding.

#### **Main Data Items and Variables for Operational Purposes**

Area fertilized, use of pesticides, seed, livestock, agricultural implements & machinery etc.

##### **3.3.1.3 Conduct, Operations, Data Quality Control**

It is part of the Agriculture Census. Please see 3.2.1.3

##### **3.3.1.4 Statistical Report**

All India Report on Input Survey

#### **3.3.2 Land Use Survey**

##### **3.3.2.1 Overview**

In India, statistics on the land use survey based on 9-fold classification are collected every year. The reported land area is classified into nine categories as follow: (i) Forests, (ii) Area under non-agricultural uses, (iii) Barren and uncultivable land, (iv) Permanent pastures & other grazing land, (v) Land under miscellaneous tree crops, (vi) Culturable waste land, (vii) Follow land other than current fallows, (viii) Current fallows, and (ix) Net area sown. The latest all-India data on this survey are available

for the year 2003-04. These are compiled by the Directorate of Economics & Statistics, Department of Agriculture & Cooperation.

The National Remote Sensing Agency (NRSA) of India conducted a land use survey using remote sensing technique in the year 1988-89 in which they classified the land use by visual interpretation technique and digital techniques into 22-fold. The 22-fold classification are as follows: (i) Built-up land, (ii) Crop land, (iii) Fallow land, (iv) Plantations, (v) Evergreen/Semi-evergreen forest, (vi) Deciduous forest, (vii) Degraded forest or Scrub, (viii) Forest blank, (ix) Forest plantations, (x) Mangrove, (xi) Salt-affected land, (xii) Waterlogged land, (xiii) Marshy/Swampy land, (xiv) Gullied/Ravenous land, (xv) Land with or without scrub, (xvi) Sandy area (coastal and desertic), (xvii) Barren rocky/stony waste/sheet rock area, (xviii) River/stream, (xix) Reservoir/Lakes/Tanks/Canal, (xx) Shifting cultivation, (xxi) Grassland/Grazing land, and (xxii) Snow-covered/Glacier area.

### **3.3.2.2 Survey Design**

All revenue villages are taken into account. Village enumeration is done on nine categories of land use e.g. agriculture use, area under tree crops, forest, fallow, net area sown etc.

### **3.3.2.3 Conduct, Operations, Data Quality Control**

Total agricultural area, net area sown, total cropped area under various crops, area irrigated crop-wise, source-wise are collected and compiled by the Directorate of Economics & Statistics in the Ministry of Agriculture, at the national and sub-national level. The data are collected through land records maintained at the village level by the Revenue Agencies in prescribed format following the land use classification under nine categories.

Data are collected annually through administrative land records available at sub-sub national level. Whenever the data are not reported by the State Governments on time, it is estimated by using the past trend and data available from other sources for consolidation at the National level.

### **3.3.2.4 Statistical Report**

Land Use Statistics at a Glance

### **3.3.3 General Crop Cutting Estimation Survey**

#### **3.3.3.1 Overview**

In India, historically, the estimation of crop yields is based on sound and well-tested crop cutting experiments. The General Crop Cutting Estimation Survey (GCES) covers 68 crops (52 food and 16 non-food).

#### **Objective**

The primary objective of General Crop Estimation Surveys is to obtain fairly reliable estimates of average yield of principal food and non-food crops which are important from the point of view of crops production. The estimates of yield rates thus arrived at are generally adopted for the purposes of planning, policy formulation and implementation. The experiment consists of marking the plot and harvesting, and weighting the produce from the plot. These weights form the basic data for yield estimation. Estimates of crop production are obtained by multiplying the area under crop and the yield rate.

#### **3.3.3.2 Survey Design**

Stratified three stage random sampling design is adopted with Tehsils as strata, revenue village within a stratum as first stage of sampling, fields within each selected village as sampling unit at the second stage and experimental plot of a specified shape and size as the ultimate unit of sampling.

In each selected primary unit, generally, two survey numbers/fields growing the experimental crop are selected for conducting crop cutting experiment. Generally, 80-120 experiments are selected in major crops growing districts. About 44-46 experiments are planned in minor districts. The number of experiments allotted to a district is distributed among the strata within the district roughly in proportion to the area under the crops in the stratum. The number of experiments conducted under the survey was 537,428 in 2002-03.

#### **3.3.3.3 Conduct, Operations, Data Quality Control**

The yield estimates of major crops are obtained through analysis of Crop Cutting Experiment conducted under scientifically designed General Crop Estimation Surveys. About 95% of the production of foodgrains is estimated on the basis of yield rates obtained from the Crop Cutting Experiments. Field Operation Division of the National Sample Survey Organization (NSSO) provides technical guidance to the States for organizing and conducting Crop Estimation Surveys for estimating yield rates of principal crops. In addition, NSSO in collaboration with State Governments implements sample check programme on area enumeration work and

conduct of Crop Cutting experiments. It also associates itself with the operational aspects of the conduct of Crop Cutting Experiments from selection of sample villages, training of staff and supervision of field work.

Data in respect of all the crops is collected season-wise (Kharif and Rabi season). In the case of major crops (mainly foodgrains, oilseeds, some of the cash crops like cotton, jute and mesta) 25 in number, season-wise data are released about 4-5 times in an agricultural year. In the case of minor crops (mainly horticulture crops, fruits and vegetables, spices etc.) 17 in number, annual data are released. The data are regularly published and are also available at national, sub-national and sub-sub-national levels.

### **3.3.4 Integrated Sample Survey of Major Livestock Products**

#### **3.3.4.1 Overview**

The objective of this survey is to estimate data on major livestock products such as milk, wool and eggs in the country, every year, through integrated sample survey. The data on the yield rates are collected. Estimates of livestock production like milk, egg and wool are obtained by multiplication of yield rate and total population of these species. Milk production data includes milk sucked by young animals etc. Data for meat production are captured from registered slaughter houses in the country. Data from registered slaughter houses are not captured fully. Wherever State Governments are collecting and reporting, the meat production through unregistered slaughter houses is added in the total meat production at the national level.

#### **3.3.4.2 Survey Design**

Data under the Integrated Sample Survey are collected from 15% of the sample villages. District is considered as a stratum from where 15% of the villages are selected for survey. Three stage stratified random samplings are adopted for conducting the household survey.

#### **Main Data Items and Variables for Operational Purposes**

Production of milk, wool, and eggs

#### **3.3.4.3 Conduct, Operations, Data Quality Control**

The Department of Animal Husbandry, Dairying & Fisheries provides technical guidance for the survey. The Government of India provides 50% grant-in-aid for conducting the survey by the States. The implementing agencies of this survey are the Directorates of Animal Husbandry and Veterinary Services of the States/UT

Governments. Data are collected through direct interview of the respondents and managements. Basic data are available on official website.

#### **3.3.4.4 Statistical Report**

17<sup>th</sup> Indian Livestock Census

### **3.4 Metadata for Major Administrative Records**

In conducting the agricultural census, the Statistical system uses the method of re-tabulation of data from village land records. The revenue officials at the village level maintain village crop Register and other records. Statistics of crop area are compiled with the help of village revenue officials for majority of the States of India (86%), through sample survey in 3 States (i.e. 9%) where there is no village land revenue agency, and through personal assessment of village chowkidars (watchmen) in 8 States and 2 Union Territories (i.e. 5%). The estimates of crop production are obtained by multiplying the crop area and the yield rate. The yield rates are based on statistically designed crop cutting experiments with the help of Revenue and Agricultural officials. The government has introduced the Crop Insurance Scheme for farmers. With the introduction of this scheme, the results of crop cutting experiments have been in high demand.

Generation of agricultural statistics is linked to revenue administration. The lowest unit of revenue administration is the village. The village revenue agency is commonly known in India as “patwari” agency. This agency maintains village crop register (Khasra Register) and other land records of the village. This agency is mandated to make a complete enumeration of all fields (survey numbers) called “girdawari” in every village during each crop season in order to compile land use, irrigation and crop area statistics. In some States, a mechanism exists by way of committees at different layers of revenue administration in which officials from departments of revenue, agriculture, irrigation, forest, economics & statistics, etc. are members. The Committee at the lowest level reports to the next higher level the progress in sowing of crops on land, which in turn, reports to the State level. The State Agricultural Statistics Authority, in turn, reports to the National level. However, such administrative reporting to become “statistics” has to pass through a course of four “advance estimates” of area and production; the first advance estimate usually prepared for “Kharif” crops in September, the second in January covering second assessment in Kharif and the first advance estimate of “Rabi” crops, the third such estimate in end-March or beginning of April by which time the earlier two estimates are firmed up and validated with data from other source agencies like remote sensing, market intelligence and crop weather watch group, and the fourth advance estimate made in June every year by which time the Rabi crop completes its harvesting and is validated with information from other sources. Validation with alternative sources of information enhances data quality, reliability and acceptability. The fourth advance estimates is followed by final estimates in December of the following agricultural year, after getting its administrative approval.