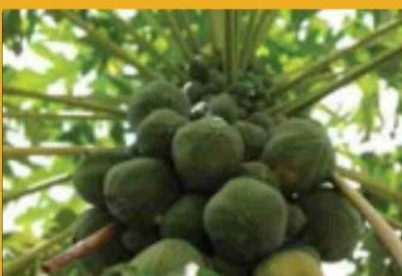




Government of Sri Lanka  
Department of Census and Statistics

## In-depth Country Assessment Of the Agricultural Statistical System in Sri Lanka

*(An implementation of Global Strategy to Improve Agricultural and Rural Statistics)*



**GLOBAL STRATEGY TO IMPROVE AGRICULTURAL AND  
RURAL STATISTICS**

**REPORT OF IN-DEPTH COUNTRY  
ASSESSMENT**

**SRI LANKA**

**September 2014**



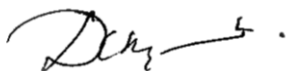
## FOREWORD

I am very pleased with the initiative taken by the international community to improve agricultural statistics through the *Global Strategy to Improve Agricultural and Rural Statistics*.

Sri Lanka has embarked on an ambitious programme of agricultural development under the Mahinda Chintana economic policy. This has seen the country achieve self-sufficiency in rice, our staple food, and high growth rates in the output of other agricultural products. With the emphasis on further developing the agricultural sector, agricultural statistics are assuming increasing importance. In my capacity as Director General of the Department of Census and Statistics, I consider that improving statistics on agriculture is a high priority requirement for our policy making and in reviewing progress of development programmes. My need for quality agricultural statistics comes up almost on a daily basis.

Sri Lanka is therefore fortunate to have been selected as one of the first group of countries for implementing the Global Strategy. The preparation of the current report is the first step in implementing the Global Strategy in Sri Lanka. The report is a comprehensive document covering the inputs, processes and outputs for agricultural statistics in this country. Data gaps and weaknesses are identified and areas of technical assistance and training needed to improve agricultural statistics are highlighted. The report has been prepared by the United Nations Food and Agriculture Organization (FAO) in collaboration with the Department of Census and Statistics and in consultation with all key stakeholders in the country.

I look forward very much to the follow-up action to implement the recommendations in the report and am sure that this will lead to significant improvements in the quality of agricultural statistics in Sri Lanka. I thank the international community for their support for this work.



D.C.A. Gunawardena  
Director General  
Department Of Census and Statistics



## ACRONYMS

ADB	Asian Development Bank
AED	Agriculture and Environment Division, Department of Census and Statistics
AI	Agricultural Instructor
ARPA	Agricultural Research and Production Assistant
ASC	Agrarian Service Centre
CCI	Country Capacity Indicator
CDA	Coconut Development Authority, Ministry of Coconut and Janatha Estate Development
CFHC	Ceylon Fishery Harbours Corporation
COFOG	Classification of the Functions of Government
COICOP	Classification of Individual Consumption by Purpose
CPF	Country Programming Framework
CSPRO	Census and Survey Processing System
DAD	Department of Agrarian Development, Ministry of Economic Development
DAPH	Department of Animal Production and Health, Ministry of Livestock and Rural Community Development
DCS	Department of Census and Statistics, Ministry of Finance and Planning
DEA	Department of Export Agriculture, Ministry of Minor Export Crop Promotion
DFAR	Department of Fisheries and Aquatic Resources, Ministry of Fisheries and Aquatic Resources Development
DOA	Department of Agriculture, Ministry of Agriculture
DS Division	Divisional Secretariat
EAC	Export Agricultural Crops
ESCAP	Economic and Social Commission for Asia and the Pacific
FAO	Food and Agriculture Organization of the United Nations
GDP	Gross Domestic Product
GIS	Geographic Information System
GN Division	Grama Niladhari Division
GPS	Global Positioning System
Ha	Hectares
HARTI	Hector Kobbekaduwa Agrarian Research and Training Institute, Ministry of Agriculture
HIES	Household Income and Expenditure Survey
IdCA	In-depth Country Assessment
ILO	International Labour Organization
ISCO	International Standard Classification of Occupations
ISIC	International Standard Industrial Classification of Economic Activities
LDI	Livestock Development Instructor
LFS	Labour Force Survey
MDG	Millennium Development Goal
MFARD	Ministry of Fisheries and Aquatic Resources Development
MLRCD	Ministry of Livestock and Rural Community Development
MOA	Ministry of Agriculture
MPI	Ministry of Plantation Industries
NAQDA	National Aquaculture Development Authority, Ministry of Fisheries and Aquatic Resource Development
NARA	National Aquatic Resources Research and Development Agency, Ministry of Fisheries and Aquatic Resources Development
NSDS	National Strategy for the Development of Statistics
OECD	Organisation for Economic Co-operation and Development
PARIS21	Partnership in Statistics for Development in the 21 <sup>st</sup> Century
RDD	Rubber Development Department, Ministry of Plantation Industries
SNA	United Nations System of National Accounts

SPARS	Strategic Plan for Agricultural and Rural Statistics
SPSS	Statistical Package for Social Sciences
STC	State Timber Corporation, Ministry of Environment and Renewable Energy
SWOT	Strengths, Weaknesses, Opportunities, Threats
UNICEF	United Nations Children's Fund
VSO	Veterinary Surgeon Office

# CONTENTS

<b>ACRONYMS .....</b>	<b>v</b>
<b>CONTENTS .....</b>	<b>vii</b>
<b>ACKNOWLEDGEMENTS .....</b>	<b>xi</b>
<b>EXECUTIVE SUMMARY.....</b>	<b>xiii</b>
<b>CHAPTER 1. INTRODUCTION .....</b>	<b>1</b>
1.1 The Global Strategy to Improve Agricultural and Rural Statistics.....	1
1.2 Country assessments .....	2
1.2.1 <i>Background</i> .....	2
1.2.2 <i>Country assessment in Sri Lanka</i> .....	2
<b>CHAPTER 2. THE AGRICULTURAL SECTOR IN SRI LANKA.....</b>	<b>4</b>
2.1 Overview of the agricultural sector.....	4
2.1.1 <i>Crops</i> .....	4
2.1.2 <i>Livestock</i> .....	5
2.1.3 <i>Fisheries</i> .....	5
2.1.4 <i>Forestry</i> .....	5
2.1.5 <i>Poverty and food insecurity</i> .....	5
2.2 Agricultural sector development strategy.....	5
2.3 Recognition and importance of agricultural and rural statistics .....	7
<b>CHAPTER 3. INSTITUTIONAL ENVIRONMENT .....</b>	<b>8</b>
3.1 Administrative structure of the country .....	8
3.2 Legal framework for the collection of statistics.....	8
3.3 Structure of the national statistics system .....	9
3.4 Statistical coordination mechanisms.....	9
3.5 Review of National Strategy for the Development of Statistics (NSDS).....	9
3.6 Stakeholder analysis .....	10
<b>CHAPTER 4. ASSESSMENT OF STATISTICAL ACTIVITIES .....</b>	<b>13</b>
4.1 Censuses .....	13
4.2 Crop statistics.....	13
4.2.1 <i>Rice</i> .....	13
4.2.2 <i>Plantation crops</i> .....	15
4.2.3 <i>Export Agricultural Crops (EAC)</i> .....	16
4.2.4 <i>Other seasonal crops</i> .....	16
4.2.5 <i>Permanent crops</i> .....	17
4.3 Livestock statistics .....	17
4.4 Fisheries and aquaculture statistics.....	18
4.5 Forestry statistics .....	18
4.6 Agricultural markets and prices statistics.....	19
4.7 Water and environment statistics.....	20
4.8 Rural development statistics.....	20
4.9 Food security and nutrition statistics.....	20
4.10 Other agricultural statistics .....	20
4.11 Data dissemination .....	23



<b>CHAPTER 5. INTEGRATION OF AGRICULTURAL STATISTICS INTO THE NATIONAL STATISTICS SYSTEM.....</b>	<b>24</b>
5.1 Extent of integration in agricultural data collections.....	24
5.1.1 Use of standard concepts and definitions.....	24
5.1.2 Frames for the collection of agricultural statistics.....	24
5.1.3 Use of GIS for mapping agricultural statistics.....	25
5.1.4 Master sample frame for agriculture.....	25
5.1.5 Existence of integrated databases.....	27
5.2 Duplication in data collection.....	27
5.3 Scope for building synergies and partnerships.....	27
<b>CHAPTER 6. MINIMUM SET OF CORE DATA.....</b>	<b>28</b>
6.1 Global Strategy core items.....	28
6.2 Other data needs.....	28
<b>CHAPTER 7. RESOURCES AVAILABLE FOR AGRICULTURAL STATISTICS.....</b>	<b>30</b>
7.1 Financial resources.....	30
7.2 Human resources.....	30
7.3 Use of information and communication technology.....	31
7.3.1 Data collection.....	31
7.3.2 Data processing.....	32
7.3.3 Data dissemination.....	32
7.4 Physical infrastructure.....	32
7.4.1 Communication infrastructure.....	32
7.4.2 Accommodation of agricultural statistics personnel.....	33
7.4.3 Transport facilities for data collection.....	33
7.5 International cooperation in agricultural statistics.....	33
<b>CHAPTER 8. ASSESSMENT OF CAPACITY TO PRODUCE AGRICULTURAL STATISTICS.....</b>	<b>34</b>
8.1 Capacity assessment framework.....	34
8.1.1 Institutional infrastructure.....	35
8.1.2 Resources.....	35
8.1.3 Statistical methods and practices.....	36
8.1.4 Availability of statistical information.....	37
8.2 SWOT analysis.....	37
8.2.1 SWOT for overall agricultural statistics system.....	38
8.2.2 SWOT for sub-sectors.....	38
<b>CHAPTER 9. AREAS FOR TECHNICAL ASSISTANCE AND TRAINING.....</b>	<b>40</b>
<b>REFERENCES.....</b>	<b>47</b>
<b>ANNEX I. KEY AGRICULTURE RELATED ORGANIZATIONS IN SRI LANKA.....</b>	<b>49</b>
<b>ANNEX II. MAJOR AGRICULTURAL DATA COLLECTIONS IN THE DEPARTMENT OF CENSUS AND STATISTICS.....</b>	<b>51</b>
<b>ANNEX III. AGRICULTURAL DATA SOURCES FOR SRI LANKA NATIONAL ACCOUNTS.....</b>	<b>55</b>
<b>ANNEX IV. DEPARTMENT OF CENSUS AND STATISTICS, PUBLICATION SCHEDULE FOR AGRICULTURAL STATISTICS, 2012 AND 2013.....</b>	<b>57</b>
<b>ANNEX V. GLOBAL MINIMUM SET OF CORE DATA ITEMS FOR SRI LANKA.....</b>	<b>58</b>

<b>ANNEX VI. NATIONAL DATA COMMITTEE, DRAFT LIST OF CORE DATA IN THE AGRICULTURAL SECTOR.....</b>	<b>61</b>
<b>ANNEX VII. VISION FOR THE FUTURE, MAIN INDICATORS FOR THE AGRICULTURAL SECTOR .....</b>	<b>63</b>
<b>ANNEX VIII.FAO COUNTRY PROGRAMMING FRAMEWORK, MAIN INDICATORS.....</b>	<b>65</b>
<b>ANNEX IX. AGRICULTURAL STATISTICS CAPACITY FRAMEWORK .....</b>	<b>66</b>
<b>ANNEX X. SWOT ANALYSIS OF AGRICULTURAL STATISTICS SYSTEM IN SRI LANKA.....</b>	<b>67</b>

## **FIGURES**

Figure 1: Agriculture and Environment Division of DCS, staffing 31 .....	31
Figure 2: Country Capacity Indicators by dimension.....	34
Figure 3: Country Capacity Indicators for institutional infrastructure elements .....	34
Figure 4: Country Capacity Indicators for resources elements .....	35
Figure 5: Country Capacity Indicators for statistical methods and practices elements .....	36
Figure 6: Country Capacity Indicators for availability of statistical information elements .....	37

## **TABLES**

Table 1: Comparison of DCS and MOA rice data, 2011/12 and 2012/13 maha seasons .....	15
Table 2: Comparison of DCS and DAPH livestock data, 2012 .....	17



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## EXECUTIVE SUMMARY

The *Global Strategy to Improve Agricultural and Rural Statistics* is an international effort to improve the quality of the agricultural information used in decision making. It has three main pillars: (i) establishing a minimum set of core data required to meet current and emerging needs; (ii) integrating agriculture into national statistics systems; and (iii) building the capacity to ensure sustainable agricultural statistics systems. Sri Lanka has been selected as one of the first group of countries for implementation of the Global Strategy.

The first step in implementing the Global Strategy for a country is to do a country assessment. A questionnaire is filled out by the country to enable a number of internationally comparable capacity indicators to be compiled. An In-depth Country Assessment is also carried out based on interviews with key stakeholders. This report presents the results of the country assessment for Sri Lanka. It describes the existing agricultural statistics system, identifies data gaps and weaknesses, and presents the minimum set of core data. The report also assesses the country's capacity to produce agricultural statistics and identifies the technical assistance and training interventions needed to improve the statistics. For the purpose of the Global Strategy, the agricultural sector includes crops, livestock, fisheries and forestry.

Agriculture plays a key role in Sri Lanka's economy. The Government of Sri Lanka has given high priority to the agricultural sector in its socio-economic development plan *The Emerging Wonder of Asia, Mahinda Chintana – Vision for the Future*. The need for better agricultural statistics to improve agricultural planning and policy making is paramount.

### National statistics system

Sri Lanka has a centralized statistical system with the Department of Census and Statistics (DCS) of the Ministry of Finance and Planning responsible for the collection, compilation and dissemination of all social and economic statistics. DCS conducts major national censuses and surveys in Sri Lanka. It also collects other important national statistics and compiles Sri Lanka's national accounts. DCS places statistical staff in many government agencies, including agriculture related agencies. DCS also maintains an office in each district and DS Division to support its data collection activities. There is no national statistics committee or other body to formally oversee the national statistics system. However, a National Data Committee has been established to identify national data requirements and systematize the collection of official statistics. DCS has also taken steps to put in place agricultural statistics committees at the GN Division, DS Division and district levels to help coordinate the collection of data.

Within DCS, the Agriculture and Environment Division (AED) is responsible for agricultural statistics. AED has a well-established statistical system for crop statistics, except for plantation crops and export agricultural crops, which are collected by the respective line ministries. It also collects annual livestock statistics. Fisheries statistics are prepared by agencies under the Ministry of Fisheries and Aquatic Resources Development. Forestry statistics are prepared by the Forest Department under the Ministry of Environment and Renewable Energy. DCS publishes the official crop and livestock statistics in printed publications and on its website. Statistics on plantation crops, export agricultural crops, fisheries and forestry are published by the respective line agencies.

Line ministries and their agencies have their own statistics sections and collect some data in addition to DCS to help manage their day-to-day operations. There are some inconsistencies in data from the different sources.

There is no National Strategy for the Development of Statistics (NSDS) or Strategic Plan for Agricultural and Rural Statistics (SPARS) in Sri Lanka. The development of NSDS/SPARS is an important area for technical assistance.

### Assessment of agricultural statistics in Sri Lanka

Much of the data collection for DCS crop and livestock surveys is done by the Agricultural Research and Production Assistants (ARPAs), who are field staff under the Department of Agrarian Development in the Ministry of Economic Development. ARPAs have a large data collection workload and their duties, skills

and training needs to be evaluated. The potential role of other agricultural field staff in the data collection should also be examined. Agricultural Instructors provide an extension service for the Ministry of Agriculture (MOA). There are also specialist field staff for coconut, rubber, tea and export agricultural crops. Livestock Development Instructors and Veterinary Officers provide livestock services in the field. Also, the government has recently appointed Economic Development Officers in each GN Division.

DCS undertakes an agricultural census about every ten years. The last census, in 2002, was the eighth in the series. The next census is planned for 2014 and, for the first time, will include aquaculture.

DCS compiles rice statistics each season (maha and yala). Area statistics are based on lists of rice farmers available in field offices. The area statistics are thought to be satisfactory, but the data collection operation should be reviewed and the need for independent validation surveys assessed. Crop cutting surveys are used to obtain rice yield statistics. There have been increasing operational problems with these surveys, especially with increased farm mechanization. These should be evaluated. The MOA data collection systems also need to be assessed with a view to better integrating the DCS/MOA data and developing improved forecasting methods. The use of modern technology to improve the collection, transmission and processing of data should also be examined.

The statistics on plantation crops (mainly tea, rubber and coconut) are based on export, domestic consumption and manufacturing data. There is no direct collection of production data from farmers. The statistics for export agricultural crops are also based on secondary sources such as customs and household consumption data, and the methodology needs to be reviewed. Data on other seasonal and permanent crops are based on reports provided by ARPAs. The data may not be reliable because of weaknesses in the reporting system. Alternative methodologies need to be considered, including the use of crop cutting surveys and improved crop forecasting methods.

A reporting approach is used for DCS livestock statistics. Data on livestock numbers are considered reliable but there are weaknesses in the production data. The methodology should be reviewed. The livestock data collected by the Ministry of Livestock and Rural Community Development should also be evaluated.

For fisheries, statistics on large pelagic fisheries are based on sampling catches at major fishery harbours. For coastal fisheries, there is no systematic collection of data. Catch assessment surveys are undertaken to collect data for inland fisheries. Data quality for fisheries statistics is uncertain and the methodology should be reviewed.

There are only limited forestry statistics in Sri Lanka. The State Timber Corporation produces data on the production and trade of its wood products. Data are also available for forestry activities on plantation estates. However, about two-thirds of timber is extracted from home gardens and private land, and there is no statistical system to measure this component. Alternative methodologies should be evaluated, including household surveys.

There are various agricultural price collections. DCS collects retail and producer prices. The research institute, HARTI, collects a wide range of retail, wholesale and farm-gate price data through its network of price collectors. It publishes weekly and daily data. Prices are also collected by other agencies, including the Central Bank of Sri Lanka. There is some overlap in the price data collections. Work is needed on coordinating these activities.

In DCS, AED is responsible for statistics on the environment but, so far, it has done little work in this field. Some special studies have been undertaken by environment related agencies but there is no systematic collection of these data.

DCS undertakes annual cost of production surveys for tea, rubber and coconut. The Department of Agriculture under MOA carries out annual cost of production surveys for rice and some other crops. Cost of production surveys for each export agricultural crop are carried out every few years. The various surveys should be evaluated especially in light of the data needs for compiling the national accounts. No cost of production statistics are available for livestock, fisheries and forestry; the need for data in these areas should be assessed.

DCS compiles the national accounts quarterly and annually. There are weaknesses and gaps in the data, especially for fisheries and forestry, which need to be addressed. There is also a need for special studies to update input ratios and other factors used in the preparation of the accounts.

DCS has a sound system for the collection of social statistics of interest to agriculture. A census of population and housing is conducted every ten years to provide demographic, education, labour force and housing data. The most recent census was in 2012. Annual labour force surveys provide data on employment. Household income and expenditure surveys are conducted every three years.

### **Minimum set of core data**

The Global Strategy provides a conceptual framework for agricultural statistics covering the economic, social and environmental dimensions. The Strategy specifies a minimum set of core data items for which internationally comparable data should be provided. The core items are based on their importance to global agricultural production. Each country needs to select which core items to include in its agricultural statistics system based on its agricultural situation. The selection of core data for Sri Lanka is discussed in Chapter 6 and the recommended list of core items is given in Annex V. The core items reflect the minimum agricultural data needs for international comparisons; additional data are needed to meet other national data needs.

### **Integration of agricultural statistics**

Integrating agricultural statistics into the national statistics system is the second main pillar of the Global Strategy. Integration is to be achieved through the use of a master sample frame for agriculture with a coordinated data collection programme to ensure that standard concepts and definitions are used and that duplication is avoided. Currently, there is no master sample frame in Sri Lanka. Agricultural collections are done as stand-alone activities, with duplication and inconsistencies in some data. However, the elements needed to construct the frame already exist, with a centralized statistical system, the availability of current census information, well-defined administrative units, and GIS coding. Developing the master sample frame is a key step in improving agricultural statistics in Sri Lanka.

### **Resources for agricultural statistics**

The government provides funds for statistical activities in DCS and the line ministries. Staffing of agricultural statistics units is adequate but funds are limited for data collection activities. Additional funding will be required if improved statistical methodologies are to be introduced.

AED has 27 professional staff, most with tertiary qualifications. There are also 10 support staff. There are only limited training opportunities within DCS. Most AED staff are familiar with basic word processing and spreadsheet packages but only a few have experience with database and statistical analysis software. Training is needed in specialist skills needed to implement improved statistical methodologies. Training is also needed for DCS staff in other agencies, and in districts and DS Divisions.

AED is equipped with good information technology equipment, but processing could be improved to provide more timely data. Electronic transfer of data could speed up processing. Tablet computers or other electronic devices could be used to improve the efficiency of data collection and processing. The use of database and survey processing software such as Microsoft Access, CSPro and SPSS could improve data management and analysis. Data entry for the forthcoming agricultural census will be done by scanning questionnaires in the district offices; this could provide a model for processing of ongoing collections in the future.

Data collection work is helped by the good transport and communication facilities in Sri Lanka. The road network is generally good and most areas in the country can be reached easily by motor vehicle. The mobile phone service provides good coverage of the country, even in rural and remote areas, and most people now own a mobile phone. Mobile phones could be useful in data collection operations.



## **Capacity to produce agricultural statistics**

The capacity of Sri Lanka to produce agricultural statistics has been assessed using the capacity assessment framework developed by FAO (see Chapter 8). Capacity indicators have been compiled covering all aspects of agricultural statistics under four headings. Under institutional infrastructure, the legal framework for statistics in Sri Lanka was shown to be sound, but there are weaknesses in coordination, integration and vision elements. For resources, staff numbers and physical infrastructure were assessed as good, but there are financial constraints on agricultural statistics work and the need for better training of staff. Under statistical methods and practices, information technology related aspects were rated highly, but the indicators confirmed the weaknesses in the methodologies used for agricultural statistics. Indicators for availability of statistical information were quite high, reflecting the dissemination of DCS and other data through printed publications and the Internet, although more needs to be done to improve the timeliness of data releases.

## **Technical assistance and training**

The Global Strategy recognizes that a national and international effort will be required to build the capacity of countries to improve agricultural statistics. In Sri Lanka, assistance from donor agencies and technical cooperation agencies will be needed. Possible areas for technical assistance and training are described in Chapter 9, and include: improving data sources for national accounts; integrating agricultural statistics; training on statistical methodology and data collection; improving methodologies for crop, livestock, fisheries and forestry statistics; and developing agro-environmental statistics.

# CHAPTER 1

## INTRODUCTION

### 1.1 The Global Strategy to Improve Agricultural and Rural Statistics

In many countries, there has been a decline in the availability and quality of agricultural statistics in recent years, especially given the need to monitor the Millennium Development Goals (MDGs) and the emerging issues in agriculture such as the environment and the use of food crops for biofuels. In response to this, the World Bank, the United Nations Statistical Commission and the Food and Agriculture Organization of the United Nations (FAO), in consultation with national institutions developed the *Global Strategy to Improve Agricultural and Rural Statistics* (World Bank et al, 2010)<sup>1</sup>. The main purpose of the Global Strategy is to provide a framework to enable national and international statistical systems to produce the basic agricultural information needed to guide decision making. The Strategy is based on three pillars:

- Pillar 1. Establish a minimum set of core data required to meet current and emerging needs.
- Pillar 2. Integrate agriculture into national statistical systems and use sound data management systems; and
- Pillar 3. Establish suitable governance processes and build the necessary statistical capacity to ensure sustainability of agricultural statistics systems.

Under Pillar 1, agricultural statistics cover the economic, social and environmental dimensions of agriculture. For the purpose of the Strategy, the agricultural sector includes crops, livestock, fisheries and forestry. The Strategy specifies a minimum set of core data items for which internationally comparable data should be provided. The core items are based on their importance to global agricultural production. Each country needs to select which core items to include in its agricultural statistics system based on its agricultural situation. It is recognized that these core items will not meet all national data requirements; each country will need to collect additional data to meet its needs.

Under Pillar 2, integration of agriculture into the country's national statistics system is seen as the key to avoiding duplication of statistical effort and ensuring the use of consistent statistical standards. The aim is for each country to develop a master sample frame for use in conducting all agricultural sample surveys and censuses, taking into account the need for data at both the farm level (the economic unit) and the household level (the social unit), as well as to provide links with land use data. In each country, an integrated programme of agricultural surveys and censuses is to be developed based on the master sample frame. Additional data sources such as administrative reporting may also be needed.

Under Pillar 3, it is recognized that an integrated agricultural statistics system will affect the roles and relationships between data producers, including the national statistics office and line ministries. Coordination mechanisms are needed. The Strategy proposes that a governance body such as a national statistics council be formed for this purpose. The need for capacity building should take account of the quality of agricultural statistics and the existing skills in data collection and analysis. Assistance from donor agencies and technical cooperation agencies will be needed to support capacity building in many countries.

An action plan has been prepared to implement the Global Strategy (FAO et al, 2012)<sup>2</sup>. The plan has four main elements: (i) organizational arrangements to implement the Global Strategy; (ii) country assessments; (iii) technical assistance, training and research; and (iv) advocacy. The action plan defines the governance structure and responsibilities at the global, regional and national levels.

A Global Office has been established in FAO headquarters to provide overall global technical coordination of Global Strategy activities. Regional Steering Committees oversee work on the Global Strategy in the region. In the Asia-Pacific Region, the Committee includes representatives from

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<sup>1</sup>See <http://www.fao.org/docrep/015/am082e/am082e00.pdf>

<sup>2</sup>See <http://www.fao.org/docrep/016/i3082e/i3082e.pdf>

international agencies and selected countries. The Asia-Pacific Regional Office for the Global Strategy has been established in the FAO Regional Office in Bangkok and works closely with other international agencies. Its role is to coordinate Global Strategy work in the countries of the region, including Sri Lanka. A regional action plan (FAO et al, 2013)<sup>3</sup> has been prepared for the Asia-Pacific Region to assist in the implementation of the Global Strategy in the region.

## **1.2 Country assessments**

### **1.2.1 Background**

Agricultural statistics systems vary from country to country, from highly centralized systems to highly decentralized systems. Global and regional action plans envisage that the implementation of the Global Strategy in a country should begin by undertaking an assessment of the agricultural statistics in the country. This is done in two stages.

The first stage involves countries reporting on the current status of their agricultural statistics through questionnaires. A number of internationally comparable capacity indicators are compiled based on these questionnaires. This information is used to make a broad assessment of the agricultural statistics system in each country and to identify priority countries for implementation of the Global Strategy. In the Asia-Pacific region, the first-stage country assessments were done in 2012. These assessments were used as one of the criteria to select priority countries in the region for early implementation of the Global Strategy starting in 2013. Sri Lanka was one of those countries.

The second stage involves an In-depth Country Assessment (IdCA) to provide a comprehensive assessment of the agricultural statistics system in the country and determine the national capability to produce the required statistics on a sustainable basis. The IdCA involves the participation of all stakeholders including agricultural data producers, users and research institutions. The specific objectives of the IdCA are to:

- describe the statistical system in the country, document the current agricultural statistics system, and evaluate the data collection methodologies;
- determine the extent to which the existing agricultural statistics system is capable of generating data needed by government, development partners, research agencies and the private sector;
- determine the minimum set of core data for the country;
- provide information necessary to design and deliver technical assistance, training and research support and to prepare a Country Proposal to seek short-term support;
- provide baseline information to help monitor the impact and outcome of the support to be provided in the future to improve the agricultural statistics system; and
- provide an authoritative reference document on the development of agricultural and rural statistics for the wider national and international community.

The Global Strategy process is closely linked with the National Strategy for the Development of Statistics (NSDS) as part of the Partnership in Statistics for Development in the 21<sup>st</sup> Century (PARIS21) initiative. The IdCA will provide a diagnostic report to be used as the basis for developing the Strategic Plan for Agricultural and Rural Statistics (SPARS) as a component of the NSDS.

### **1.2.2 Country assessment in Sri Lanka**

In Sri Lanka, a National Strategy Coordinator was appointed to coordinate work on the Global Strategy in the country. National and international consultants were recruited to assist in carrying out the IdCA.

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<sup>3</sup>See <http://www.countrystat.org/country/BTN/contents/docs/RAP.pdf>

The IdCA activities began on 11 December 2013 with the first workshop for national stakeholders in Colombo, Sri Lanka. The aim of the workshop was to introduce the Global Strategy process and to initiate discussion on methodological weaknesses in the agricultural statistics and the need for support in developing capacity to meet the country's statistical needs. All key national stakeholders were also interviewed to explore issues in-depth. The first draft of this report was circulated for comment in January/February 2014. A draft Country Proposal to provide short-term technical assistance and training support was also prepared at that time.

A second workshop of national stakeholders was held on 10 June 2014 to further discuss the IdCA report and to consider priorities for the Country Proposal. The final draft of the report and associated Country Proposal were circulated in July 2014. The report was finalised in September 2014.

## CHAPTER 2

### THE AGRICULTURAL SECTOR IN SRI LANKA

#### 2.1 Overview of the agricultural sector<sup>4</sup>

Sri Lanka has an area of 65 610 square km. Its terrain is mainly flat to rolling plain at an altitude of less than 200 metres, with some mountains in the south-central interior. The climate is tropical with year-round warm weather, moderated by ocean winds. There are two monsoon seasons. The north-east monsoon (September to March) provides widespread rain around the country. The south-west monsoon (May to August) brings heavy rain, especially in the south-west of the country.

The Gross Domestic Product (GDP) of Sri Lanka grew by 6.4 percent in 2012 after an increase of 8.2 percent in 2011. The agricultural sector grew by 5.8 percent in 2012, after a slow growth of only 1.4 percent in 2011. The contribution of the agricultural sector to GDP was 11 percent in 2012, down from 13 percent four years earlier. In 2012, agriculture comprised 31 percent of the total employment in the country. The majority of agricultural holdings in the country are smallholdings.

##### 2.1.1 Crops

The crop sector is dependent on seasonal rainfall. There are two cultivation seasons corresponding to the two monsoon seasons: the maha season from September to March; and the yala season from May to August. The maha season accounts for about two-thirds of the country's food production. Irrigation is widely used during the yala season, especially in dry areas. An estimated 1.9 million ha of land is cultivated with agricultural crops.

Rice accounts for over half of the kilojoule intake in Sri Lankan diets and remains crucial to the economy and food security of Sri Lanka. Rice production alone contributed 1.3 percent to GDP in 2012. In the past, Sri Lanka needed to import some rice to meet its needs, but recent development efforts focused on irrigation schemes, improved support services, input subsidies and increased supplies following the end of the war has resulted in Sri Lanka achieving self-sufficiency in rice. The 2012 rice production was 3.8 million tonnes.

The main plantation crops are tea, rubber and coconut. Tea and rubber are produced mainly for export. In 2012, these crops together provided US\$2.3 billion in export earnings. There were 203000 ha of land under tea and 130000 ha of land under rubber in 2012. There were 395000 ha under coconut in 2002, with over 80 percent of production used for domestic consumption. Oil palm cultivation is also being expanded (7 800 ha in 2012). Sugar cane is also grown.

Export Agricultural Crops (EAC) cover traditional perennial crops – namely, coffee, cocoa, vanilla, betel, citronella, lemon grass, cashew nut, cinnamon, pepper, cardamom, cloves, ginger, turmeric and nutmeg – which are now grown mainly for export.

Other crops. The government is giving increasing attention to the cultivation of other food crops to promote greater dietary diversification and to reduce reliance on imports. Maize is the most important, with production almost doubling to 202 000 tonnes in the four years to 2012. Manioc, cowpea, black gram, sesame and chillies all have more than 10000 ha under cultivation. Potatoes, groundnut and onion are also important. Fruit growing is also becoming important.

Of the 1.9 million ha under cultivation, 1.0 million ha require irrigation. Of this, 70 percent is rice. Existing irrigation facilities account for only 600 000 ha, including 400000 ha from major and medium scale reservoirs and 200000 ha from minor tanks. The biggest irrigation scheme is the Mahaweli system, which

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<sup>4</sup>Main sources of the data (see References): CDA, 2013; DAPH, 2013; DCS, 2013b; DCS, 2013e; DCS, 2014b; Department of National Planning, 2013; FAO, 2012; MPI, 2012.

provides water for irrigation and other purposes for a third of the country. There are about 10 000 minor tanks around the country.

### **2.1.2 Livestock**

Livestock contributes less than 1 percent to Sri Lanka's GDP, but it is an integral part of the rural farming system and an important element in generating employment and increasing rural incomes. Livestock is usually practised as a secondary activity to cropping, with over 70 percent of households earning secondary income through livestock. In 2012, there were 1.2 million cattle, 415000 buffaloes, 383000 goats and 14.0 million chickens in the country, plus a small number of sheep and pigs. Cattle are reared mainly for milk. The production of milk in 2012 was 238 million litres. The poultry industry is well-developed, and egg and chicken meat production has grown rapidly in recent years.

### **2.1.3 Fisheries**

The fisheries sector was badly affected by the 2004 tsunami, but has largely recovered following rehabilitation programmes. In 2013, the fisheries sector contributed 1.8 percent to GDP. Marine fish accounted for 87 percent of fish production in 2013. The aquaculture industry is growing as a result of stocking programmes for freshwater tanks and expanding export oriented shrimp farming in brackish water. During 2013, fish and fishery products generated US\$246 million in export earnings.

### **2.1.4 Forestry**

The total forest cover in the country is 18 450 square km, 28 percent of the total land area. The National Forest Policy recognizes the importance of biodiversity conservation and the protection of watersheds, and therefore logging in natural forests is banned. There are about 100000 ha of planted forests in Sri Lanka. There are also some forest resources in rubber and coconut plantations (22000 ha), and in home gardens.

The State Timber Corporation (STC) is the sole authority for harvesting timber from state lands, including forest plantations. It accounts for only about 15 percent of national timber extraction. About two-thirds of timber is extracted from home gardens or private land. The rest is extracted by organizations other than STC. Firewood is still important for cooking in Sri Lanka: in 2009/10, 80 percent of households used firewood as the main source of cooking fuel.

### **2.1.5 Poverty and food insecurity**

The poverty rate of households in Sri Lanka was estimated at 8.9 percent in 2009/10, down from 15.2 percent in 2006/07. Poverty is higher in rural areas but pockets of extreme poverty exist all around the country.

Food insecurity and vulnerability are prevalent in Sri Lanka. In 2010-12, 24 percent of the population was undernourished, down from 28 percent in 2004-06. Most of the food insecure live in rural areas. In 2009, 22 percent of children aged less than five years were underweight, 19 percent were stunted, and 12 percent were wasted. There are many government nutritional programmes for children.

The staple food of Sri Lanka is rice. In 2011, cereals (mainly rice) constituted 54 percent of the country's energy intake. Only 4 percent came from fruit and vegetables, which is below the recommended intake. More than 70 percent of animal protein in Sri Lankan diets comes from fish products. The government is seeking to improve food security and promote dietary diversification by increasing the production of food crops other than rice.

## **2.2 Agricultural sector development strategy**

The long-term strategy for the overall socio-economic development of Sri Lanka is given in the Department of National Planning's *The Emerging Wonder of Asia, Mahinda Chintana – Vision for the Future*. This was prepared in 2010 and covers the ten-year period to 2020. This vision is for the country to achieve

rapid economic growth of over 8 percent a year and create better remunerated employment opportunities in the non-agricultural sector. It is envisaged that employment in the agricultural sector will decline. The target is to eradicate hunger and severe poverty and reduce the malnutrition rate of children.

The priority agricultural policy areas identified are: (i) achieving food security; (ii) ensuring higher and sustainable income for farmers; (iii) ensuring better prices for agricultural produce; (iv) facilitating access to domestic and international markets; (v) increasing farm mechanization; (vi) expanding area under cultivation; (vii) reducing post-harvest losses; (viii) ensuring environmental conservation; (ix) introducing efficient farm management techniques; and (x) using high yielding seeds and improved water management.

The main problems in the crop sector are low productivity, low level of technological innovation, insufficient availability of credit and poor quality inputs. The main policy aims are to:

- increase rice production through expanding the land under rice, especially in the north and east of the country, improve yields, further develop irrigation facilities, and reduce the consumption of wheat-based products in favour of rice to lower the dependency on imports;
- further expand the production of other food crops such as onion and maize through improved cultivation practices and better access to irrigation;
- promote horticulture and floriculture;
- increase the production and export earnings for tea, rubber and coconut through replanting and new planting, strengthen research and extension services, introduce improved varieties, and modernize processing factories;
- increase the area under cashew, mainly through new plantings, and provide processing and export marketing support;
- increase the production of sugar through the use of improved varieties, better management and modern technology to reduce reliance on imports;
- increase export earnings of EAC and promote the export of traditional Sri Lankan spices such as cinnamon;
- promote the more efficient use of water resources for agriculture through modernizing irrigation structures, better watershed management, and research and development;
- develop new irrigation projects and rehabilitate irrigation canals and tanks; and
- strengthen input delivery systems for crop production, provide easier access to farm credit, and strengthen research and development in support of the crop sector.

The livestock sector is a priority area for development as it provides opportunities for generating employment, raising rural incomes and improving food security. The main problem in the livestock sector is low productivity in the dairy sub-sector and the reliance on imports of milk products. Emphasis will be given to measures to improve breeds, feed and animal health, as well as better processing networks and support services. Large modern dairy farms will also be established. For poultry, priority will be given to strengthening breeder operations and improving poultry feed.

For the fisheries sector, the government is encouraging offshore fishing and expansion of aquaculture to increase fish production and improve nutrition. Inadequate investment, poor fish handling practices, low levels of technology, degradation of the aquatic environment, and the limited offshore fishing fleet are the major constraints in the development of the fisheries sector. The government is implementing measures to address these issues with a view to better exploiting the country's fisheries and aquatic resources in a sustainable manner and achieving self-sufficiency in fish supply.

For the forestry sector, the government aims to increase the area under forests to 35 percent of total land area. This will be achieved through reforestation and greater protection of forest resources. An integrated water resource management system will be established.

*Mahinda Chintana* also provides a framework for the overall social and environmental dimensions of agriculture and rural development in Sri Lanka. This includes aspects related to health, education and housing. It also covers the development of rural infrastructure such as rural water supply, electrification of

rural areas and transportation networks. Under environment, *Mahinda Chintana* covers aspects such as access to clean water and other services, land degradation, water quality, sustainable use of water resources and protection of marine resources.

International agencies have also determined strategies for agricultural development within the framework of *Mahinda Chintana*. The FAO Country Programming Framework (CPF) provides a five-year strategic plan for the development of the agricultural sector for the period 2013-2017. The CPF identifies two main priority areas for FAO. The first is to achieve sustainable food and nutrition security by focusing on:

- developing the non-rice food crop sector, to increase farm incomes from other food crops such as fruit and vegetables, and to reduce land tenure disputes;
- improving cattle breeding and feeding, veterinary infrastructure and services for the dairy sector, and health management in the poultry industry; and
- promoting increased fish consumption and improved income from fishery products.

The second priority area is preserving and rehabilitating forests and promoting greater biodiversity through improved forest conservation.

### **2.3 Recognition and importance of agricultural and rural statistics**

The Government of Sri Lanka recognizes the importance of the agricultural sector in the economy and its contribution to eradicating hunger and malnutrition in the country. Agricultural policies are prepared on the basis of agricultural data collected in agricultural censuses and annual/seasonal surveys. Agricultural statistics also play a significant role in monitoring policy instruments and plans. In recent years, the need for ongoing assessment of the agricultural situation and crop forecasting has assumed greater importance to better manage the supply of certain sensitive food crops.

The government acknowledges the weaknesses and gaps in the current agricultural statistics, as well as the need to improve statistical methodologies in order to provide more reliable and timely statistics. It also recognizes that agricultural data collection work needs to be better coordinated and that the agricultural statistics system needs to be integrated into the national statistics system. The government has welcomed the Global Strategy initiative and has fully supported its activities in Sri Lanka. National stakeholders have actively participated in the IdCA process and this report strongly reflects national requirements and priorities.



## CHAPTER 3

### INSTITUTIONAL ENVIRONMENT

#### 3.1 Administrative structure of the country

Administratively, Sri Lanka is divided into 9 provinces, 25 districts, 331 divisional secretariats (DS Divisions) and 14022 grama niladhari divisions (GN Divisions).

- The national government is headed by the President. There is an elected parliament. There are currently 67 ministries.
- The province is a new unit of administration created in 1987. Provincial governors are appointed by the national government. There are also elected representatives who form the provincial council headed by the Chief Minister. Each province has a number of provincial ministries.
- Each district is headed by a District Secretary, who is appointed by the national government. District administrations have strong links to the national government. Central and provincial level ministries usually have offices at the district level.
- DS Divisions are administered by the DS Divisional Secretary appointed by the national government.
- At the GN Division level, one official (the Grama Niladhari) is appointed by the DS Division to administer the GN Division. A GN Division usually consists of several hundred households. Informally, GN Divisions are divided into villages.

The division of responsibility between the national and provincial governments is set out in the constitutional amendment under which the provincial administrations were formed. The national government is responsible for national issues such as defence and foreign trade. It is also responsible for census and statistics. Provincial governments are responsible for local issues such as education and health care, as well as some agricultural services (mainly extension work), food supply/distribution and some aspects of irrigation and animal husbandry. Some functions are jointly managed by the national and provincial governments, including formulating and implementing national development plans.

Statistical systems must be designed to provide the geographic disaggregation necessary to meet the needs for policy and planning work. In Sri Lanka, there is a strong need for statistical information at the national and provincial levels, and to a lesser extent at the district level; for this reason, most statistics in Sri Lanka are produced down to the district level. Lower administrative levels are more concerned with day-to-day operational issues and are not seen as major users of statistics. This situation could change with moves to more decentralization of public administration.

There are some other levels of administration used by different central ministries. Many agricultural field activities are operated out of Agrarian Service Centres (ASCs). There are one or more ASCs in a DS Division. The ASCs are intended to be a one stop place for farmers to meet with extension workers and other agricultural support staff. A number of agricultural field workers are attached to each ASC.

#### 3.2 Legal framework for the collection of statistics

The statistical system in Sri Lanka operates under two ordinances: the Statistical Ordinance and the Census Ordinance. The Statistical Ordinance defines the statistical system as a centralized one with the Department of Census and Statistics (DCS) of the Ministry of Finance and Planning given responsibility for the collection, compilation and dissemination of all types of social and economic statistics in the country. The Statistical Ordinance also sets out the obligations on the community to cooperate with DCS in the reporting of statistics and the requirements for DCS to guarantee the confidentiality of information collected for statistical purposes. The Census Ordinance provides the legal basis for DCS to undertake censuses. DCS is headed by a Director-General.

### **3.3 Structure of the national statistics system**

Under the centralized national statistics system, DCS is responsible for all major national censuses and surveys in Sri Lanka. This includes regular population/housing, economic and agricultural censuses, as well as national household surveys such as the labour force survey (LFS) and the household income and expenditure survey (HIES). It also collects other important national statistics and compiles Sri Lanka's national accounts.

Apart from its responsibility for collecting and disseminating statistics, DCS is also required to recruit, train and place professional staff in government institutions requiring statistical services. In addition, it provides statistical consultancy services to government agencies, as required. DCS has about 40 branch offices in all key ministries and departments, including: the Ministries of Agriculture, Environment and Renewable Energy, Finance and Planning, Fisheries and Aquatic Resources Development, Livestock and Rural Community Development, and Plantation Industries; and the Departments of Agriculture, Export Agriculture, Animal Production and Health, Customs, Commerce, and Rubber Development. DCS also has branches in four provincial councils – Central, North-central, Southern and Uva – as well as in the Mahaweli Authority of Sri Lanka. Statistical officers are outposted from DCS to head these branches.

DCS does not collect all national statistics. Some statistics are collected by line agencies with support from their in-house DCS branches or from DCS itself. In agricultural statistics, DCS collects production data for livestock and most crops. Statistics for plantation crops, EAC, fisheries and forestry are collected by the respective line ministries. Ministries and departments often do their own statistical work to supplement data collected by DCS; for example, DCS collects data on rice area and production by season, while the Ministry of Agriculture (MOA) collects monthly data on the progress of the rice crop.

### **3.4 Statistical coordination mechanisms**

There is no national statistics committee or other body to formally oversee the statistical system in Sri Lanka. However, the National Data Committee has been established to systematize the collection of official statistics and identify the data to be provided by the national statistics system. The Committee is headed by the Deputy Secretary to the Treasury, Ministry of Finance and Planning. A core set of indicators for the period 2013 to 2018 is being prepared. For the agricultural sector, a sub-committee comprising 23 members from ministries, departments and agencies has been formed to develop the indicators. A draft list of 79 agricultural indicators has been prepared (see Annex VI).

Other statistical coordination mechanisms are also in place. The placement of DCS statistical staff in ministries and departments in charge of the agencies' statistical activities is an effective way of ensuring that statistical standards are maintained and that the statistical work is coordinated with DCS activities. Steps have also been taken to put in place statistical coordination mechanisms at lower administrative levels. Proposals to establish agricultural statistics committees at the GN Division, DS Division and district levels are being considered. The committees would include all key local agricultural and statistical officials and would meet monthly according to a strict timetable to endorse the agricultural statistics before their submission to the next level. This is seen as a way to ensure that the data provided are consistent, reliable and timely. It is yet to become fully operational.

### **3.5 Review of National Strategy for the Development of Statistics (NSDS)**

The NSDS has not been prepared for Sri Lanka. Some NSDS related activities have been undertaken with support from PARIS21. This has mainly been related to documentation of the statistical collections and making census/survey micro-data more readily available. No work has been done on the development of the SPARS.

### **3.6 Stakeholder analysis**

The main central level institutions concerned with agriculture and rural development, especially in connection with agricultural statistics, are shown in Annex I. Most of the institutes are in Colombo; a few are located in Peradeniya, near to Kandy.

#### ***Department of Census and Statistics (DCS)***

DCS is divided into fifteen technical/service divisions. From an agricultural statistics point of view, the relevant divisions are:

- Agriculture and Environment Division (AED), which is responsible for agricultural statistics;
- Population Census and Demography Division;
- National Accounts Division;
- Information and Communication Technology Division;
- Sample Surveys Division;
- Prices and Wages Division; and
- Statistical Training Division, Cartography Division and Data Dissemination Division.

Statistical data collection activities of DCS are supported by the District Statistical Offices, which are staffed by DCS. The District Statistical Office is responsible for managing DCS statistical activities in the district. It also provides a statistical service to the District Secretariat. DCS also appoints a Statistical Officer in each DS Division to support DCS data collection activities.

DCS does not have its own field workers to carry out its data collection work. Instead, it relies on field staff of other ministries, especially the Agricultural Research and Production Assistants (ARPAs) working under the Department of Agrarian Development (DAD) in the Ministry of Economic Development. Where ARPAs are not available, DCS data collection work is done by the Grama Niladharis.

#### ***Ministry of Agriculture (MOA)***

MOA is the peak agricultural policy making body in Sri Lanka responsible for the formulation and implementation of national agricultural policies and development plans. The main organizations under MOA are the Department of Agriculture (DOA), the Sri Lanka Council for Agricultural Research Policy, and the Institute of Post-Harvest Technology. The Hector Kobbekaduwa Agrarian and Research Institute (HARTI) is a statutory body under MOA carrying out agrarian research and policy analysis.

Statistical activities are carried out in the DCS branch offices located in MOA and DOA. The main statistical activities are: preparing seasonal targets for each crop; monitoring of crop sowings against targets; crop forecasting; and undertaking cost of production surveys for rice, other food crops and vegetables.

MOA's field level activities are carried out from the ASCs. Crop extension services are provided by Agricultural Instructors (AIs), who are provincial level officials based in the ASCs. There is usually one AI in each ASC, with each AI responsible for 10-20 GN Divisions.

#### ***Ministry of Plantation Industries (MPI)***

MPI is responsible for the formulation and implementation of policies and programmes for the development of the tea and rubber industries, as well as the oil palm industry. Key agencies under MPI are the Sri Lanka Tea Board, the Tea Research Institute, the Tea Smallholding Development Authority, the Rubber Development Department (RDD), the Rubber Research Institute, and the National Institute of Plantation Management. Statistical activities are carried out in the DCS branch offices located in MPI and RDD. MPI and its agencies are responsible for preparing official statistics on area, production and prices for rubber, tea, and oil palm. Field services for MPI are provided by Rubber Inspectors and Tea Inspectors.

### ***Ministry of Coconut Development and Janatha Estate Development***

This Ministry is responsible for planning and development activities for the coconut industry. The main organization under the Ministry is the Coconut Development Authority (CDA), which prepares the official statistics on coconut production and is responsible for managing the coconut industry. The Coconut Cultivation Board is responsible for coconut extension work, and has regional offices island-wide. Coconut Development Officers, based in the ASCs, provide extension services to coconut growers. The Coconut Research Institute is responsible for research work on coconut and oil palm.

### ***Ministry of Minor Export Crop Promotion***

This Ministry is responsible for overseeing the development of the spice industry and other EACs. The key organizations under the Ministry are the Department of Export Agriculture (DEA) and the Sri Lanka Cashew Corporation. A DCS branch office exists in DEA and is responsible for preparing the official EAC statistics. The Ministry has field staff – Export Agriculture Extension Officers – assigned to ASCs in key EAC areas of 14 districts. They provide extension services to farmers growing EACs and distribute subsidies and planting materials. There are also Cashew Development Officers in some areas to support cashew growers.

### ***Ministry of Sugar Industry Development***

This is a new ministry responsible for the sugar industry. Under the Ministry, the Sugar Research Institute collects some statistics on sugar. Currently, no statistical work is done in the Ministry.

### ***Ministry of Irrigation and Water Resources Management***

This Ministry is responsible for managing Sri Lanka's inland waters including its use for agriculture. The key organizations under the Ministry are the Department of Irrigation and the Mahaweli Authority of Sri Lanka. The latter is responsible for developing and managing the Mahaweli Development Programme.

### ***Ministry of Livestock and Rural Community Development (MLRCD)***

MLRCD is responsible for planning and policy making for the livestock sector. The main organizations under MLRCD are the Department of Animal Production and Health (DAPH) and the National Livestock Development Board. Statistical activities are carried out in the DCS branch offices located in MLRCD and DAPH and include assessing livestock inventory using administrative records; estimating production of milk, eggs and meat; and preparing production forecasts.

Livestock extension services are provided by provinces. Veterinary Surgeon Offices (VSOs) have been established – one or more in each DS Division. Each VSO services 10-20 GN Divisions. A Veterinary Surgeon and a Livestock Development Instructor (LDI) are assigned to each VSO. VSOs provide veterinary, vaccination and artificial insemination services to livestock producers, as well as distributing subsidies. Some tagging of animals is also done.

### ***Ministry of Fisheries and Aquatic Resources Development (MFARD)***

MFARD is responsible for the formulation and implementation of fisheries and aquaculture development plans in the country, and for compiling and disseminating official fisheries statistics. Under MFARD, the Department of Fisheries and Aquatic Resources (DFAR) is responsible for the management, regulation, conservation and development of fisheries resources related to marine and brackish water capture fisheries. The National Aquaculture Development Authority (NAQDA) is mandated to develop the aquaculture and inland fisheries sector. The National Aquatic Resources Research and Development Agency (NARA) is the research arm of MFARD. The Ceylon Fisheries Corporation is responsible for storage, processing and marketing of fish and fish products. The Ceylon Fishery Harbours Corporation (CFHC) manages fisheries harbours, anchorages and related facilities. Cey-Nor Foundation Ltd manufactures and supplies fishing boats, gear and engines.

Fifteen District Fisheries Offices are located around the country, each of them headed by an Assistant Director. There are 148 Fisheries Inspectors. Fishery Resources Management Assistants and Fisheries Social Development Assistants are also stationed at District Fisheries Offices as field officers. These field officers are responsible for marine fisheries data collection activities. NAQDA also has 100 Aquaculture Extension Officers located in 22 District Aquaculture Extension Offices, who are responsible for the collection of inland and aquaculture fisheries data.

A DCS branch is located in MFARD, and is responsible for the preparation of official fisheries statistics in collaboration with MFARD agencies.

### ***Ministry of Environment and Renewable Energy***

The Forest Department of the Ministry of Environment and Renewable Energy has overall responsibility for managing forest resources in Sri Lanka. STC is the sole authority for harvesting timber from state lands, including forest plantations. The Forest Department produces official forestry statistics, mainly based on STC data.

### ***Ministry of Economic Development***

The Ministry of Economic Development has a variety of responsibilities in regional and rural development, poverty alleviation and investment promotion. Under the Ministry, the Department of Agrarian Development (DAD) is mandated to promote increased agricultural productivity and sustainable development, and is responsible for managing minor irrigation works.

DAD has a network of field staff – the ARPAs – working out of the ASCs. There are about 14 000 ARPA posts around the country, of which about 9 000 are currently filled. Most of the unfilled positions are in the Northern Province and parts of the Eastern Province. DAD has begun recruitment action for these posts. The role of the ARPAs is to provide a channel of communication to farmers and liaise with the various extension officers to support farmers. Their duties include strengthening farmer organizations, distributing inputs, managing minor irrigation works and regulating land use. They also do much of the agricultural data collection work for DCS and MOA. Each ARPA is responsible for between one and three GN Divisions.

The Ministry of Economic Development has recently appointed Economic Development Officers in each GN Division. These are new graduates who are to provide support for the development of local communities. They could have a role in data collection in the future.

### ***Other government agencies***

Many other government agencies are potential stakeholders in efforts to improve agricultural statistics. The Central Bank of Sri Lanka is a key user of agricultural statistics. The Ministry of Finance and Planning has responsibility for formulating national economic and financial strategies/policies/plans for the country and for overall management of the country's financial resources. DCS comes under this Ministry. The National Planning Department, also under the Ministry of Finance and Planning, is the key planning authority in Sri Lanka.

## CHAPTER 4

### ASSESSMENT OF STATISTICAL ACTIVITIES

#### 4.1 Censuses

DCS undertakes censuses of population and housing, as well as economic censuses (which include agricultural censuses) on a regular basis. Also, a special census on persons affected by internal conflict was undertaken by DCS during 2013.

##### *Census of population and housing*

Censuses of population and housing have been conducted in Sri Lanka since 1871, usually every ten years. The most recent censuses were in 1981, 2001 (which covered 18 of the 25 districts) and 2012. The 2012 census was undertaken in February/March 2012 to collect demographic, educational, labour force and other characteristics of the population as well as housing characteristics. The first results showing population data by district based on enumerator summaries were issued in April 2012. Further provisional results were issued later in 2012. Preliminary results based on a 5 percent sample were issued in 2013. Final results are yet to be released.

##### *Economic census*

The common practice of DCS has been to conduct an economic census as soon as possible after each population/housing census. Economic censuses cover agriculture, industry and trade/services sectors. An economic census is being conducted during the second half of 2014.

##### *Agricultural census*

DCS undertakes an agricultural census approximately every ten years as part of the programme of economic censuses. The last agricultural census, in 2002, was the eighth in the series. The census was based on FAO guidelines and provided data such as land use, area under crops by crop type, livestock numbers by type, and farm mechanization. Data were provided separately for estates and smallholdings, where smallholdings were defined as those less than 20 acres (8.1 hectares) in size. Census reports were published showing national and district data.

The next agricultural census will be conducted in 2014 and, for the first time, will include aquaculture. Data will be collected by the ARPAs (smallholdings) and the Grama Niladharis (estates). Where ARPAs are not present, the Grama Niladharis will do all the data collection. The 2014 census will be the key to establishing the master sample frame for agricultural statistics and it is important that the collection and processing is done well.

#### 4.2 Crop statistics

DCS is responsible for the collection and dissemination of area, yield and production statistics for all crops except plantation crops – which are collected by MPI, Coconut Development Authority (CDA) and Sugar Research Institute – and EAC, which are collected by DEA.

##### 4.2.1 Rice

DCS undertakes a rice area survey and a rice production survey each season (maha and yala).

The rice area survey covers all rice farms in the country, based on lists available in each ASC. Data are collected by the ARPAs (or the Grama Niladharis where ARPAs are not present) in two rounds: area

planted data are collected at the beginning of the season and area harvested data are collected at the end of the season. That is, data are reported four times a year.

Each reporting period, data are provided by irrigation type (major irrigation scheme, minor irrigation scheme, rain-fed) for each rice farmer (using Form P1). On Form P1, ARPAs aggregate data to the village level and submit the form to the Statistical Officer in the DS Division, who transcribes data to another form (Form P2). Form P2 shows the area data for each village in the DS Division. Two copies of Form P2 are made in the DS Division: one is kept in the DS Division; the other – the “moving copy” – is sent by post to DCS in Colombo. DCS transcribes the data to make a third copy of Form P2, before returning the moving copy to the DS Division.

Generally, the rice area statistics are thought to be satisfactory, but there may be weaknesses in the methodology and field operations. Issues to consider include: the suitability of ARPAs for the data collection task; how feasible it is for ARPAs to visit all farmers; weaknesses in the management and supervision of data collection; the availability of field manuals; and the extent to which administrative reporting is used rather than direct collection of data from farmers. Other issues are: the accuracy of the lists of rice farmers and whether the agricultural census could be used for compiling/updating the lists; and the need for validation surveys to verify the data. The data processing could also be streamlined, especially by using electronic transfer of data, to provide more timely release of data.

The rice yield survey is undertaken at the end of each season using crop cutting methodology. A sample of 3000 rice farmers are taken in the maha season and 2000 in the yala season. The sample is selected from the list of rice farmers in a sample of GN Divisions. The crop cutting is done by the AIs and the DS Division Statistical Officers. Crop cutting is done for areas of size one perch (approximately 25 square metres). Data are collected on irrigation type (as for the rice area survey), as well as ancillary data on land tenure, seed variety, land preparation method, seeding method, fertilizer use, insecticide use, fungicide use and weedicide use. DCS also undertakes a rice production ancillary survey in conjunction with the rice yield survey in each season. A sample of 6 000 rice farmers are selected in the maha season and 4 000 are selected in the yala season to collect the same ancillary data as in the rice yield survey.

The crop cutting surveys for rice have been conducted in Sri Lanka for many years using sound statistical methodology. However, there have been recent concerns over data quality as a result of increasing operational problems with the surveys, especially related to coordinating crop cutting work with the farmers, the effect of farm mechanization on the crop cutting operation, weaknesses in the management and supervision of the crop cutting work, and cost/transportation issues. There might also be potential to reduce the sample size. The need for the ancillary survey each season and whether the agricultural census meets the need for these data should also be assessed. The efficiency of the processing methods used for the rice yield surveys also needs to be examined.

DCS combines data from the two rice surveys to prepare the rice production statistics. The DCS data dissemination calendar provides for three data releases for each season: (i) first forecast – just before the end of the season; (ii) provisional – two months after the end of the season; and (iii) final – several months after the end of the season. Data are shown down to the district level. Data are released on the DCS website. Final data are also issued in the DCS report *Paddy Statistics*, which is published twice a year about six months after the end of the season. This dissemination schedule is not always met.

MOA/DOA have their own systems for monitoring progress with the rice crop. Before the start of each season, targets are set for the area and production of rice (and other crops). Fortnightly reports are received from DS Divisions detailing progress in planting and harvesting. This is based on reports from the ARPAs and AIs. Each month of the season, DOA issues the report *Crop Forecast*, setting out progress with the season's rice crop (and other crops) in comparison with targets. MOA publishes rice production data in the report *Seasonal Crop Review* issued at the end of each season. The MOA/DOA data are available earlier than the DCS data.

DOA also presents rice production forecasts in its monthly *Crop Forecast* reports. These are based on the current status of planting and harvesting, using yield data from previous years. The weaknesses in this methodology are acknowledged. DOA has previously done some preliminary development work on a model for forecasting of rice production, but this work has not been pursued.

The MOA/DOArice data collection systems complement the DCS statistics and provide valuable information on crop conditions throughout the season. This is of importance to the government, the Central Bank of Sri Lanka and others in assessing current agricultural conditions and for short-term policy considerations. The MOA/DOA data should form part of an integrated statistical system for rice statistics, with MOA/DOA providing crop progress and forecasting information throughout the season and DCS providing the official production statistics at the end of the season.

There are some minor discrepancies between the MOA/DOA data when it is initially released and DCS data when it is finally released. The MOA/DOA data are corrected in the following year, as illustrated in Table 1.

**Table 1: Comparison of DCS and MOA<sup>1</sup>rice data, 2011/12 and 2012/13 maha seasons**

	2011/12 maha	2012/13 maha
Area planted ('000 ha)		
DCS	702	780
MOA	702	768
Production ('000 tonnes)		
DCS	2717	2846
MOA	2717	2587

1. MOA data from *Seasonal Review Maha 2012/13*.

Efforts are needed by DCS to speed up the data processing to ensure that official statistics are available soon after the end of the season. The use of modern technology to improve the collection, transmission and processing of data is an important element in this regard. The MOA/DOA forecasting methods should be reviewed. Also, a formal system needs to be established to provide early warning information on damage to rice and other crops because of flood, drought or other natural disasters.

#### 4.2.2 Plantation crops

Statistics on tea area and production are compiled by the Sri Lanka Tea Board, the Tea Smallholding Development Authority and MPI. Data on the area under tea are collected directly from large plantation companies and through reports of Tea Inspectors for smallholdings. Smallholdings are those with up to 10 acres (4 ha) of tea. Data on the production of tea is obtained from tea factories. The Sri Lanka Tea Board publishes data monthly in its *Monthly Statistical Summary* and annually in its *Statistical Bulletin*. Data are also shown in MPI reports and on the MPI website. The data are thought to be reliable.

Statistics on the area under rubber are compiled by RDD. Data are reported by Rubber Inspectors based on their observations. RDD prepares estimates of rubber production by taking exports plus local consumption plus/minus changes in stocks. Data on rubber exports come from Sri Lanka Customs. Data on local consumption and stocks are obtained from rubber dealers and manufacturers. Manufacturers buy the rubber from dealers and pay a tax (a "cess") to RDD on all rubber purchases. The dealers and manufacturers are licensed by RDD and are required to submit monthly reports to RDD. The data are published in various MPI reports, as well as on the MPI website. Production data are of uncertain quality because data are not collected from producers. Alternative ways to compile the statistics are being evaluated.

RDD also conducts a census of rubber lands from time to time, most recently in 2010/11. DCS provided support for this work. Data were collected by the ARPAs from all rubber producers in Sri Lanka. Topics covered included area of rubber plantings, age, maturity, tapped/not tapped, grade produced, size of holding, use of fertilizer, and marketing channels. Results were published in the report *Census of Rubber Lands, 2010/11*.

For coconut, CDA presents statistics on area and production in its annual publication *Sri Lanka Coconut Statistics*. For area, the figure of 395000 ha under coconut from the 2002 agricultural census is still being used. This will be updated when data from the 2014 agricultural census become available. CDA has also begun work on estimating the area under coconut using satellite images from Google Maps. The lack of annual data on coconut area is a major statistical gap. The production of coconut is estimated in a similar



way to rubber; that is, exports plus local consumption plus/minus changes in stocks. Data on exports of coconut products come from Sri Lanka Customs and are converted into nut equivalent using conversion factors. The conversion factors are based on studies of manufacturers. Local consumption, which represents over 80% of total production, is estimated from data on the manufacture of coconut products. The coconut production data are of uncertain quality because data are not collected from producers, especially given the importance of domestic consumption.

Statistics on sugarcane production are collected by the Sugar Research Institute based mainly on information collected from sugar mills. No data are collected from sugar growers. The quality of data is uncertain.

#### **4.2.3 Export Agricultural Crops (EAC)**

DEA compiles statistics on the area and production of EAC. Area data are based on projecting forward the most recent agricultural census (2002) using reports from DEA's Export Agriculture Extension Officers. Production data are estimated in two parts: production for export is taken from Sri Lanka Customs data; production for the domestic market is estimated using consumption data from the most recent HIES (2012/13). The weaknesses in this methodology are acknowledged and alternative approaches need to be examined.

DCS also collects data for some EACs part of its data collection for permanent crops (see below). There are some discrepancies between the DCS and DEA figures for these crops. DCS does not publish any EAC data from DEA.

#### **4.2.4 Other seasonal crops**

DCS collects and compiles statistics each season on the area and production of about 40 other seasonal crops, called "highland crops". These include: millet, maize, sorghum, meleri, green gram, cow pea, soya bean, black gram, dhal, sesame, cardamom, groundnut, manioc, sweet potato, potato, red onion, big onion, chilli, mustard, ginger and turmeric. Data are reported in mid-March (at the end of the maha season) and mid-September (at the end of the yala season). To help in reporting this data, each ARPA (or Grama Niladhari) maintains a Highland Crop and Livestock Register, showing aggregate data on area and production of each crop for the area under his/her control (usually a GN Division). The registers record data for five years. No household data are shown. At reporting time, the registers are submitted to the DS Division, where data are transcribed to a DS Division reporting form. Only DS Division totals are shown. These forms are submitted to DCS. Data are shown on the DCS website.

MOA and DOA also have their own system for monitoring progress with other seasonal crops. This is similar to the system for rice: before the start of each season, targets are set for the area and production of the crop, and two-weekly reports are submitted by DS Divisions detailing progress in planting and harvesting based on reports from the ARPAs and AIs. Current progress is shown in DOA's monthly *Crop Forecast* report.

DCS acknowledges the weaknesses in the statistics for seasonal crops and is reviewing the methodology. This review should aim at assessing methods used for reporting area and production data in DCS and MOA/DOA, coordinating data collection between different field workers, reconciling conflicting data, and assessing data quality. Data from the agricultural census could also be useful in the estimation. The use of sampling methods could be considered, especially in using the crop cutting technique for the estimation of yield for seasonal crops. Better crop forecasting methods are needed in MOA/DOA. Validation surveys might also need to be conducted from time to time to verify the data.

DCS also does special data collections for two important crops. For potatoes, monthly production surveys are undertaken in the two main potato-growing districts of Sri Lanka: NuwaraEliya and Badulla. For big onions, an annual survey is conducted during the yala season in the three main production districts of the country: Anuradhapura, Matale and Polonnaruwa, as well as the H area of Mahaweli.

DCS also releases statistics on the area and production of cassava and sugarcane based on information from various sources.

#### 4.2.5 Permanent crops

DCS compiles annual statistics on 22 permanent crops other than the plantation crops. The crops covered are: cinnamon, coffee, cocoa, cardamom, cloves, nutmeg, areca nut, cashew, orange, lime, mango, jackfruit, breadfruit, rambutan, avocado, guava, grapes, strawberry, durian, mangosteen, dragonfruit and pears. Data are recorded in the Highland Crop and Livestock Register by the ARPAs (or the Grama Niladharis). Data are provided on the bearing and non-bearing area, as well as production. The production data are estimated based on the area, using information on yields provided periodically by technical agencies. In September each year, the registers are submitted to the DS Division, where data are transcribed to a DS Division reporting form showing DS Division totals. These forms are submitted to DCS. Data are shown on the DCS website.

DCS acknowledges the weaknesses in the methodology for permanent crops. The production estimation relies on current yield data which might not always be available. There are also similar problems to other crop collections in relation to the adequacy of methods used for reporting data, reconciling conflicting data and assessing data quality.

#### 4.3 Livestock statistics

Statistics of livestock population by type of livestock as well as livestock production are prepared annually by DCS based on data recorded in the Highland Crop and Livestock Register. No data collection as such is undertaken. Once a year (in June), ARPAs (or Grama Niladharis) submit the registers to the DS Division. Data are shown for: (i) number of livestock by type (cattle, buffaloes, pigs, goats/sheep, chickens, ducks) and purpose (e.g., milking, bulls, calves for cattle); (ii) egg production; and (iii) milk production (cattle and buffaloes separately). Egg and milk production are reported as average monthly production, based on a general assessment by the ARPAs. These data are meant to be certified by the Veterinary Surgeons. DCS livestock statistics are published on the DCS website.

DCS also compiles annual statistics on number of cattle, goats/sheep and pigs slaughtered, based on data supplied by licensed slaughter facilities. Results are shown on the DCS website. These data do not include slaughtering in the informal sector.

DAPH also collects livestock data. The data on livestock numbers are reported by VSO officials. Milk production is estimated based on data from milk collecting centres and data provided by VSOs. Egg production is estimated using data on day old chicks from layer breeding farms and export/import figures provided by animal quarantine stations. Meat production is estimated based on data from broiler breeding farms and meat consumption data. A comparison between the DCS and DAPH data is shown in Table 2.

**Table 2: Comparison of DCS and DAPH livestock data, 2012**

	DCS	DAPH
Number livestock ('000)		
Cattle	1236	1254
Buffaloes	415	467
Poultry	14039	15720
Production		
Cow milk (million litres)	238	270
Buffalo milk (million litres)	62	66
Eggs (million)	1457	2279

The livestock number data for DAPH are slightly higher than for DCS; the production data are quite different, especially for eggs. These differences should be reconciled and alternative methodologies evaluated. There are apparent weaknesses in the administrative reporting approach used by DCS and there could be other information available to help in the reporting of data. It might be better to use periodic small-scale sample surveys to measure basic production parameters (such as slaughtering rates, milk production and fertility) to help in the estimation of livestock data.

#### 4.4 Fisheries and aquaculture statistics

MFARD collects and disseminates data on marine and inland fisheries in collaboration with its associated agencies. There are three components: large pelagic fisheries, coastal fisheries, and inland fisheries/aquaculture.

MFARD/DFAR have a well established large pelagic fishery data collection based on sampling catches at major fishery harbours. Monthly and annual data on fish production by species are compiled based on FAO and the Indian Ocean Tuna Commission guidelines. The Commission is providing support for improving the data collection methodology. The data collection is carried out by Fishery Inspectors of DFAR, NARA staff, and harbour officers of CFHC. A scientific sampling method is used, based on stratified random sampling with strata determined on the basis of landing point, size and category of craft/gear, location of fishing ground, season, and species. Data are collected on the number of boats landing and the catch for each major large pelagic variety classified according to craft-gear combination, craft type and size categories. Production data are generally accurate since the catch is usually weighed and recorded prior to sale. Sometimes, the fish are not weighed and eye estimation is necessary. The methodology is currently being revised with the introduction of a logbook system for recording of fish catches. At the end of each fishing trip, the fishing vessel will be required to submit the logbook to DFAR. The system is not yet fully operational and fishers may not always fill out the logbooks correctly.

Coastal fisheries contribute more than 60 percent of the nation's fish production. Data collection is difficult because of the large number of landing sites and the many different species of fish caught. There is no systematic system for the collection of data for coastal fisheries. DFAR compiles the fish production statistics for coastal fisheries based on reports from regional offices. This is a significant data weakness.

NAQDA undertakes a catch assessment survey for inland fisheries and aquaculture. Data are collected by NAQDA's Aquaculture Extension Officers with support from inland fisheries organizations. In perennial reservoirs, logbooks are used to record daily catch data from landing sites. About 300 landing sites are covered by the collection. Other landing sites are known but are not included because of lack of data collection staff. Also, unauthorized catches are not covered. In seasonal tanks, data are collected during the harvesting period.

Some gaps in fisheries statistics include:

- There are no reliable data for coastal fisheries or for the economic and social status of fishers.
- Ornamental fish production, which is becoming increasingly important, is not covered in the collection of statistics.
- There are no cost of production data. A survey was to be conducted in 2014, but no funds were available.
- There are no data on post-harvest losses.
- The current data collection system does not provide the information necessary to compile the national accounts statistics.

#### 4.5 Forestry statistics

There are only limited forestry statistics in Sri Lanka.

STC maintains a good statistical system on the production and trade of wood products in which it is involved. Records are kept on each tree felled including species, height and girth. Registers are also maintained on the end-products of the felled trees, including logs, fuelwood, etc. STC prepares monthly statistics on the production and sale of logs, sawn timber and other wood products. These are not widely disseminated.

Plantation companies also maintain production records for forestry activities in the plantation estate sector. This is in a similar format to STC. The information is submitted to MPI and some limited information is given in MPI's annual statistical reports.

No statistical system exists for measuring timber production from home gardens or private land, or for illicit felling of trees. This is a major data gap for the national accounts statistics, especially given the importance of firewood as a source of cooking fuel. HIES provides some information on the use of firewood as cooking fuel and from where the firewood was collected.

Sri Lanka Customs maintains statistics on the quantity and value of wood and wood based products exported and imported. The results are published in annual reports of Sri Lanka Customs.

The only forest production data published by DCS is that supplied by STC. In its *Statistical Abstract*, DCS shows production figures for: peeler logs, other logs, ebony logs, sawn timber, railway sleepers, electricity poles and firewood. The Forest Department does not maintain records on timber production, apart from the information needed to calculate stumpage charged to STC for timber removal. STC data are shown in the Forest Department's annual reports.

## 4.6 Agricultural markets and prices statistics

There are various agricultural price collection activities in Sri Lanka.

DCS collects weekly and monthly prices of consumer goods and services from 14 centres in Colombo District for the purpose of compiling the monthly Colombo Consumer Price Index. The index is based on weighting derived from the 2006/07 HIES. Data are issued before the end of the current month. DCS also releases weekly data on retail prices for selected commodities. DCS also collects retail prices weekly, monthly and quarterly from all other district towns. Data are released from time to time but no nation-wide consumer price index is constructed. DCS also collects producer prices for selected agricultural and livestock products through regular monthly price collections at three producing centres in each DS Division. Data are released irregularly. DCS does not compile a Producer Price Index, but has started work on developing this index.

HARTI collects a range of price data daily, weekly and monthly through a network of price collectors around the country. Retail prices are collected from 39 retail markets in selected towns; wholesale prices are collected from 20-25 wholesale points in producing areas; and farm-gate prices are collected from farmers and millers in producing areas. Retail and wholesale price data show rice by type, selected other food crops, selected fruit, fish, meat and eggs. Farm-gate prices are shown for rice by type and selected other crops. Data are published in HARTI's *Weekly Food Commodities Bulletin*. Weekly and daily data are also shown on the HARTI website.

The Central Bank of Sri Lanka collects data on retail prices of consumer goods, producer prices of agricultural commodities, and wage rates for the informal sector (including agriculture). Data are collected through an island-wide network of government school teachers. Price data are collected weekly, monthly or quarterly depending on price volatility. Wage data are collected daily for paddy, coconut, rubber and tea cultivation. A monthly Wholesale Price Index is compiled, based on 1974 weights. The Bank's price information is disseminated electronically and through its publications, such as monthly bulletins, annual reports, and other economic reports. The information is widely used in the Central Bank and by other researchers. Once DCS starts to publish its Producer Price Index, the Central Bank might discontinue compiling the Wholesale Price Index.

Other price data collected include:

- The Sri Lanka Tea Board collects weekly tea prices at the Colombo tea auction, which is the main market for tea in Sri Lanka. It also compiles data on monthly prices paid to smallholders for green tea.
- RDD collects monthly price data from the Colombo rubber auction.
- CDA collects daily and weekly data on the local market price of different coconut products, as well as auction prices. Daily and weekly price reports are issued.
- DEA collects weekly data on farm-gate prices and auction prices for EAC. Data are shown on its website.

- MFARD and its associated agencies collect various price data for fish products, including prices received at landing sites and wholesale/consumer prices from the Colombo market.
- DAPH collects data on the price of animals and livestock products.

There appears to be some duplication in agricultural price collection activities. The various price collections should be fully documented to better understand the range of price data available, the data gaps, and the opportunities for rationalizing the collection activity.

#### **4.7 Water and environment statistics**

The Irrigation Department and the Mahaweli Authority of Sri Lanka maintain records of irrigation schemes under their control, including water delivery. These data are not readily available. Informal irrigation is not included.

A number of agencies have responsibilities in the field of water management including the Ministry of Irrigation and Water Resources Management, the Ministry of Environment and Renewable Energy, and (for agriculture) MOA. With respect to minor irrigation reservoirs, the responsibility for water management and other work lies with DAD. There is some anecdotal information on water quality from the Central Environment Authority of the Ministry of Environment and Renewable Energy, but there is no systematic collection of these data.

Sri Lanka is required to report five-yearly under its international climate change agreements. Its Second National Communication on Climate Change reported on studies on greenhouse gas emissions from agriculture (Ministry of Environment and Renewable Energy, 2011).

Soil degradation is widespread in Sri Lanka. Information on land degradation is available from international sources, such as the World Data Centre for Soils. DOA through its Natural Resources Management Centre is responsible for monitoring soil degradation. It has done a study in Central Province and is planning other studies.

#### **4.8 Rural development statistics**

Rural development statistics are available from various sources. The ten-yearly census of population and housing provides data on housing conditions and access to services such as water, electricity and communication facilities. Data on roads and railways are available from the relevant transport authorities. Data on the area equipped for irrigation are available from the relevant irrigation authorities.

#### **4.9 Food security and nutrition statistics**

The three-yearly HIES and annual food balance sheet provide information to help in the measurement of the prevalence of undernourishment. A number of nutrition and food security surveys have also been undertaken.

#### **4.10 Other agricultural statistics**

##### ***Cost of production surveys***

Each year, DCS undertakes a cost of production survey for tea, in collaboration with the Sri Lanka Tea Board. Information is collected from a selection of tea factories registered with the Sri Lanka Tea Board, as well as a sample of smallholdings. Data are provided on the cost of production per kg by component of cost (general, labour, up-keep/cultivation, manufacturing and marketing). Results are published on the DCS website.

DCS also undertakes annual cost of production surveys for rubber, in collaboration with RDD. Data are provided on the cost of production per kg by component of cost (labour, materials, tapping/collecting, maintenance, factory expenses and marketing). Results are published on the DCS website.

Cost of production surveys for coconut are undertaken annually by DCS, in collaboration with CDA. Data are provided on the cost of production per thousand nuts by component of cost (general, building/equipment, transport, services, upkeep/maintenance, cultivation and crop works). Results are published on the DCS website.

DOA carries out cost of production surveys for rice each season, based on a sample of about 200 rice farmers across seven districts. Data are collected on the costs of cultivation under three headings: labour, power and materials. Results are presented as costs of cultivation per acre separately for irrigated and rain-fed rice. DOA also conducts cost of production surveys for other crops in selected areas. About 200 crop producers are taken for each survey. Surveys are usually done each season. The crops covered are: potato, kurakkan, maize, black gram, cow pea, green gram, chilli, red onion, sesame, groundnut, eggplant, pumpkin, mukunuwenna, cabbage, capsicum, carrot, bean and tomato. Results are shown as cost of cultivation per acre under three headings: labour, machinery and inputs. Cost of production per unit of output is also given. Results of DOA's cost of production surveys are shown in its publication *Cost of Cultivation of Agricultural Crops*.

Other cost of production surveys are:

- DEA does cost of production surveys for each EAC every two to three years.
- The Sugar Research Institute collects cost of production data for sugar producers annually.
- MLRCD/DAPH conduct annual cost of production surveys for different types of livestock products including meat, milk, and eggs.

Cost of production statistics are important for the compilation of national accounts statistics, especially given the additional data requirements for the new national accounting methodology (see below). The existing surveys should be evaluated, focusing on the statistical concepts used, the form of presentation of data, changes needed to meet additional data needs, and the need for an integrated approach to the conduct of the surveys. There is also a need for cost of production information for fisheries.

### ***National accounts***

DCS has responsibility for compiling the national accounts of Sri Lanka quarterly and annually based on the System of National Accounts (SNA). Annual accounts are prepared using the production, expenditure and income approaches, while the quarterly accounts are compiled using the production approach. The aim is to publish quarterly results 75 days after the end of the quarter and preliminary annual results in March. The final national accounts for 2012 were published in September 2013.

The data needed to compile the national accounts statistics are obtained from DCS collections, as well as from the Central Bank of Sri Lanka, Sri Lanka Customs, other government agencies, and private organizations. A summary of the data sources currently used for the agricultural sector is shown in Annex III. There are serious weaknesses in some data and these need to be addressed. In preparing the national accounts, it is necessary to make assumptions on input ratios and other factors. These need to be updated.

Currently, the national accounts are based on SNA 1968 and SNA 1993. Work on rebasing the national accounts to 2010 using SNA 2008 is under way and it is expected that data on the new basis will be released for the first time for the 2014 annual figures, due to be released in 2015. It is expected that new methodologies will be introduced for the agricultural sector using SNA's "work-in-progress" approach to estimate agricultural production by quarter. This will require cost of production data on a quarterly or even monthly basis. This information is not currently available from existing cost of production surveys. With the rebase in progress, it is a good time to evaluate cost of production surveys to meet these needs.

### ***Food balance sheet***

DCS prepares the food balance sheet annually, based on FAO guidelines. Results are published in

printed form and on the DCS website. The quality of the food balance sheet is likely to be affected by weaknesses in data on food stocks, post-harvest losses and non-food use of crops.

### ***Volume Index of Agricultural and Livestock Production***

DCS produces this index annually for ten types of products: tea, rubber, coconut, rice, coarse grains, other food crops, vegetables, fruit, livestock/livestock products and EAC. The indexes are shown on the DCS website. This index might be adaptable to provide a useful input to national accounts.

### ***Trade statistics***

Data on imports and exports are collected by Sri Lanka Customs. Using these data, DCS compiles annual statistics of: (i) imports by value, country of origin and major groups such as consumer goods, intermediate goods and investment goods; and (ii) exports by value, country of destination and major commodities such as tea, rubber, coconut products, etc.

### ***Labour force survey(LFS)***

LFS is a household survey designed to measure trends in the labour force, including employment and unemployment. It is an annual survey of about 25 000 households, with data collection spread across the whole year. The sample is selected independently each year. The survey has been conducted since 1990 and provides national level estimates quarterly and district level estimates annually. The latest available results (at December 2013) are for the second quarter 2013 which were released in December 2013. Annual results for 2012 were issued in September 2013.

Of particular importance to agriculture is the LFS employment data classified by industry group (31% in agriculture in 2012). The survey also provides the breakup by 2-digit industry code, showing agricultural employment according to seasonal crops, permanent crops, floriculture, livestock, forestry and fisheries.

### ***Household income and expenditure survey(HIES)***

HIES is conducted every three years to collect data on demography, education, health, household income, household expenditure, ownership of durable goods, access to basic facilities, household debt, housing, sanitation, natural disasters, and ownership of land and livestock. The latest survey was in 2012/13 and preliminary results were issued in June 2013. The 2012/13 survey included a supplementary component to compute a Social Protection Index measuring the impact of current social security programmes.

### ***Food stocks***

Currently there are no data on food stocks, especially rice. Household survey methodology could be used to provide data on household food stocks. Data on food stocks held by rice millers and traders would be difficult to collect.

### ***Land use***

A land use map for 1996 is available from the Survey Department. This shows the land under major crops (such as rice, tea, rubber and coconut), home gardens, grazing land and forest land. Work is under way on updating this map and it is expected to be completed by 2016. Data on agricultural land use will also be available from the forthcoming agricultural census.

### ***Agro-processing statistics***

Statistics on processing of crops are available from the Institute of Post-Harvest Technology under MOA. Statistics on processing of livestock and fishery products are available from MLRCD and MFARD. No

systematic system is in place to collect these data.

#### **4.11 Data dissemination**

To help in the timely and systematic release of statistical information in DCS, a data release calendar is shown on the DCS website. This sets out the expected date of release of statistics as either printed reports or on the DCS website. The stated aim is to make data available to all parties at the same time. The data release calendar for agricultural statistics for 2012 and 2013 is given in Annex IV. The timetable for data release was not always achieved.

Most agricultural data releases are done through the DCS website. According to the data release calendar, the only regular printed agricultural statistics reports are:

- Paddy Statistics, MahaSeason, Final Data.
- Paddy Statistics, Yala Season, Final Data.
- Food Balance Sheet.
- Highland Crop Statistics, Maha Season.
- Highland Crop Statistics, Yala Season.
- Extent and Production of Big Onions.

Agricultural statistics are shown on the DCS web site under several headings: rice statistics; tea, rubber and coconut; livestock; cost of production; food balance sheet; livestock statistics; fisheries and aquatic resources; agricultural indexes; and the 2002 agricultural census.



## CHAPTER 5

### INTEGRATION OF AGRICULTURAL STATISTICS INTO THE NATIONAL STATISTICS SYSTEM

#### 5.1 Extent of integration in agricultural data collections

Integration of agricultural statistics in the national statistics system is an important pillar of the Global Strategy. Integration is expected to be achieved through development of a master sample frame to be used for all agricultural data collections. The conceptual framework of the master sample frame requires defining the statistical units (agricultural holdings, land parcels and households) and linking these units through a geographic information system (GIS). It enables coordinated data collection using standard concepts, definitions and classifications across sectors/subsectors as well as across economic, social and environmental dimensions. This eliminates duplication, avoids conflicting statistics, and ensures optimum use of resources.

##### 5.1.1 Use of standard concepts and definitions

As the national statistical office in a centralized statistical system, DCS has a key role to play in ensuring the use of standard concepts, definitions and classifications.

The national accounts are based on SNA and are currently being rebased and updated using SNA 2008. The production accounts are based on the International Standard Industrial Classification of Economic Activities (ISIC); general government expenditure is based on the Classification of the Functions of Government (COFOG); and private consumption expenditure is based on the Classification of Individual Consumption by Purpose (COICOP).

All DCS censuses and surveys are undertaken according to international standards and provide the basis for general application of standard concepts, definitions and classifications throughout all statistical work. The census of population and housing provides a definition of the household unit. Labour force data are based on International Labour Organization (ILO) standards and use the latest International Standard Classification of Occupations (ISCO 1988) and the latest ISIC (1990). Classifications are also provided for educational attainment. The census of population and housing also divides the country into urban, rural and estate sectors. The urban sector comprises all municipal and urban council areas. The estate sector represents plantations of 20 acres (8.1 ha) or more containing 10 or more resident labourers. The rest of the areas are treated as rural. About 80 percent of the population of Sri Lanka live in rural areas and a further 5 percent live on estates. All census data can be classified by urban/estate/rural and this provides a suitable standard for all other statistics. The agricultural census is based on FAO guidelines and this provides definitions and concepts for key agricultural statistics – such as agricultural holdings, size of holding and land use – which can be applied in agricultural statistics generally.

The presence of DCS branches in all key ministries and agencies also helps to ensure that DCS statistical standards are employed in all statistical work.

##### 5.1.2 Frames for the collection of agricultural statistics

The census of population and housing in 2012 was conducted by dividing the country into about 70 000 census blocks. There were an average of five blocks in each GN Division, with each block consisting of approximately 150 housing units for rural areas and approximately 200 housing units for urban areas. Each block provided a suitable workload for a census enumerator. GN Division maps were prepared by the Cartography Division of DCS based on maps provided by the Survey Department. Enumerators visited the field prior to the census to delineate blocks using these maps.

During the household listing phase of the census, enumerators travelled around each block, listing each housing unit and household. Information was also collected on two items of relevance to agriculture: first, whether any household member was engaged in crop and livestock production activities (this more or

less equates to the agricultural census concept of agricultural holding); and (ii) whether any household member was engaged in fisheries activities. This information was included to help in planning for the agricultural census. Following the listing, a computerized master block register was created, containing identification information for each block, as well as information on the number of crop/livestock and fisheries households. This frame will be used for conducting all household surveys in Sri Lanka, including LFS and HIES.

In Sri Lanka, an agricultural census is normally conducted soon after the census of population and housing, making use of available census blocks, household lists and other field materials. This practice is being followed for the current agricultural census in 2014. Using the population/housing census household lists as a base, enumerators will travel around each block to prepare an up-to-date list of households. Household identification numbers will be retained where possible, which will facilitate the linking of data between the censuses. During the household listing, information will also be recorded on the household's crop, livestock and aquaculture activities and the area of land operated. This will provide the basis for identifying the agricultural holding unit for the agricultural census. For households operating less than 40 perches (about 1 000 square metres) of land, some basic data on crop, livestock and aquaculture will be recorded on the household listing form. For those households with more than 40 perches of land, detailed information will be collected using the main census questionnaire. A separate frame has been prepared to cover the estate sector.

For seasonal rice statistics, the list of rice farmers available in the ASCs provides the frame for the collection of these data. It is not clear how the lists are compiled, whether they are kept up-to-date and how they are linked to data from the agricultural census. This should be examined. No formal frames exist for other regular DCS crop and livestock collections as the data are based mainly on administrative reporting.

The use of remote sensing for agricultural statistics in Sri Lanka is at an early stage. In 1998, DOA undertook a study of the use of remote sensing for monitoring and forecasting of the rice crop in one DS Division. The results were positive. An international study to map rice areas in South and South-east Asia was conducted in 2005. The use of remote sensing is a promising area for further work in Sri Lanka.

### **5.1.3 Use of GIS for mapping agricultural statistics**

The administrative units in Sri Lanka are geographically well-defined down to the DS Division level. At the GN Division level, the boundaries are often not clearly defined. The Cartography Division of DCS delineates GN Divisions as best it can for the DCS census work. The Survey Department is currently working on properly defining all the GN Divisions in the country.

There is a coding system for administrative units down to the GN Division consisting of province (1 digit), district (1 digit), DS Division (2 digits) and GN Division (3 digits). For census purposes, each block is numbered sequentially within the GN Division. The coding system is not universally used in Sri Lanka but it is used in statistical activities in DCS and by the Survey Department in its mapping work. The Survey Department has GIS coordinates down to the GN Division level linked to this coding system, which facilitates statistical mapping work. The coordinates have recently been updated in some northern areas; it is expected that updating nation-wide will be completed by 2016.

Little has been done so far on mapping of agricultural statistics. The availability of up-to-date GIS coordinates down to the GN Division level will make this feasible for the agricultural census and other agricultural statistics in the future.

### **5.1.4 Master sample frame for agriculture**

To undertake a sample survey, first one needs to clearly define which units are to be covered by the survey. A sample frame must then be prepared. A sample frame is a list of units from which the sample is to be selected. This list must provide a complete and up-to-date list of units, without omissions or duplications.

A sample frame could be a list of all units from which data are to be collected in the survey – for example, a list of rice farmers for a rice production survey. Often, such lists are not available and it is necessary to select the sample in stages; for example, in a household survey, a list of geographic units (such

as blocks) could be selected first, and then a sample of households taken from each sample block. Here, a frame is required at each stage of sample selection; that is, a list of blocks for the selection of a sample of blocks, and then lists of households within sample blocks for the selection of the sample of households.

Rather than undertaking each census and survey independently using its own frame, it is better if a single frame – the so-called “master sample frame” – is used for all censuses and surveys. The main advantage of a master sample frame is that data from the various collections can be linked, thus avoiding duplication in data collection and preventing conflicting statistics. It also provides for the use of standard concepts, definitions and classifications in all statistical work and ensures that data collection resources are used efficiently. Also, sample designs can be integrated to allow more systematic data collection and to enhance the use and analysis of the data.

Currently, there is no master sample frame for agricultural statistics in Sri Lanka. Each collection is undertaken as a stand-alone activity and there are no links between the agricultural census and the various agricultural surveys. To fully integrate all elements of agricultural statistics in Sri Lanka will be difficult given the various data collection activities across a range of agencies. However, the basic elements for the construction of a master sample frame for agriculture exist in Sri Lanka, with the availability of GIS coordinates, the use of household and agricultural holding concepts as the basic statistical units in censuses, the possibility of linking data from different censuses, and the definition of blocks for conducting censuses. This provides a good starting point. The role of DCS as the centralized statistical agency is also a positive factor.

There are three main approaches to constructing a master sample frame for agriculture. First, some countries maintain a register of farms or agricultural holdings. In Sri Lanka, a list of agricultural holdings is prepared at the time of the agricultural census, but it would be difficult to keep this up-to-date for the ten-year period until the following census. Second is the area sample frame approach, where maps showing land use are prepared covering the whole country, based on satellite images and information from other sources. Surveys are done by selecting sample areas from the map and collecting data in respect of the agricultural activities within those sample areas. Establishing an area sample frame is costly and time-consuming and may not be suitable for Sri Lanka at this time. The third and most common approach is to develop a frame based on the census blocks. It is expected that this will be the basic approach used in Sri Lanka. Under this approach, a database of census blocks is prepared showing key population and agricultural census data for each block. Surveys are conducted by selecting samples of blocks and enumerating units in those sample blocks. Such frames are cheap and easy to construct, especially if censuses are well implemented, as in Sri Lanka.

It is envisaged that the master sample frame for agriculture will be based on the master block register used in the current population/housing and agricultural censuses. The database will include identification information for each block, including the codes defining the province/district/DS Division/GN Division and whether it is urban or rural. It could also eventually contain information on GIS coordinates at the GN Division level. The database should also contain basic census information about each block, such as: the number of households and population (from the census of population and housing); and the number of agricultural holdings, area of holdings, number of growers for each crop, area of each crop planted, and number of livestock by type (from the agricultural census). The only updating needed for the block frame would be to account for changes to administrative boundaries. The data on the frame is only used to help the sample design and selection for the surveys and would not need to be updated.

In some important areas, registers of units may be established and maintained for use in ongoing surveys. For rice, the agricultural census could be used to prepare lists of rice farms which could be regularly updated based on information available from the field. This would be used for all rice surveys undertaken by DCS, MOA/DOA and other agencies. The feasibility of this approach needs to be evaluated, especially in reference to how to update the frame and ensuring the necessary links are provided to the block master sample frame.

Registers should also be maintained for plantation companies and other agricultural enterprises as a component of the master sample frame. The registers will be based on the lists prepared for the agricultural census and will be used by MPI and others in the collection of data for this sector. This will help in integrating the statistical activities of line agencies into the mainstream agricultural statistics system.

Consideration needs to be given to integration and master sample frame issues for fisheries and forestry statistics. Data on fish capture is collected from landing sites and these data need to be linked to other fishery related information at the household level.

Another element of master sample frames is providing the facility to link household and agricultural holding data to land use data provided by satellite imagery. This needs to be examined.

#### **5.1.5 Existence of integrated databases**

No integrated database of agricultural statistics is available in Sri Lanka.

### **5.2 Duplication in data collection**

As already pointed out, DCS as the national statistics office plays a positive role in ensuring that statistical activities are coordinated. However, there is some duplication. MOA/DOA justifies the need for its own data collections on the basis that it needs regular data for its own management purposes. However, some data collected overlap with DCS data and there are sometimes inconsistencies. Similarly, livestock data collected by DCS and DAPH are sometimes inconsistent, partly because the methodology is different. In these instances, the main issue is the need to coordinate data collection activities at the field level to ensure that field staff are not providing conflicting data. The proposal for monthly meetings of field staff is a step in the right direction. This process needs to be further developed. Steps also need to be taken to ensure uniformity of concepts, definitions and methodology.

Various agencies are engaged in price collection activities and there appears to be some overlap. This should be reviewed.

### **5.3 Scope for building synergies and partnerships**

There is general support in the country for the centralized statistical system and the role DCS plays in the collection and dissemination of official national statistics. DCS has put in place sound procedures to implement the various elements of the agricultural statistics system, which are well-understood and accepted by the various agencies. MOA and DAPH acknowledge DCS' role in providing official crop and livestock statistics and is positive about cooperating with DCS to improve the quality and timeliness of the statistics, and to better coordinate statistical activities. DCS has assigned the collection of official statistics on plantation crops, EAC, fisheries and forestry to line ministries and, generally, this works well. The presence of DCS outposted staff in all key agencies is helpful in ensuring that all parties are moving in the same direction.

There is a general acceptance in DCS and elsewhere that there are weaknesses in the agricultural statistics and that these are hampering efforts at sound decision making. There is strong support for the Global Strategy work and a commitment to working closely with other agencies to ensure that the aims of the Global Strategy are met.

## CHAPTER 6

### MINIMUM SET OF CORE DATA

#### 6.1 Global Strategy core items

The Global Strategy defines a minimum set of internationally comparable core agricultural data that countries should provide to enable international comparisons to be made. The core items are identified based on their importance to global agricultural production and to measuring progress towards meeting the MDGs. As mentioned earlier, agriculture includes crops, livestock, fisheries and forestry.

For Global Strategy purposes, the core data are defined as only the most important crops and livestock. Only eight crops – wheat, maize, barley, sorghum, rice, sugar cane, soya beans and cotton – are included, as these account for the majority of agricultural land use and food supply around the world. Only five livestock types – cattle, sheep, pigs, goats and poultry – are included. The Global Strategy envisages that each country will select which core items are appropriate to include in its agricultural statistics system based on its agricultural situation. In Sri Lanka, only rice, maize and sugar cane out of the eight core crops are important. The livestock of importance in Sri Lanka are cattle, pigs, goats and poultry. The core items are the minimum data required for international comparisons, and the Global Strategy recommends that they be given priority in developing national agricultural statistics systems.

However, it is recognized that the core data will not meet all national data requirements and each country needs to collect additional non-core data to meet its needs. In Sri Lanka, there are many important non-core crops including rubber, tea and coconut, as well as EAC and vegetables. The agricultural statistics system in Sri Lanka also needs to cover these items.

The Global Strategy core items cover the economic, social and environmental dimensions of agriculture:

- The economic dimension includes agricultural production, international trade, food stocks, stock of resources, inputs, agro-processing, prices, investment, infrastructure and international funding.
- The social dimension includes the demographic, employment, housing and income characteristics of the rural population.
- The environmental dimension covers the impact of agriculture on the environment, including measures of soil degradation, water pollution and agricultural emissions.

The Global Strategy recognizes that data are required with different frequencies. Prices data are needed daily, weekly or monthly. Crop production data are needed seasonally or annually. Livestock, fisheries and forestry production data are also needed annually, as are trade data. Other data are needed less frequently; for example, demographic characteristics do not change quickly over time and therefore decennial data from the census of population and housing might be sufficient.

The minimum set of core data for Sri Lanka is shown in Annex V, together with the proposed frequency of data collection.

#### 6.2 Other data needs

The starting point in designing an agricultural statistics system for a country is to understand the users and uses of the statistics. Agricultural statistics have many uses. Governments are the primary user and they need statistics to monitor the performance of the agricultural sector, make policy decisions and plan development programmes. Other users include international organizations, research institutes and the farmers themselves.

The best guide to data needs in Sri Lanka comes from the list of indicators provided by the National Data Committee. The Committee has prepared a draft list of 79 indicators for the agricultural sector (see Annex VI). For each indicator, the concepts, definitions, classifications, data collection agency, data collection methodology, level of disaggregation required, and data collection frequency have been documented. The list of items is comprehensive and covers most of the Global Strategy core items.

The items are listed under nine headings:

- Agriculture and rural development (15 indicators A1-A15).
- Livestock (14 indicators B1-B14).
- Fisheries (10 indicators B15-B24).
- Agri-business (8 indicators B25-B32).
- Agricultural research and extension (6 indicators B33-B38).
- Forestry (9 indicators B39-B47).
- Rural finance (6 indicators B48-B53).
- Land policy and administration (3 indicators C1-C3).
- Export of agricultural products (8 indicators E1-E8).

National development plans also provide a good guide to the most important data needs. The *Mahinda Chintana* development plan was formulated using a results-based approach. Indicators have been identified to help in monitoring and evaluating progress. These are summarized in Annex VII. They include most of the Global Strategy core data items as well some indicators specific to development objectives, such as the number of orchards established.

The main indicators used to monitor FAO's CPF are shown in Annex VIII. These cover some of the Global Strategy core items but are mainly focused on FAO's priority areas for development, such as farm size and land tenure.

## CHAPTER 7

### RESOURCES AVAILABLE FOR AGRICULTURAL STATISTICS

#### 7.1 Financial resources

Most of the expenditure on statistics in Sri Lanka is borne by the government. DCS receives a budget for carrying out its statistical activities. There is a separate budget line for agricultural statistics in DCS, but this does not include costs of data collection. In line ministries, there is no separate budget specifically for statistical work – the budget is subsumed in the overall work plans of the ministries.

#### 7.2 Human resources

In DCS, AED is responsible for statistics on agriculture and the environment. Currently, AED's main activities are:

- preparing for the agricultural census;
- compiling livestock statistics;
- preparing livestock slaughter statistics based on data provided by licensed slaughterhouses;
- preparing rice area statistics;
- overseeing the rice crop cutting surveys, processing the data and preparing the results;
- preparing results of the surveys for potatoes and big onions;
- preparing highland crop statistics;
- preparing the food balance sheet;
- preparing agricultural and livestock production indexes; and
- preparing results for the cost of production surveys for tea, rubber and coconut.

There are currently 37 staff in AED as shown in Figure 1. Their qualifications are also shown. There are 20 staff-level officers, 7 junior professional staff and 10 support staff. Most of the 27 professional staff have tertiary qualifications – all from local institutions. The DCS outposted staff in MOA, DOA, MPI, RDD, DEA, MLRCD, DAPH, Ministry of Environment and Renewable Energy, and MFARD are usually at the Senior Statistician or Statistician level and have tertiary qualifications.

There are some limited in-house training opportunities for statistical staff in DCS. Staff may be given the opportunity to do a nine-month Diploma in Statistics course, which may help in further promotion. The Statistical Training Division of DCS also provides training for staff across DCS, including AED and the outposted officers. One to two week training courses are held on subjects such as the use of Microsoft Office, statistical analysis software (SPSS) and statistical mapping software (Arc-GIS). Most AED staff are familiar with Microsoft Word and Microsoft Excel but have not worked with the Microsoft Office database package, Microsoft Access. Several AED staff have been trained in and have work experience with SPSS. The census/survey processing package, CPro, is used in DCS but no AED staff are able to use this software. Scanning will be used for data entry for the forthcoming agricultural census and staff in AED and in the districts will be trained in the use of these facilities. Few AED staff have had the opportunity of participating in training abroad.

The Statistical Training Division of DCS also provides some training for new recruits to DCS. It also undertakes awareness programmes on DCS activities and statistics for administrative officers of the government service.

**Figure 1: Agriculture and Environment Division of DCS, staffing**

Designation	No. of staff	Qualifications
<b>STAFF GRADE</b>		
Director	1	B.Sc. Mathematics (4 year degree) and Diplomas in Social Statistics, Population/Sustainable Development and Labour Relations.
Deputy Director	1	B.A.(4 year degree) in Economics; Post Graduate Diploma in English.
Senior Statistician	4	One has B.A. (4 year degree) in Economics and Post Graduate Diploma in Education;two have a B.A. (4 year degree) in Economics; one has a B.A. (4 year degree) in Social Statistics.
Statistician	1	G.C.E. (Advanced level )
Statistical Officer	13	Various qualifications: B.Sc. (6); B.A. (3); G.S.Q. <sup>1</sup> (2); Advanced level school (2).
<b>JUNIOR PROFESSIONAL STAFF</b>		
Statistical Assistant	1	B.Sc.
Development Officer	6	Four have a B.B.A. <sup>2</sup> (4 year course); two have a B.A. (4 year degree).
<b>SUPPORT STAFF</b>		
Data processing operators	3	Two have B.Com; one has advanced level school.
Various support staff	7	Three have advanced level school; four have ordinary level school.

1. G.S.Q is a non-graduate university course. 2. B.B.A. = Bachelor of Business Administration.

The District Statistical Office is headed by a staff grade officer, usually at the Deputy Director/Senior Statistician/Statistician level. There are also various junior DCS support staff in the districts. DCS staff at the DS Division level are usually at the Statistical Officer or Statistical Assistant level.

As mentioned before, the key field staff for the collection of agricultural statistics for DCS and other agencies are the ARPAs. The ARPAs' data collection workload is large: according to the procedures given, they are required to visit each rice farmer at least once a month, as well as collect bi-annual data on a range of other crops, annual data on permanent crops and annual data on livestock production. This is in addition to working as enumerators for special censuses/surveys such as the agricultural census, as well as their ongoing ASC fieldwork such as distributing inputs. This workload may be excessive and it is likely that data collection procedures are not always followed.

The ARPAs usually have G.C.E. Ordinary level school qualifications and are given training by the ASC prior to their appointment. New recruits will be expected to have better than G.C.E. Ordinary level qualifications. The ARPAs are usually not agricultural specialists and are not in a position to provide extension advice to farmers. DCS provides training to ARPAs for particular data collection tasks. The skill level of the ARPAs is variable: some have good computer skills; others have had no computer experience.

## **7.3 Use of information and communication technology**

### **7.3.1 Data collection**

DCS conducts all censuses and surveys in the country using paper-based methods. The improvement in communication facilities in the country opens up possibilities for more efficient data collection methods. The use of hand-held devices, such as tablet computers, personal digital assistants, and global positioning system (GPS) units could greatly improve the data collection efficiency. Electronic transfer of data using the Internet could further improve the efficiency and timeliness of statistical operations.



### 7.3.2 Data processing

Good information technology facilities are available in DCS headquarters. In AED, each staff member has a computer on their desk. The computers are linked to a server and many are connected to the Internet. Computer facilities are also good in DCS district offices. However, DCS staff in DS Divisions do not have ready access to computers. Data collection staff, especially the ARPAs, also do not have access to computers.

Computer processing of the main ongoing agricultural data collections in AED is done as follows:

- Rice area survey. Village summaries are submitted to AED four times a year: at the beginning and end of the maha season and at the beginning and end of the yala season. Each time, AED staff create duplicate forms before returning the original forms to the field for further data collection. AED enters the data into the computer using a specially developed computer processing system for rice statistics.
- Rice production survey. The original household level questionnaires are returned to AED, where they are entered into the computer using the computer processing system for rice statistics.
- Seasonal crops statistics. DS Divisions submit reporting forms to AED where data are entered into a Microsoft Excel spreadsheet for further processing.
- Permanent crops statistics. These are processed in the same way as the seasonal crops statistics.
- Annual livestock statistics. These are also processed in the same way as the seasonal crops statistics.

One weakness is that, apart from the rice production survey, all data are submitted in aggregate form as village or DS Division totals. It would be better if household level data were provided. This would provide the opportunity for more in-depth data analysis and would help in conducting validation surveys to check data quality. The need for this information should be considered as part of a review of the data collection methodology, reporting forms, and data transmission methods. The use of electronic methods of data transmission might help in this regard. It would also help to speed up the data processing and enable a timelier release of data. The use of database or survey processing software such as Microsoft Access, CSPro or SPSS should also be considered.

The processing of the forthcoming agricultural census represents a step forward for AED and could provide the basis for improving processing of its ongoing collections. The census data entry will be done by scanning questionnaires in the district offices. The questionnaires have been designed to meet this requirement. Scanning machines have been purchased for each district office, and work has started on installation of the equipment and training of district staff in carrying out the scanning operation. District data will be sent to DCS headquarters on CDROM for further processing using CSPro.

### 7.3.3 Data dissemination

DCS publishes statistics on its website. There is potential to improve this website by providing a wider range of more up-to-date statistics.

## 7.4 Physical infrastructure

### 7.4.1 Communication infrastructure

In Sri Lanka, there are about three million telephone landlines and over 20 million mobile phones in use – that is, about one mobile phone per person. Most people in the country now own a mobile phone and the mobile phone service is good, even in rural and remote areas. This opens up possibilities for more timely and efficient data collection methods. For example, ARPAs might be able to do some of their data collection from farmers by phone, especially if sampling methods are used. Also, the ARPAs might be better able to coordinate the crop cutting work by staying in close phone contact with the farmers.

Internet use is still quite low in Sri Lanka, with only 10-20 percent of the population being Internet users. However, broadband Internet services are widely available around the country and opportunities exist for DCS and other data collecting agencies to streamline the data reporting process through electronic transfer of data – for example, from the district or even the DS Division.

#### **7.4.2 Accommodation of agricultural statistics personnel**

The Head Office of DCS is currently located in several rented buildings in and around Colombo. AED is located in Galle Road near the centre of Colombo. The space available to AED is ample but it is some distance from some other divisions, especially National Accounts, Prices and Wages, and Sample Surveys Divisions. Work is under way on the construction of a building to house all divisions of DCS. It is expected to be completed in 2014.

District statistical staff are housed in the offices of the District Secretariat. Statistical staff at the DS Division level are housed in the office of the Divisional Secretariat. ARPAs are required to spend most of their time working with farmers in the GN Divisions, but are not provided with an office.

#### **7.4.3 Transport facilities for data collection**

The road network in Sri Lanka is quite good and there are only a few areas in the country that cannot be easily reached by motor vehicle. Usually, government officers have access to a motor vehicle of some sort, often a motor cycle. Sometimes, the government provides some support to staff to buy a vehicle. Field staff, such as AIs and ARPAs, usually own their own motor cycle, but some only have a bicycle. The government practice for data collection and other field activities is to pay field staff an allowance for use of their own vehicle for official work.

DCS in Colombo also has a number of vehicles available for travel of central office staff to and from the field or for travel to other offices in Colombo. Currently, with DCS located in several buildings, this necessitates quite a bit of travelling.

### **7.5 International cooperation in agricultural statistics**

Some limited assistance has been provided through FAO for the forthcoming agricultural census. In late 2012, an FAO consultant provided some training to DCS in agricultural census taking. In 2013, FAO also assisted in the design of the census questionnaire. Apart from this, there has been no donor assistance for agricultural statistics activities in the last three years.

DCS has received some limited support under the World Bank's Statistical Capacity Building Programme (STATCAP). This was mainly in connection with the construction of the new DCS building.

## CHAPTER 8

### ASSESSMENT OF CAPACITY TO PRODUCE AGRICULTURAL STATISTICS

To help in evaluating the capacity to implement the Global Strategy in Sri Lanka, two assessment methods have been used: (i) assessing country capacity based on a framework for capacity assessment; and (ii) a SWOT (Strengths, Weaknesses, Opportunities and Threats) analysis.

#### 8.1 Capacity assessment framework

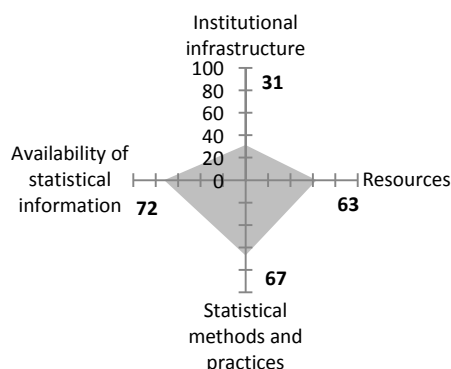
To help in ensuring that country assessments are done on an objective and consistent basis around the world, FAO has developed a framework for assessing statistical capacity for agricultural statistics (FAO, 2013a). The capacity assessment framework is outlined in Annex IX. The framework consists of four dimensions (institutional infrastructure, resources, statistical methods and practices, and availability of statistical information) and 23 elements. These cover all aspects of the collection, processing and dissemination of agricultural statistics. The framework allows comparative analysis of statistical systems across countries and serves as a tool to monitor progress on improvements in national statistical systems over time.

Under the framework, a set of internationally comparable indicators – the Country Capacity Indicators (CCIs) – are compiled for each dimension and element. The CCIs are on a scale of 0-100 and are based on information reported by countries in the first-stage capacity assessment questionnaire. A common questionnaire was used in all countries. In Sri Lanka, information was obtained from DCS and agricultural agencies engaged in statistical activities.

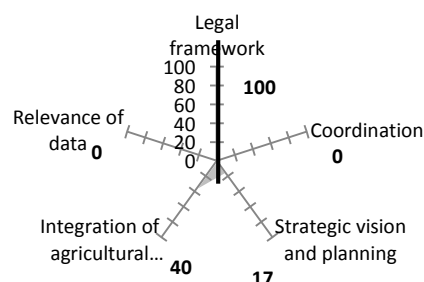
The CCIs are intended to provide a broad indication of the strengths and weaknesses in the statistical system. There are some limitations in the methodology and care is needed in interpreting the results. A score of 100 does not imply that there is no scope for improvement on that element/dimension; similarly, a score of zero does not mean that the country has no capacity in that element/dimension. There may be variations in responses across agencies within a country, which affect the interpretation of the indicators. There may also be situations where an indicator shows high overall capacity but some agencies may still require assistance on that element.

Overall scores on the four capacity dimensions are shown in Figure 2. This suggests that the national statistics system in Sri Lanka is relatively weak on institutional infrastructure elements, compared to the other three dimensions, which all have scores of more than 60.

**Figure 2: CCIs by dimension**



**Figure 3: CCIs for institutional infrastructure elements**



### 8.1.1 Institutional infrastructure

Figure 3 shows the status of the five elements of institutional infrastructure. Except for the legal framework, which has a score of 100, all other elements have low scores.

The legal framework is rated highly because of the centralized statistics system in Sri Lanka operating under strong statistical laws.

A low score is given to coordination because there is no national statistics committee overseeing the national statistics system in Sri Lanka. However, there are other mechanisms that help achieve coordination which are not fully reflected in the CCIs, including outposting of DCS officers to line agencies and mechanisms for coordinating data collection in the field. Also, the formation of the National Data Committee is helping to bring agencies together to agree on data requirements and data collection arrangements. Despite this, there is still some duplication in data collection and, sometimes, conflicting statistics.

Integration of agricultural statistics is given a low rating despite some positive aspects. The agricultural and population/housing censuses are well-integrated, with common field systems and common household listings and identifiers. Information on agricultural and fisheries households is also available from the population/housing census to help in the conduct of the agricultural census. However, agricultural statistics need to be better integrated into the national statistics system, especially through the master sample frame.

The low score for the strategic vision and planning for agricultural statistics is because there is no NSDS or SPARS in Sri Lanka. The National Data Committee has determined the key indicators required for the agricultural sector. To meet these data needs on a sustainable basis and to remain responsive to future data needs, a long term strategy for statistics is needed. The lack of such a strategy manifests itself in the continued reliance on outdated technologies and methodologies, and unmet data needs.

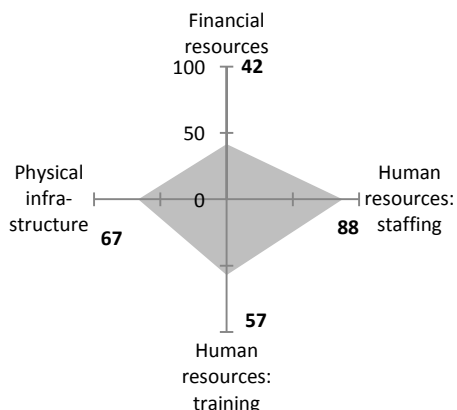
The relevance of data indicator refers to the interface between the statistical system and the users. This score is low because of the lack of a national statistics committee. However, the National Data Committee is helping to ensure that the national statistics system is designed to meet user needs.

### 8.1.2 Resources

Figure 4 shows the CCIs for the four resources elements.

Financial resources are assessed as quite weak because census and survey programmes are almost fully funded from government resources. There has not been any significant financial assistance for agricultural statistics from the international community in the recent past. Funding has been reported as a significant constraint for data collection activities in DCS and line agencies. This puts strain on the quantity and quality of statistics able to be produced.

**Figure 4: CCIs for resources elements**



The human resources: staffing element is given a good score because of the high number of agricultural statistics staff in DCS. There are also sufficient staff numbers in statistics units in the line agencies, as well as at the district and DS Division level. However, there are weaknesses at the field level, with DCS relying on ARPAs and Grama Niladharis for its data collection work. These staff have other work responsibilities, which can affect the quality of data collected.

Physical infrastructure is rated quite highly. DCS headquarters is well-placed in terms of office space, communication facilities, transport, computers, fax machines and other electronic equipment. The situation is less satisfactory in the field offices.

The human resources: training element is rated as quite weak. DCS staff numbers are adequate and

their qualifications are generally sound, but only limited in-house training opportunities are available. Staff lack experience and training in advanced statistical methods such as the design and implementation of sample surveys, and in the use of database and statistical analysis software packages. Data collection staff, especially the ARPAs, also need to be trained.

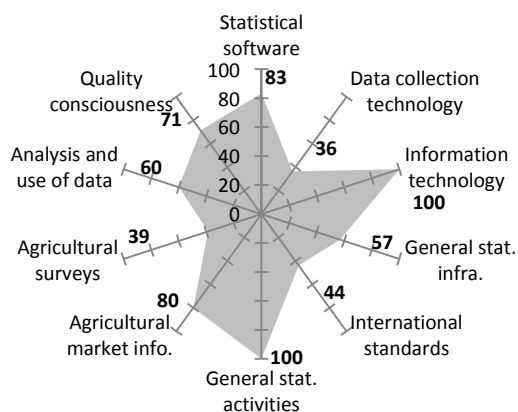
### 8.1.3 Statistical methods and practices

An assessment of the current status of the ten elements of the statistical methods and practices dimension is shown in Figure 5.

The information technology infrastructure element is rated highly, reflecting the progress DCS has made in adopting information technology in data processing and dissemination. However, more needs to be done to improve the data processing of some collections to provide more timely data. Most line agencies also disseminate data through their websites.

Statistical software capability is rated highly, reflecting the use in DCS of statistical processing and analysis software such as CSPRO and SPSS. However, more needs to be done to train staff in the use of this software to enhance AED's capacity to provide a timely statistical service to users.

**Figure 5: CCIs for statistical methods and practices elements**



General statistical infrastructure refers to tools which support the operation of a statistical system, including computer systems, metadata, statistical standards, frames and datasharing procedures. DCS has made progress in these areas but overall it is given a moderate rating. More needs to be done on establishing a master sample frame for agriculture, improving processing systems, and making it easier for users to access data. The rating for adoption of international standards is quite low despite the use of SNA and international classifications.

Data collection technology is assessed as weak. In most of its census and survey programmes, DCS uses paper based questionnaires and reporting forms which are transmitted by post to DCS headquarters for processing. This delays the release of data. The

use of scanning for data entry for the forthcoming agricultural census is a positive initiative. Electronic devices such as tablet computers are yet to be employed for data collection.

General statistical activities rates well because of the programme of regular statistical activities in DCS, including censuses and surveys, national accounts and price indexes. The quality consciousness indicator is quite high, reflecting the use of sound methodologies for censuses, household surveys and rice surveys. However, there are weaknesses in the statistical systems for other crops, livestock, fisheries and forestry, as highlighted in Chapter 4. This is reflected in the low CCI rating for the agricultural surveys element. The agricultural market and price information element is rated more highly because of the wide range of price data available. However, more needs to be done to coordinate the price collection activities.

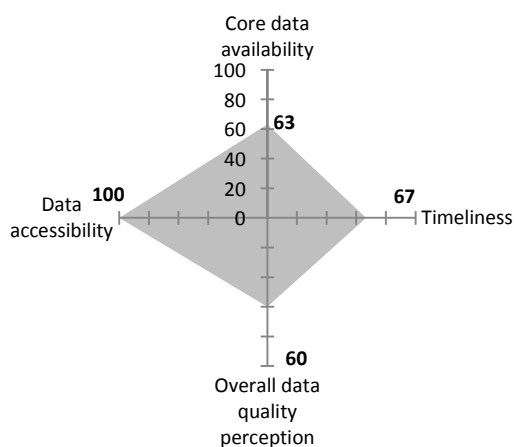
The analysis and use of data indicator is given a moderate rating. The DCS data release calendar is helpful in letting users know when data will become available. However, the timetable for data release is not always achieved and current data are often not readily available. Some commentary is shown in DCS publications, but more could be done to help users understand and interpret the data. It is considered that statistics are widely used in planning and policy making in Sri Lanka.

### 8.1.4 Availability of statistical information

Figure 6 depicts the four elements of the availability of statistical information dimension. CCI scores for all elements are quite high indicating that, generally, data availability is good.

The high score for data accessibility is because of the availability of data in printed publications and on the websites of DCS and other data producing agencies. However, there are issues relating to ensuring data shown on websites are kept up-to-date and that the data release timetable is followed.

**Figure 6: CCIs for availability of statistical information elements**



Core data availability is assessed as high. As shown in Chapter 4, statistical systems exist to meet most of the key agricultural data requirements, even though there are methodological weaknesses in some areas.

The CCI score for overall data quality perception is quite good. Data quality for censuses and household surveys is high because of sound statistical methodologies. The national accounts are also of high quality notwithstanding weaknesses and gaps in some data. However, data quality for agricultural statistics is affected by methodological weaknesses.

Timeliness of data release is rated as generally acceptable. However, measures should be taken to speed up the processing of agricultural statistics collections to enable data to be made available to users more quickly.

## 8.2 SWOT analysis

SWOT analysis is useful in assessing the existing agricultural statistics system and planning its future development. In particular, it is useful in identifying:

- the weaknesses in the current agricultural statistics system;
- the organizational and administrative strengths that exist within DCS and agriculture related agencies to help overcome those weaknesses;
- the external factors that provide opportunities to improve the statistical system; and
- the external factors that represent threats to the implementation of those improvements.

SWOT analysis has been carried for the agricultural statistics system as a whole, as well as for each of the three sub-sectors: crops and livestock; fisheries and aquaculture; and forestry. Results are shown in Annex X and are summarized below.

### **8.2.1 SWOT for overall agricultural statistics system**

In seeking to improve the agricultural statistics system in Sri Lanka, the main strength is the presence of a centralized statistical system, with DCS as the national statistics office and DCS branches in all key line agencies and in the districts. The national statistics system is well-developed and DCS is well-staffed. There is good coordination between agencies, and a genuine interest by stakeholders in efforts to improve the statistics.

The main weakness is that DCS lacks a network of field staff to collect data for its censuses and surveys and needs to rely on field staff of other agencies, especially the ARPAs who have other duties apart from data collection. Also, data quality is not always sound because of methodological weaknesses and the reliance on administrative sources for much of the data. As a result, agricultural statistics are thought to be weaker than other sectors. Available technology is also not fully utilized. AED staff are also lacking in skills in sample surveys and other statistical methodologies.

Good opportunities are provided by the high priority the government attaches to statistics, especially with DCS being part of the Ministry of Finance and Planning. The strong emphasis on achieving the targets set by *Mahinda Chintana* and the need for reliable data to measure progress towards those targets are also favourable at this time to address data weaknesses in the agricultural sector. The future availability of a GIS also offers the opportunity to do more in mapping of agricultural statistics data.

As in most countries, the main threat to efforts to improve the agricultural statistics system is the lack of funds. The planned introduction of new methodologies involving more household data collection and better use of technology may be constrained by funding shortages.

### **8.2.2 SWOT for sub-sectors**

#### ***Crop and livestock sub-sector***

The main strength is the accepted role of DCS as the national statistics office and the coordination between DCS and agricultural agencies at the national and field levels. Line ministries also have their own field staff to collect data for their needs.

The main weakness is DCS reliance on ARPAs for the collection of crop and livestock data. The ARPAs lack data collection and other statistical skills. Crop statistics other than rice are thought to be of poor quality because of methodological weaknesses. Livestock production statistics may also not be reliable. There are also some inconsistencies in statistics produced by DCS and the line agencies. There are also data gaps, especially crop condition data. Data on rates and ratios used in national accounts are also lacking.

Good opportunities are provided by the importance of the crop and livestock sectors in *Mahinda Chintana*, and the emphasis on increasing food production and improving food security.

The main threat is funding. Increasing mechanization is also having an impact on the operations of the crop cutting survey. Also, there are concerns about respondent fatigue in rice surveys.

#### ***Fisheries sub-sector***

The main strength is the presence of six fisheries institutions under the umbrella of MFARD, making it easy to coordinate statistical work with support from the DCS outposted officer. A comprehensive range of data collections are conducted by the different agencies. Fisheries field officers and aquaculture extension officers are located around the country to provide the human resources for data collection. Also, harbour offices are located at every fishery harbour and staff of that office can be used to collect landing data.

The main weakness is the existence of data gaps, especially information on the economic and social status of fishing households, ornamental fish production, cost of production and post-harvest losses. The lack of full-time data collection staff and insufficient statistical skills of field officers hamper statistical work.

Good opportunities are provided by the focus in the national development plan on better exploiting the country's fisheries and aquatic resources and achieving self-sufficiency in fish products. Also, there are international guidelines to provide a sound basis for the further development of fisheries statistics.

The main threat is that, as in many countries, it is difficult to implement sound statistical methodologies for fisheries statistics because of the predominance of the informal sector. Also, fishers may not always be willing or able to provide the data required or to fill out logbooks. Unloading of fish catches throughout the day and night also makes data collection difficult. Lack of funding is also a threat in efforts to improve the methodologies for fisheries statistics.

### ***Forestry sub-sector***

The main strength is the presence of STC and the detailed records it maintains to help in providing sound statistics for state lands.

The main weakness is the lack of capacity of the Forest Department to produce production statistics for timber extracted from home gardens and private land. This is a serious data gap.

Good opportunities are provided by the focus in the national development plan on increasing the forest cover.

The main threat is funding.



## CHAPTER 9

### AREAS FOR TECHNICAL ASSISTANCE AND TRAINING

The IdCA process for a country aims to assess the agricultural statistics system in the country and the national capability to produce the required statistics, as a means to determining what national and international capacity building efforts are needed to improve the statistics. In many countries, it is recognized that international support will be needed in the form of technical assistance, training and research. This is the case in Sri Lanka.

In this report, the agricultural statistics system in Sri Lanka has been documented and data collection methodologies evaluated, with attention given to the need for integration of statistics into the national statistics system and the minimum set of core data required for international comparisons. A capacity assessment is also provided including staff resources and the use of information and communication technology. The aim has been to provide the information necessary to design and deliver the required support to make improvements in the agricultural statistics system.

The report has highlighted weaknesses in the existing agricultural statistics system in Sri Lanka: data collection methodologies are not always sound; sample surveys are not widely used; there is no master sample frame; data collection activities between agencies are not always coordinated; agro-environmental statistics are unavailable; data sources for national accounts are weak in some areas; information and communication technology is not fully utilized; and statistical staff lack skills in techniques such as sampling and database management.

This chapter lists the main areas for work on improving the agricultural statistics system in Sri Lanka. This work will take time and will be part of the development of a long-term strategy for improving the statistics within the framework of the NSDS and SPARS. However, some priority areas will be identified and a Country Proposal prepared to identify work that needs to be done in the short-term to address the most urgent problems. It is expected that the Country Proposal will include selected elements of a number of the activities listed.

#### **1. *Improving the national accounts for the agricultural sector***

- review the national accounts for the agricultural sector, identify data needs, assess the availability and quality of existing data, and evaluate alternative data sources;
- identify data weaknesses and gaps, with particular reference to the fisheries and forestry sectors, and determine priorities for improving the agricultural data for the national accounts;
- identify special studies needed to update input ratios and other factors used in the preparation of the national accounts;
- evaluate the need for environmental-economic accounts, especially for the fisheries sector, and identify data needs for this purpose.

#### **2. *Developing an integrated system of agricultural statistics***

- review the minimum set of core data, and assess data requirements for national agricultural development plans, data needed to compile the national accounts, and other agricultural data needs to provide a comprehensive statement of what agricultural statistics are needed, how frequently the data are needed, the geographic level at which data are to be provided, and the priorities for the different data;
- technically assist the processing of the agricultural census, especially data editing and tabulation, to ensure data are of high quality and that the census provides a suitable benchmark for the ongoing agricultural statistics system;

- assess the suitability of alternative sources for agricultural data including censuses, surveys and administrative reports;
- evaluate the use of household surveys to satisfy currently unmet data needs (such as environment related data, food stocks and household forestry activities);
- develop a programme of agricultural censuses and surveys to provide the required data, including seasonal surveys, annual surveys and surveys to be conducted every few years;
- develop a master sample frame to be used to implement the agricultural survey programme;
- develop an integrated agricultural survey framework using the master sample frame to facilitate linking of the data and longitudinal analysis, and to ensure efficient survey operations;
- assess the needs for agriculture related data from other national censuses and surveys conducted by DCS, such as the census of population and housing, LFS and HIES;
- review data dissemination practices, especially the dissemination of data via the Internet and the need for printed publications.

### **3. *Developing an effective data collection operation for agricultural statistics***

- review and document all the existing and planned agricultural data collection/reporting activities of DCS and other agencies, describing who is responsible for the data collection/reporting, what data are collected directly from farmers, what data are based on reports by field staff, what information is available to help in reporting data, when data are collected/reported, how the data collection operations are managed and supervised, and what transport and funds are provided for the data collection/reporting;
- evaluate the duties, skills and training of ARPAs, examine their workloads in statistical and other work, and assess their suitability for agricultural data collection work taking into account the greater emphasis on sample surveys in the future;
- evaluate the suitability of other field staff (AIs, LDIs, Economic Development Officers, etc.) for agricultural data collection work taking account of their duties, skills and training;
- determine what mechanisms could be introduced to coordinate the collection/reporting of agricultural data between different field staff to improve the quality and consistency of data;
- prepare field operations manuals setting out in detail the duties of the data collection staff;
- assess training needs for all field staff and develop a training plan;
- implement the training programme for field staff;
- develop field management and supervision procedures and prepare manuals for field managers and supervisors;
- develop a quality control programme to ensure that data collection work is of a high standard.

### **4. *Building capacity in agricultural statistics***

- determine requirements for a network of statisticians and supporting staff in DCS, line agencies and field offices to implement the improved agricultural statistics system;
- determine the most suitable organizational arrangements for this network, including the role of DCS in coordinating agricultural statistics work, the relationship between DCS and line agencies at all levels of administration and the steps that can be taken to improve these relationships, and the roles and responsibilities of line agencies in the collection of agricultural statistics;
- evaluate the skills and training of existing agricultural statistics staff of DCS and line agencies taking into account future changes in the approach to collecting agricultural statistics, the wider scope of statistical activities, the emphasis on statistical coordination, the greater use of advanced statistical methodologies, improved data processing methods, new technology

for the collection and transmission of data, the need for more analysis of data, and better data dissemination practices;

- identify gaps in the capacity of existing agricultural statistics staff of DCS and line agencies, especially in areas such as questionnaire design, sample design, data processing, data management and data analysis;
- develop and implement a training plan for statistical officers in DCS and line agencies to further develop the required skills;
- provide training to statisticians in DCS and line agencies in the preparation of statistical reports, focusing on analyzing and interpreting the data and presenting results in the form of tables, charts, maps and commentary to highlight the main issues and findings;
- provide training to senior agricultural policy makers and senior DCS staff on the use of agricultural data for policy making;
- assess the need for computers, software and other technical equipment in DCS, line agencies and field offices required to improve the agricultural statistics system.

## **5. *Improving statistics on rice area and production***

### General

- assess data requirements including the geographic level at which data are required, the need for crop progress reports and for forecast/provisional/final data, and the timetable required for the data;
- determine a data dissemination strategy for the timely and systematic release of rice statistics.

### Rice area statistics

- assess the quality of the lists of rice farmers and the need to update the lists using frame information from the agricultural census;
- evaluate all operational aspects of the existing data collection system including the feasibility of visiting all farmers, whether there are sufficient data collection staff, how farmer level data are recorded and aggregated, reporting forms, data quality, the extent to which the collection system is based on administrative reporting rather than direct collection of data from farmers, cost of data collection, and transport arrangements for data collection;
- recommend ways in which the existing data collection system can be improved;
- evaluate whether administrative reporting of rice area data could play a role in the statistical system, including consideration of alternative sources for the reported data, the data to be reported (for example, reporting period-to-period change, rather than estimating the area in each period), how administrative reporting data could be used in conjunction with data from the agricultural census, the measures that can be implemented to ensure data quality, and the role of administrative reporting in preparing crop progress reports;
- assess the feasibility of using sampling to collect rice area data, including determining a suitable sample size and sampling methodology, and how the sample should be linked to the crop cutting survey;
- prepare field operations manuals for data collection staff;
- develop field management and supervision procedures and prepare manuals for field managers and supervisors;
- determine the need for validation surveys to be conducted from time to time to verify the data, and develop/design the surveys if needed;
- develop an improved method for processing the data including an assessment of electronic transfer of data, the efficiency of the data processing operation in DCS, the computer software used for processing, and the need for improved timeliness in the release of data.

### Rice production statistics

- evaluate operational aspects of the DCS rice yield survey, including problems in coordinating crop cutting work with the farmers, the effect that farm mechanization has had on the crop cutting operation, the suitability of current field staff for the crop cutting work, weaknesses in the management and supervision of the crop cutting, data quality, and cost/transportation issues;
- assess what can be done to address the operational problems in the crop cutting surveys, including providing financial incentives;
- assess the possibilities for use of improved communication facilities to enable field staff to better coordinate with the farmer and carry out the work more efficiently;
- review the sample size and sample design taking into consideration the geographic level at which data are required and cost factors;
- recommend improvements necessary for the rice production ancillary survey each season, and determine the required data content, survey frequency and sample size;
- prepare field operations manuals for data collection staff;
- develop field management and supervision procedures and prepare manuals for field managers and supervisors;
- assess the processing of the rice yield surveys.

#### MOA and DOA rice surveys and forecasting

- review the systems in place in MOA/DOA for reporting on the rice crop, including the cost and feasibility of carrying out the data collection/reporting operation, reporting forms used, data quality, forecasting methods, and the reliability of forecast data;
- develop a strategy to integrate the data collection activities of DCS and MOA/DOA to eliminate duplication and ensure that data are consistent, and determine what coordination mechanisms are needed at the district, DS Division and ASC levels to achieve an integrated system;
- evaluate the feasibility of using improved crop forecasting methods, with particular reference to further development of the model-based approach;
- determine a suitable data dissemination strategy in DCS and MOA/DOA to provide a coordinated and timely release of rice data.

#### **6. *Improving statistics on seasonal and permanent crops*** (excludes rice, plantation crops and EAC)

- assess data needs for crop area and production data, identify the crops to be covered, and assess the need for more detailed data on important crops such as maize, chilli and potato;
- evaluate and document the existing data collection system in DCS, including the methods used for reporting area and production data, and assess data quality;
- evaluate data collection systems used by MOA/DOA and analyze reasons for differences between the DCS and MOA/DOA data;
- consider what measures can be taken to improve the DCS data collection system, including strengthening the reporting procedures, use of better reporting forms, the reporting timetable, stronger field supervision, coordination with other field workers, alternative administrative sources for the data, the nature of the data to be reported (for example, reporting period-to-period change, rather than estimating for each period), and the use of data from the agricultural census in the estimation;
- assess the feasibility of using sampling in the DCS data collection operation;
- consider the feasibility of using the crop cutting technique in the estimation of yield for seasonal and permanent crops, determine the sample size for such surveys, and develop a programme of rotating crop cutting surveys;

- prepare field operations manuals for data collection staff;
- develop field management and supervision procedures and prepare manuals for field managers and supervisors;
- evaluate crop forecasting methods used in MOA/DOA, assess the need for forecast data for important crops, and evaluate alternative forecasting methodologies;
- assess the links between the data collection system for seasonal/permanent crops and those for plantation crops and EAC, and analyze inconsistencies between the statistics;
- determine the need for validation surveys to be conducted from time to time to verify the data, and develop/design the surveys if needed;
- develop an improved method for processing the seasonal and permanent crop data in DCS, including an assessment of electronic transfer of data;
- determine a suitable data dissemination strategy in DCS and MOA/DOA to provide a coordinated and timely release of data.

### **7. *Improving statistics on plantation crops***

- assess the methodology used to collect and compile statistics on the area and production of tea, with emphasis on the collection of area data for smallholdings, and recommend changes to improve the quality of data;
- assess the methodology used to collect and compile statistics on the area and production of rubber, with emphasis on the methodology used for estimating production based on export and manufacturing data, and recommend changes to improve the quality of data;
- assess the methodology used to collect and compile statistics on the area and production of coconut, with emphasis on the use of export and manufacturing data for estimating production, and recommend changes to improve the quality of data including methods for the collection of area and production data directly from coconut producers.

### **8. *Improving statistics on EAC***

- assess the methodology used to collect and compile statistics on the area and production of EAC, with emphasis on the estimation of production for domestic use, and recommend changes to improve the quality of data.

### **9. *Improving statistics on livestock***

- evaluate all aspects of the DCS annual livestock collection, including the timetable of data collection, data items collected, reporting forms used, how/whether farmer level data are collected, the extent to which the collection system is based on administrative reporting rather than direct collection of data from farmers, the suitability of ARPAs for the data collection task, the possible role of other field staff in the data collection operation, cost of data collection, and transport arrangements for data collection;
- assess the availability of other data sources for preparing these statistics, such as slaughterhouses;
- review the systems in place in DAPH for reporting on livestock data and evaluate the methodology used for estimating livestock production;
- analyze and explain the reasons for differences between the DCS and DAPH data, and assess data quality from the two sources especially for livestock production data;
- develop a strategy to integrate livestock data collection activities of DCS and DAPH to eliminate duplication and ensure that data are consistent, and determine what coordination mechanisms are needed at the district, DS Division and ASC levels to achieve an integrated system;

- assess whether other information is available at the field level to help in reporting data on livestock numbers (for example, cattle tags);
- prepare field operations manuals for data collection staff;
- develop field management and supervision procedures and prepare manuals for field managers and supervisors;
- assess the use of periodic small-scale sample surveys to measure basic production parameters (such as slaughtering rates, milk production and fertility) to help in the estimation of livestock data, and develop a programme of livestock surveys as part of the integrated agricultural survey programme to provide the required data;
- develop an improved method for processing livestock data in DCS, including an assessment of electronic transfer of data;
- determine a suitable data dissemination strategy in DCS and DAPH to provide a timely and coordinated release of livestock data.

#### **10. Improving fisheries statistics**

- review the methodologies used for the fisheries data collections, with particular reference to the sampling methods used for catch assessment surveys, the use of administrative data sources, the effectiveness of the logbook based system and other reporting procedures, statistical standards in the various data collections, management and control of the data collection operations, and data processing;
- assess data quality;
- assess the need for additional data required by the national accounts, especially for the preparation of the environmental-economic accounts for the fisheries sector, and identify additional data collections needed such as cost of production surveys and a fisheries census.

#### **11. Improving forestry statistics**

- assess the quality of existing timber production statistics from STC and the plantation sector;
- assess alternative methodologies for the collection of timber production data apart from STC and the plantation sector, including the use of household surveys, with particular reference to data required for the national accounts;
- determine how additional national accounting data needs such as input ratios can be met through special studies.

#### **12. Improving cost of production statistics**

- evaluate cost of production surveys for rubber, tea and coconut carried out by DCS, focusing on the statistical concepts used, the form of presentation of data, whether the data meet user needs, the sampling methodology, data processing issues, and data dissemination;
- evaluate the seasonal cost of rice production surveys carried out by MOA/DOA, and assess the methodology used, questionnaire design, data processing, and whether data needs are met (especially for the national accounts);
- evaluate the cost of production surveys for other crops carried out by MOA/DOA and DEA, and assess the methodologies used and whether data needs are met (especially for the national accounts);
- develop a programme of cost of production surveys as part of the integrated agricultural survey programme.

**13. Improving food balance sheets**

- evaluate the methodology and data used to compile the food balance sheet, assess the availability and quality of existing data, and evaluate alternative data sources;
- identify data weaknesses and gaps and determine what additional data collections or changes to existing data collections are required to improve the quality of food balance sheet data.

**14. Developing agro-environmental statistics**

- develop a statistical system for agro-environmental statistics based on the System of Environmental-Economic Accounting, taking into account the minimum set of core data.

**15. Rationalizing agricultural price statistics**

- identify and document all agricultural price collections carried out by agencies in Sri Lanka, focusing on the type of price collected (retail, wholesale, etc.), the commodities/items covered, the number and location of price collection centres, the frequency of price collection, the presentation of price data (for example, as price indexes), and the dissemination of data;
- assess whether the existing price collections provide a comprehensive range of different types of price data, especially consumer prices and farm-gate prices, and make improvements to the existing price collections as needed;
- make recommendations on coordinating price collections to eliminate duplication, as well as to ensure that data are comprehensive and reliable, and that user needs are met;
- review the presentation and dissemination of price data to ensure that the data are released in a coordinated and systematic manner, and assess the need for constructing additional price indexes.

**16. Developing the Strategic Plan for Agricultural and Rural Statistics (SPARS)**

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## KEY AGRICULTURE RELATED ORGANIZATIONS IN SRI LANKA

Ministry	Institute	Functions
Ministry of Agriculture (MOA)		Formulation and implementation of agricultural policies for the crop sector, excluding plantation crops and EAC.
	Department of Agriculture (DOA)	Technology generation and dissemination; production of quality seeds and planting materials; and pesticide, soil conservation and plant protection administration.
	Hector Kobbekaduwa Agrarian Research and Training Institute (HARTI)	Research institute for the agrarian sector.
	Sri Lanka Council for Agricultural Research Policy	Funding and mobilizing agricultural research.
	Institute of Post-Harvest Technology	Improving post-harvest technology of food crops.
Ministry of Plantation Industries (MPI)		Formulation and implementation of policies for the tea, rubber and oil palm industries.
	Sri Lanka Tea Board	Management of the tea industry.
	Tea Research Institute	Research support for the tea industry.
	Tea Smallholding Development Authority	Distribution of subsidies and planting materials, and provision of extension and other supporting services.
	Rubber Development Department (RDD)	Distribution of subsidies and planting materials, and provision of extension and other supporting services.
	Rubber Research Institute	Research support for the rubber industry.
	National Institute of Plantation Management	Training for the plantation sector.
Ministry of Coconut Development and Janatha Estate Development		Formulation and implementation of policies for the coconut industry.
	Coconut Development Authority (CDA)	Management of the coconut industry.
	Coconut Cultivation Board	Provision of support to coconut growers, including extension services.
	Coconut Research Institute	Research on coconut and palm oil.
Ministry of Minor Export Crop Promotion		Formulation and implementation of policies for EAC development.
	Department of Export Agriculture (DEA)	Main EAC institute.
	Sri Lanka Cashew Corporation	Management of the cashew industry.
Ministry of Sugar Industry Development		Formulation and implementation of policies for the sugar industry.
	Sugar Research Institute	Research into the sugar industry, including collection of sugar statistics.
Ministry of Livestock and Rural Community Development (MLRCD)		Formulation and implementation of policies for the livestock sector.
	Department of Animal Production and Health (DAPH)	Main institute under MLRCD.

	National Livestock Development Board	Promotion of quality livestock breeding materials.
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Ministry	Institute	Functions
Ministry of Fisheries and Aquatic Resources Development (MFARD)		Formulation and implementation of policies for the fisheries sector, and compilation and dissemination of official fisheries statistics.
	Department of Fisheries and Aquatic Resources (DFAR)	Drafting and implementation of regulations for management, conservation, regulation and development of fisheries.
	National Aquaculture Development Authority (NAQDA)	Promotion, regulation, development and management of aquaculture and inland fisheries.
	National Aquatic Resources Research and Development Agency (NARA)	Research related to all living and non-living aquatic resources.
	Ceylon Fishery Harbours Corporation (CFHC)	Delivery of fishery harbour services and infrastructure.
	Ceylon Fisheries Corporation	Promotion of fish production and trade.
	Cey-Nor Foundation Ltd	Manufacture and supply of fishing craft and gear.
Ministry of Irrigation and Water Resources Management		Formulation and implementation of policies for irrigation and water resources management.
	Department of Irrigation	Management of irrigation facilities, except for Mahaweli Development Programme.
	Mahaweli Authority of Sri Lanka	Management of the Mahaweli Development Programme.
Ministry of Environment and Renewable Energy	Forest Department	Management of national forest areas.
	State Timber Corporation (STC)	Harvesting trees from state lands.
	Central Environment Authority	Technical agency for environment related activities.
Ministry of Economic Development	Department of Agrarian Development (DAD)	Formulation and implementation of policies on agricultural land management and supply of agricultural inputs.

## MAJOR AGRICULTURAL DATA COLLECTIONS IN THE DEPARTMENT OF CENSUS AND STATISTICS

### 1. Agricultural census

Data collecting agency	DCS.
Data collection frequency	Approximately decennial: last census in 2002; next census in 2014. Data collection for the 2014 census being done in July and August 2014.
Data collection methodology	Covers crops, livestock and aquaculture and includes the smallholding and estate sectors. For the smallholding sector, household lists are prepared based on census of population and housing household lists. For households with more than 40 perches (about 1 000 square metres) of land, detailed census data are collected on the census smallholding questionnaire. For households with less than 40 perches of land, some basic crop and livestock data are recorded on the household listing form. A list of all estates is being prepared as a frame for the estate sector.
Data collection staff	ARPAs (or Grama Niladharis where there are no ARPAs) collect data for smallholdings; Grama Niladharis collect data for estates.
Sample size (if applicable)	n.a.
Sample selection (if applicable)	n.a.
Data collected	Topics based on FAO agricultural census programme and include structural data on crop areas, livestock numbers, use of inputs, farm machinery, etc.
Data processing	For the 2014 census, estate and smallholding questionnaires will be returned to districts where data entry will be done by scanning. The data will be sent to DCS headquarters by CDROM for editing and further processing using CSPro. The processing of data on the household listing form (households with less than 40 perches of land) is yet to be determined. Some hand processing will be done: block aggregates for some key items will be prepared and used to compile preliminary results.
Data dissemination	For the 2002 census: various reports at the national, province and district levels; some data also shown on DCS website. A similar range of reports will be issued for the 2014 census.
Level of disaggregation available	National; province; district.
Timeliness of data release	First data for the 2014 census is expected early in 2015.
Latest data available (at December 2013)	2002 data available.

## 2. Ricearea survey

Data collecting agency	DCS.
Data collection frequency	Four times a year: at the beginning and end of the maha season, and at the beginning and end of the yala season.
Data collection methodology	Census of rice farmers based on lists of rice farmers in the ASCs. The lists of rice farmers are kept up-to-date using information from the field officers.
Data collection staff	ARPAs (or Grama Niladhari where there are no ARPAs).
Sample size	n.a.
Sample selection	n.a.
Data collected	Area of rice planted and harvested by irrigation type.
Data processing	ARPAs aggregate data to village level; village data submitted to DS Divisions; DS Divisions submit village data to DCS; DCS transcribes data and returns forms to DS Divisions. DCS computer processes data; data combined with yield data from riceproduction survey to provide area and production data.
Data dissemination	Published report <i>Paddy Statistics</i> ; data also available on DCS website.
Level of disaggregation available	National; district
Timeliness of data release	Provisional estimates may be shown on the DCS website two months after end of season; final data available on website six months after end of season. Publication issued six months after end of season.
Latest data available (at December 2013)	Final data for 2012/13 maha season available on DCS website and in <i>Paddy Statistics</i> publication.

## 3. Riceproduction survey

Data collecting agency	DCS.
Data collection frequency	Twice a year: at the end of the maha and yala seasons.
Data collection methodology	Sample survey of rice growers to do crop cutting for yield estimation.
Data collection staff	Als and DS Division Statistical Officers.
Sample size (if applicable)	3000 rice farmers in 1500 GN Divisions (maha season); 2000 rice farmers in 1000 GN Divisions (yala season).
Sample selection (if applicable)	DCS selects sample GN Divisions; district selects sample rice growers based on lists of ricegrowers; data collection staff select random sites for crop cutting.
Data collected	Yield by irrigation type; also some ancillary data (see riceproduction ancillary survey).
Data processing	Household data sent to DCS for computer processing; data combined with area data from ricearea survey to provide area and production statistics.
Data dissemination	Published report <i>Paddy Statistics</i> ; data also available on DCS website.
Level of disaggregation available	National; district
Timeliness of data release	Provisional estimates may be shown on the DCS website two months after end of season; final data available on website six months after end of season. Publication issued six months after end of season.
Latest data available (at December 2013)	Final data for 2012/13 maha season available on DCS website and in <i>Paddy Statistics</i> publication.

#### 4. Riceproduction ancillary survey

Data collecting agency	DCS
Data collection frequency	Twice a year: at the end of the maha season (September-March) rice crop, and at the end of the yala season (May-August) rice crop.
Data collection methodology	Sample survey of rice growers.
Data collection staff	Als and DS Division Statistical Officers.
Sample size (if applicable)	Sample farmers from riceproduction survey plus an additional 6 000 farmers in 1 500 GN Divisions (maha season) and 4000 farmers in 1000 GN Divisions (yala season).
Sample selection (if applicable)	Sample GN Divisions selected by DCS; sample households selected by district based on lists of rice growers.
Data collected	Land tenure; seed variety; land preparation method; seeding method; fertilizer use; insecticide use; fungicide use; weedicide use.
Data processing	Household data sent to DCS for computer processing; data combined with rice area and crop cutting data.
Data dissemination	Included in published report <i>Paddy Statistics</i> .
Level of disaggregation available	National; district
Timeliness of data release	Data available six months after end of season.
Latest data available (at December 2013)	Data for 2012/13 maha season available in <i>Paddy Statistics</i> publication.

#### 5. Seasonal crop statistics

Data collecting agency	DCS
Data collection frequency	Twice a year: mid-March (end of the maha season) and mid-September (end of the yala season).
Data collection methodology	Reporting system: totals for GN Divisions (or areas under control of ARPAs) reported (some informal data collection from farmers may be done).
Data collection staff	ARPAs (or Grama Niladharis where there are no ARPAs).
Sample size (if applicable)	n.a.
Sample selection (if applicable)	n.a.
Data collected	Area and production of each of about 40 annual crops, other than rice.
Data processing	Reported data submitted to DS Divisions where data are aggregated to DS Division level. The DS Division level data are submitted to DCS for computer processing using Microsoft Excel.
Data dissemination	Data shown on DCS website.
Level of disaggregation available	National; district (district data are not always shown on the DCS website).
Timeliness of data release	Formal data release irregular.
Latest data available (at December 2013)	Data up to 2009/10 maha season available on DCS website.

## 6. Permanent crop statistics

Data collecting agency	DCS
Data collection frequency	Annual in September.
Data collection methodology	Reporting system: totals for GN Divisions (or areas under control of ARPAs) reported (some informal data collection from farmers may be done).
Data collection staff	ARPAs (or Grama Niladharis where there are no ARPAs).
Sample size (if applicable)	n.a.
Sample selection (if applicable)	n.a.
Data collected	Bearing and non-bearing area for each of about 20 permanent crops other than tea, coconut and rubber.
Data processing	Reported data submitted to DS Divisions where data are aggregated to DS Division level. The DS Division level data are submitted to DCS for computer processing using Microsoft Excel.
Data dissemination	Data available on request.
Level of disaggregation available	National; province; district (province and district data are not always shown on the DCS website).
Timeliness of data release	Formal data release irregular.
Latest data available (at December 2013)	

## 7. Annual livestock statistics

Data collecting agency	DCS
Data collection frequency	Once a year: in June.
Data collection methodology	Reporting system: totals for GN Divisions (or areas under control of ARPAs) reported (some informal data collection from farmers may be done).
Data collection staff	ARPAs (or Grama Niladharis where there are no ARPAs).
Sample size (if applicable)	n.a.
Sample selection (if applicable)	n.a.
Data collected	Number livestock by type (cattle, buffaloes, swine, goats/sheep, chickens, ducks) and purpose (e.g., milking, bulls, calves for cattle); egg production; milk production.
Data processing	Reported data submitted to DS Divisions where data are aggregated to DS Division level. The DS Division level data are submitted to DCS for computer processing using Microsoft Excel.
Data dissemination	Data shown on DCS website.
Level of disaggregation available	National; district.
Timeliness of data release	Formal data release irregular.
Latest data available (at December 2013)	Data to 2012 available.

## AGRICULTURAL DATA SOURCES FOR SRI LANKA NATIONAL ACCOUNTS

Commodity	Production	Inputs	Prices	Remarks
Rice	DCS. Quarterly accounts are based on DCS and DOA forecasts, which are later revised once final rice data are available.	DOA cost of production surveys and other DCS information.	DCS producer price data.	Seasonal production is allocated to quarters based on assumptions about the spread of input costs: maha 75%:25% first and second quarters; yala 75%:25% third and fourth quarters.
Tea	Sri Lanka Tea Board provides data on black tea production monthly. This is converted to green leaf equivalent by assuming that 4.65 kg of green leaf tea is required to produce 1 kg of black tea.	DCS cost of production survey (available annually).	Sri Lanka Tea Board provides the prices of green leaf tea and black tea monthly. This is generally 68% of the export price.	
Rubber	Monthly production data are available from RDD.	DCS cost of production survey (available annually).	DCS price information (available quarterly).	
Coconut	CDA.	DCS cost of production survey (available annually).	DCS price information (available quarterly).	
EAC (includes all crop exports except rice, tea, rubber, coconut, coffee, pepper, betel and arecanut)	Dept. of Customs provides quantities of each crop exported. Production for domestic consumption is estimated by assuming that domestic consumption is 15% of exports for all crops.	It is assumed that the input ratio is 10%.	The assumption is made that the cost of production is 75% of the export price.	
Other field crops (includes vegetables, highland crops, pepper, coffee, sugar cane and fruit crops)	DCS seasonal crop surveys.	Input ratios based on DOA data.	DCS producer prices available quarterly.	Vegetable production is allocated to quarters by assuming an even spread throughout the year.



Commodity	Production	Inputs	Prices	Remarks
Livestock milk, eggs, meat (poultry, beef, mutton and pork)	DCS (annual data) and DAPH (quarterly data).	Input ratios based on DCS information from the 2002 agricultural census.	DAPH (for poultry meat and eggs); other data from DCS.	Certain assumptions are made. For meat, average carcass weight assumptions are made for cattle, goats and pigs. Also, it is assumed that 13% of cattle, goats and pigs are slaughtered for meat.
Fisheries (inland and marine)	MFARD provides quarterly production data.	The input ratio for all types of fisheries is assumed to be 25%.	DCS and MFARD	Ornamental fish production is not included.
Forestry	STC provides data on its timber production. MPI provides data on timber production from tea, rubber and coconut plantations. Firewood data are based on HIES data. Data on the industrial use of timber, such as for brickmaking, are used to cover data gaps.	The input ratio is assumed to be 5%, except for firewood which is not determined.	STC provides quarterly price data from its sales. DCS provides the price of firewood quarterly.	It is assumed that STC has 15% of the market share for forestry. Timber prices are highly variable for different types of species, which may not be well reflected in STC's average price data. Overall, data for the forestry sector are considered weak.

**DEPARTMENT OF CENSUS AND STATISTICS, PUBLICATION SCHEDULE FOR  
AGRICULTURAL STATISTICS, 2012 AND 2013**

Title	Release date	
	DCS website	Hard copy
Paddy Statistics - Maha Season - 2011/2012 - First Forecast	16.01.2012	-
Paddy Statistics - Maha Season - 2011/2012 - Provisional	15.06.2012	-
Paddy Statistics - Maha Season - 2011/2012 - Final Estimate	22.08.2012	14.09.2012
Paddy Statistics - Yala Season - 2012 - First Forecast	15.08.2012	-
Paddy Statistics - Yala Season - 2012 - Provisional Estimate	15.10.2012	-
Paddy Statistics - Yala Season - 2012 - Final Estimate	28.12.2012	28.02.2013
Paddy Statistics - Maha Season - 2012/2013 - First Forecast	15.01.2013	-
Paddy Statistics - Maha Season - 2012/2013 - Provisional	14.06.2013	-
Paddy Statistics - Maha Season - 2012/2013 - Final Estimate	15.07.2013	15.08.2013
Paddy Statistics - Yala Season - 2013 - First Forecast	15.07.2013	-
Paddy Statistics - Yala Season - 2013 - Provisional Estimate	15.10.2013	-
Paddy Statistics - Yala Season - 2013 - Final Estimate	30.12.2013	28.02.2014
Food Balance Sheet - 2011	28.09.2012	28.09.2012
Food Balance Sheet - 2012	15.09.2013	30.09.2013
Livestock Statistics - 2012	28.12.2012	-
Livestock Statistics - 2013	30.12.2013	-
Highland Crop Statistics - Maha Season - 2011/2012 Final	14.09.2012	28.09.2012
Highland Crop Statistics - Yala Season - 2012 Final	15.01.2013	30.01.2013
Highland Crop Statistics - Maha Season - 2012/2013 Final	16.09.2013	30.09.2013
Highland Crop Statistics - Yala Season - 2013 Final	15.01.2014	30.01.2014
Cost of Production of Tea, Rubber, Coconut - 2010/2011	15.08.2012	-
Cost of Production of Tea, Rubber, Coconut - 2011/2012	15.06.2013	-
Slaughter Statistics - 2011	17.09.2012	-
Slaughter Statistics - 2012	12.05.2013	-
Volume Index of Agriculture Production - 2011	31.08.2012	-
Volume Index of Agriculture Production - 2012	31.08.2013	-
Potato Production and Extent cultivated (Monthly) - 2012	15.05.2012	-
Potato Production and Extent cultivated (Monthly) - 2012	17.09.2012	-
Potato Production and Extent cultivated (Monthly) - 2012	01.11.2012	-
Extent and Production of Big Onion - 2012	28.09.2012	30.10.2012
Extent and Production of Big Onion - 2013	30.09.2013	30.10.2013

## GLOBAL MINIMUM SET OF CORE DATA ITEMS FOR SRI LANKA

Variable	Items	Detail required	Data needed	Frequency	Source
<b>ECONOMIC DATA</b>					
<b>Output<sup>1</sup></b>	Rice	District by irrigated and rain-fed	Area, production, yield	Seasonal	DCS surveys
	Maize	District	Area, production, yield	Annual	DCS surveys
	Sugar cane	District	Area, production, yield	Annual	Sugar Research Institute
	Milk	District by cattle/buffaloes	Production	Annual	DCS; DAPH
	Eggs	District	Production	Annual	DCS; DAPH
	Meat	District by cattle/goats/pigs/poultry	Production	Annual	DCS; DAPH
	Marine fisheries	National by coastal/offshore	Production	Annual	DFAR; MFARD
	Inland/aquaculture fisheries	National by capture/culture	Production	Annual	NAQDA; MFARD
	Forestry: wood	National by type of timber product	Area under forests, production	Annual	STC; Forest Department
	Forestry: non-wood	National by type of product	Production	Annual	STC; Forest Department
<b>Trade</b>	Exports of agricultural products	National by commodity	Quantity and value	Annual	Sri Lanka Customs
	Imports of agricultural products	National by commodity	Quantity and value	Annual	Sri Lanka Customs
<b>Stock of resources</b>	Land cover and use	National	Area	Irregular	Survey Dept; Agri. census (DCS)
	Economically active persons	District by urban/rural and sex	Number of persons	Annual	LFS (DCS)
	Cattle, buffaloes, poultry, goats and pigs	District by type	Number of animals	Annual	DCS; DAPH
	Agricultural machinery	National by type	No. of machinery items; no. of farm households using machinery	Decennial	Agri. census (DCS)
	Fisheries equipment	National by type	No. of items	Annual	DFAR
<b>Inputs</b>	Water used for agricultural purposes	National by crop type	Quantity	Annual	Dept of Irrigation; Mahaweli Authority
	Fertilizer use	National by type and crop	Quantity and value	Decennial	Agri. census (DCS)
	Pesticide use	National by type	Quantity and value	Decennial	Agri. census (DCS)

Variable group	Items	Detail required	Data needed	Frequency	Source
	Seeds	National by type and crop	Quantity and value	Decennial	Agri. census (DCS)
	Animal feed purchased	National by type	Quantity and value	Decennial	Agri. census (DCS)
	Fisheries inputs	National by type	Quantity and value	Annual	DFAR; MFARD
<b>Agro-processing</b>	Crop products used in processing food	National by crop type	Quantity	Annual	Institute of Post-Harvest Technology
	Livestock products used in processing food	National by livestock type	Quantity	Annual	MLRCD
	Fisheries products used in processing food	National by type	Quantity	Annual	MFARD
<b>Prices</b>	Farm-gate prices	National by core crops/livestock/fisheries products	Average price	Monthly	HARTI
	Consumer prices	National by core crops/livestock/fisheries products	Average price	Monthly	DCS
<b>Final expenditure</b>	Government expenditure on agriculture and rural development	National by sub-sector	Amount	Annual	Budget documents
	Agricultural subsidies	National by sub-sector	Amount	Annual	Budget documents
	Household consumption	National by core crops/livestock/fisheries products	Quantity and value	Three-yearly	HIES (DCS)
<b>Rural infrastructure</b>	Area equipped for irrigation	National	Area	Annual	Dept of Irrigation; Mahaweli Authority
	Rural roads	National	km	Annual	Ministry of Transport
	Railways	National	km	Annual	Ministry of Transport
<b>International transfer</b>	Official development assistance for agriculture and rural development	National	Value	Annual	Budget documents
<b>SOCIAL DATA</b>					
<b>Demographics of urban and rural population</b>	Sex by age	District	No. of persons	Decennial	Pop. census (DCS)
	Household composition	District	No. of households	Decennial	Pop. census (DCS)
	Highest level of education	District by sex	No. of persons	Decennial	Pop. census (DCS)

Variable	Items	Detail required	Data needed	Frequency	Source
	Labour force status	National by sex(employed, unemployed, not in labour force)	No. of persons	Annual	LFS (DCS)
	Status in employment	National by sex(self-employed, employee)	No. of persons	Annual	LFS (DCS)
	Economic sector of employment	National by sex (based on ISIC)	No. of persons	Annual	LFS (DCS)
	Occupation of employment	National by sex (based on ISCO)	No. of persons	Annual	LFS (DCS)
	Household income	District	Value	Three-yearly	HIES (DCS)
	Number of hired workers on farm holdings	National by sex	No. of persons	Decennial	Agri. census (DCS)
	Housing conditions	District	No. of dwellings	Decennial	Census of pop. and housing (DCS)
<b>ENVIRONMENTAL DATA</b>					
<b>Land</b>	Soil degradation	National	Area		Special studies by DOA
<b>Water</b>	Water pollution due to crops, livestock and fisheries	National			Special studies
<b>Air</b>	Emissions due to agriculture	National			Special studies
<b>GEOGRAPHIC LOCATION</b>					
<b>GIS coordinates</b>	Administrative units	National, province, district, GN Division, GS Division		Five yearly	Survey Department
	Parcels			Irregular	Survey Department
<b>Degree of urbanization</b>		Classification of GN Divisions by urban, estate and rural		Decennial	Pop. census (DCS)

1.The table includes only the Global Strategy core items. Non-core crops, especially rubber, tea, coconut, EAC and seasonal crops,also need to be covered by the agricultural statistics system in Sri Lanka. Some data are available more frequently than shown in the table, which reflects the national statistical needs over and above the global minimum set of core data.

**NATIONAL DATA COMMITTEE, DRAFT LIST OF CORE DATA IN THE  
AGRICULTURAL SECTOR**

1. A1 Public spending on agriculture as a percentage of GDP from the agricultural sector
2. A2 Ratio between public spending to agriculture and agricultural production to GDP –  
(agricultural spending/public spending) / (GDP for agriculture/GDP) \* 100
3. A3 Public spending on agricultural input subsidies as a percentage of total public spending on  
agriculture
4. A4 Food Production Index
5. A5 Annual growth (percentage) in agricultural value added
6. A6 Population below US\$1 per day or below national poverty line as a proportion of the total  
agricultural population
7. A7 Percentage change in proportion of agricultural population below US\$1 per day or below  
national poverty line
8. A8 Gross capital formation in agricultural sector
9. A9 Consumer Price Index for food items
10. A10 Agricultural exports as a percentage of total value added in agricultural sector
11. A11 Producer Price Index for food items
12. A12 Ratio of arable land area to total land area of the country
13. A13 Percentage change in unit cost of transportation of agricultural products
14. A14 Percentage of labour force employed in agriculture
15. A15 Percentage of agricultural labour force employed in non-farm activities
16. B1 Indicators of access, use, satisfaction with respect to livestock services
17. B2 Annual growth (percentage) in value added in the livestock sector
18. B3 Livestock population
19. B4 Percentage increase of yield per livestock unit
20. B5 Food Production Index in livestock
21. B6 Percentage change in livestock values
22. B7 GDP contribution by livestock to total GDP
23. B8 Gross capital formation in livestock sector
24. B9 Share of medium scale livestock farms
25. B10 Change in the number of subsistence livestock farms
26. B11 Percentage of commercial livestock farms to the total
27. B12 Production cost as a percent of retail price
28. B13 Percent of total livestock farms operated by women
29. B14 Percentage of total livestock farms with livestock as the main income source
30. B15 No of active fishers as a percentage of labour force
31. B16 Aquaculture production per unit of utilized water area
32. B17 Inland fish production as a percentage of total fish production
33. B18 Aquaculture production as a percentage of total fish production
34. B19 Annual growth rate of value of fish production
35. B20 Per-capita consumption of fish and fishery products
36. B21 Percentage contribution of fisheries to GDP
37. B22 Number of offshore/high sea boats as a percentage of total fleet
38. B23 Market share of fish trade by government
39. B24 Percentage contribution of fish and fishery products to national export earnings
40. B25 Indicators of access, use and satisfaction with respect to agribusiness and market services
41. B26 Percentage change in number and value of activities managed by agro-enterprises
42. B27 Percentage of agro-enterprises adopting improved/certified hygiene/food management  
system
43. B28 Percentage change in sales or turnover of agro-enterprises
44. B29 Percentage change in number of agricultural inputs outlets
45. B30 Percentage increase in private sector investment in agriculture
46. B31 Percentage increase in market share of cooperatives/agri-business enterprises
47. B32 Price spread between farm-gate, wholesale and retail prices for major food crops
48. B33 Accessibility to research and extension advice

49. B34 Adoption rate for research and extension advice
50. B35 Public investment in agricultural research
51. B36 Public investment in agricultural development
52. B37 Private sector investment on agricultural research and development as percentage of GDP from the agricultural sector
53. B38 Percentage change in yield resulting from improved technologies for major crops
54. B39 Indicators of access, use and satisfaction with respect to the forestry services
55. B40 Employment in forestry related activities
56. B41 Value of removals of wood and non-wood forest products
57. B42 Value of services from forests
58. B43 Area of forests under sustainable forest management
59. B44 Percentage land area covered by forests
60. B45 Annual growth in rural household income from forest related activities
61. B46 Growing stock per ha of forest
62. B47 Percentage rate of deforestation
63. B48 Indicators of access, use and satisfaction with respect to rural finance
64. B49 Percentage of bank branches that are located in rural areas
65. B50 Percentage of total savings that are mobilized from rural areas
66. B51 Percentage of rural population using non-bank financial services
67. B52 Recovery rate of rural credit
68. B53 Percentage of the rural population using financial services of formal banking
69. C1 Percentage change in soil loss in main watershed
70. C2 Percent of land owned by the state and private sectors
71. C3 Land use
72. E1 Public spending on export agricultural sector as a percentage of GDP from the agricultural sector
73. E2 Public spending on export agricultural crops input subsidies as a percentage of total public spending on agriculture
74. E3 Exports of agricultural production as a percentage of total value added in agricultural sector
75. E4 Percentage of total land area under export agricultural crops
76. E5 Percentage change in farm-gate prices of export agricultural crops
77. E6 Percentage change in production of export agricultural crops
78. E7 Public investment in export agricultural research as a percentage of GDP of export agricultural sector
79. E8 Percentage contribution of export agricultural crops to national export earnings

## VISION FOR THE FUTURE, MAIN INDICATORS FOR THE AGRICULTURAL SECTOR

### Crop sector

Area, production and yield of crops by type and season  
 Area under traditional and improved rice varieties  
 Area of abandoned paddy land  
 Percent of post-harvest losses  
 Rice stocks  
 Cropping intensity  
 Quantity and value of crop exports by type  
 Quantity and value of value added crop exports by type  
 Quantity and value of imports of crop products by type  
 Annual rate of replanting of tea, rubber and coconut  
 Number of houses built for plantation estate workers  
 Number of OFC seed farms  
 Number of floriculture villages established  
 Number of orchards established  
 Number of ASCs modernized  
 Number of agricultural research institutes  
 Number of agro-processing factories  
 Number of commercial farms  
 Rate of soil erosion

### Livestock sector

Number of livestock by type  
 Livestock production by product type  
 Quantity and value of imports of livestock products by type  
 Number of cattle with high production capacity  
 Proportion of the total domestic demand for dairy products met by local production  
 Number of private cattle breeder farms  
 Number of National Livestock Development Board farms established  
 Number of well equipped service delivery offices  
 Number of service delivery officers trained  
 Number of livestock collection centres established  
 Number of UHT plants established  
 Number of small-scale livestock processing units established  
 Number of day old chicks  
 Share of backyard poultry to total production  
 Maize production (for poultry feed)  
 Soya bean production (for poultry feed)

### Fisheries sector

Fish production by source (coastal, offshore and inland)  
 Fish production by species and district  
 Number of fishing boats by type  
 Quantity and value of exports of fish products by type  
 Quantity and value of imports of fish products by type  
 Number of boat manufacturing plants  
 Number of fishing gear factories  
 Number of fishery harbours  
 Number of active ice plants by district  
 Post-harvest losses by species  
 Number of active fishers by district and sex



Direct and indirect employment by marine and inland fisheries  
Production of fingerlings  
Coverage of water bodies with proper management  
Number of aquaculture centres  
Number of ornamental fish breeding centres  
Number of shrimp farms  
Number of cage farms  
Number of fish processing zones  
Storage capacity for fish products  
Certification of fish processing factories

### **Forestry sector**

Forest cover  
Area of forest plantings

### **Social issues**

Educational attainment by sector  
Demographic characteristics  
Employment by industry and occupation  
Unemployment rate  
Household income by sector  
Poverty rate  
Percent of people malnourished  
Percent of children underweight, stunted and wasted  
Percent of population with access to safe drinking water  
Percent of population with access to services

### **Environmental issues**

Area of degraded land  
Water quality

FAO COUNTRY PROGRAMMING FRAMEWORK, MAIN INDICATORS

**Crop sector**

Food supply  
Retail prices  
Rice stocks  
Post-harvest losses  
Cost of production  
Crops grown in home gardens  
Private sector involvement in agriculture  
Soil degradation  
Water degradation  
Role of women in agriculture  
Land tenure  
Farm size  
Land fragmentation  
Number of land tenure disputes

**Livestock sector**

Number of improved breed cattle  
Dairy management data  
Use of veterinary services  
Animal health data

**Fisheries sector**

Quantity of fish products by type (marine, inland, aquaculture)  
Value of fish production by type (marine, inland, aquaculture)  
Women's participation in fisheries sector by type of involvement

**Forestry sector**

Area of forest land mapped and protected  
Number of training activities carried out

## AGRICULTURAL STATISTICS CAPACITY FRAMEWORK

Capacity dimension	Element
I. Institutional infrastructure	1.1 Legal framework 1.2 Coordination in statistical system 1.3 Strategic vision and planning 1.4 Integration of agriculture in the national statistics system 1.5 Relevance (user interface)
II. Resources	2.1 Financial resources 2.2 Human resources: staffing 2.3 Human resources: training 2.4 Physical infrastructure
III. Statistical methods and practices	3.1 Statistical software capability 3.2 Data collection technology 3.3 IT infrastructure 3.4 General statistical infrastructure 3.5 Adoption of international standards 3.6 General statistical activities 3.7 Agricultural market and price information 3.8 Agricultural surveys 3.9 Analysis and use of data 3.10 Quality consciousness
IV. Availability of statistical information	4.1 Core data availability 4.2 Timeliness 4.3 Overall data quality perception 4.4 Data accessibility

## SWOT ANALYSIS OF AGRICULTURAL STATISTICS SYSTEM IN SRI LANKA

## A. OVERALL AGRICULTURAL STATISTICAL SYSTEM

<b>Strengths</b>		<b>Weaknesses</b>	
1	Centralized system for data collection for all censuses and most surveys. Processing and dissemination of official statistics by DCS minimizes chances of conflicting data from different sources.	1	Data collection officials (ARPAs) for crops and livestock not under the administrative control of DCS. No mechanisms exist to verify the accuracy of data collected.
2	Statistical branches exist in all key line agencies staffed by professionals, including DCS outposted officers, enabling improved coordination between line agencies and DCS.	2	ARPAs burdened with many activities and may not be able to devote adequate time to data collection activity.
3	Well-developed national statistics system with long experience in DCS in conducting censuses and surveys, including long-standing collection systems for rice statistics.	3	Except for rice, data collection methodology for crop area and production is considered weak. Better crop forecast data are also needed.
4	Active participation of all stakeholders in the efforts to improve agricultural and rural statistics.	4	Data collection methodology for livestock production is considered weak.
5	Availability of technical agricultural specialists in the field to help in the data collection.	5	Forestry statistics are weak, especially for forestry activities of the household sector.
		6	Agricultural statistical system is weaker than for industry/services sectors.
		7	New technology is not fully utilized for data collection, data transmission and processing, which can delay dissemination of data.
		8	No NSDS to provide a long term vision for development of the statistical system and agricultural statistics in particular.
<b>Opportunities</b>		<b>Threats</b>	
1	Government priority to statistics is reflected in DCS being administratively part of the Ministry of Finance and Planning.	1	No significant threats seen for implementation of existing statistical programmes. However, for Global Strategy implementation, availability of funds may be a constraint.
2	Synergies in the vision document <i>Mahinda Chintana</i> and the Global Strategy in a number of areas; e.g. sustainable use of natural resources, water quality, environment.		
3	Setting up of National Data Committee shows the importance of statistics for policy making and monitoring progress of national action plans.		
4	GIS coordinates will soon be available down to the GN division level.		
5	Availability of Economic Development Officers in each GN Division, who could be used in the data collection work.		

## B. CROP AND LIVESTOCK SUB-SECTOR

<b>Strengths</b>		<b>Weaknesses</b>	
1	Centralized system for data collection of crop and livestock statistics.	1	ARPAs burdened with many activities and may not be able to devote adequate time to data collection activity. ARPAs lack data collection and other statistical skills.
2	For in-season assessment and other requirements, line agencies have their own mechanisms, but official statistics are released by DCS only.	2	Except for rice, crop yield assessment not based on crop cuts.
3	Availability of specialist field workers to help in the data collection.	3	Only basic methodologies used for crop forecasting.
4	Adequate information technology facilities in DCSto process the data.	4	Methodology for statistics on livestock production is inadequate, especially for the informal sector.
		5	New technology is not fully utilized for data collection, data transmission and processing, which can delay dissemination of data.
		6	Use of out-of-date rates and ratios in national accounts because of non-availability of current data.
		7	No systematic collection of data on the effect on agricultural production of natural calamities (e.g. floods and drought).
		8	Limited opportunities for regular training of statistical staff in DCS and line ministries, as well as field staff.
<b>Opportunities</b>		<b>Threats</b>	
1	Recognition by both DCS and ministries concerned about the need for methodological and operational improvements in data collection.	1	Increasing mechanization of farming activities is making crop cutting activities difficult.
2	Importance attached to the agricultural sector by government to provide food security and nutrition to the people reflected in <i>Mahinda Chintana</i> , particularly its emphasis on sustainable use of natural resources for agricultural production.	2	Respondent fatigue in reporting rice data.
3	GIS coordinates soon to be available down to the GN division level.		

### C. FISHERIES AND AQUACULTURE SUB-SECTOR

<b>Strengths</b>		<b>Weaknesses</b>	
1	Six fisheries institutions under the umbrella of MFARD, making it easy to coordinate statistical work.	1	Heavy data collection workload of field officers, and lack of data collection and other statistical skills.
2	Existence of Statistical Branch in MFARD with DCS outposted staff.	2	New technology is not fully utilized for data collection, data transmission and processing, which can delay dissemination of data.
3	Fisheries Inspectors and Aquaculture Extension Officers stationed at District Fisheries Offices and Aquaculture Extension Offices provide a good data collection resource.	3	Internet facilities not available at every district office.
4	Field officers work closely with the fisher community, facilitating the collection of data.	4	Lack of full-time data collection staff.
5	Harbour offices located at every fishery harbour and staff of that office can be used to collect landing data.		
<b>Opportunities</b>		<b>Threats</b>	
1	Reduction of malnutrition by increasing the consumption of fish and reduction of post-harvest losses are priority areas of fisheries policies.	1	Budget constraints.
2	International guidelines exist to help improve fisheries statistics.	2	Fishers not always willing or able to provide accurate data.
		3	Difficulties in implementing sound statistical methodologies for fisheries statistics because of the predominance of the informal sector and the variety of fish species and fishing gear.
		4	Unloading of fish catches throughout the day and night makes data collection difficult.

### D. FORESTRY SUB-SECTOR

<b>Strengths</b>		<b>Weaknesses</b>	
1	Good statistical system in STC for timber production in the state sector.	1	Forest production statistics are weak, apart from data from STC and plantation companies, because of difficulties in collecting data on timber production from private land.
<b>Opportunities</b>		<b>Threats</b>	
1	Importance attached to the forestry sector, nationally and internationally.	1	Budget constraints



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Department of Census and Statistics,  
"Sankyana Mandiraya"  
No 306/71, Polduwa Road,  
Battaramulla.

Tel : 0112147000 / 0112147050

Fax : 0112877918

E- mail : [dgcensus@statistics.gov.lk](mailto:dgcensus@statistics.gov.lk)

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