

**FAO  
STATISTICAL  
DEVELOPMENT  
SERIES**

**1**

**FOOD AND  
AGRICULTURAL  
STATISTICS**  
in the context of  
a national  
information system



**FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS**

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**FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS**  
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## FOREWORD

This is the first issue of a new FAO Statistical Development series of manuals. The Statistical Development Series will provide comprehensive technical manuals for assisting countries in planning, developing and operating the statistical programme component of a national information system for food and agriculture. Although a rather full potential "state of the arts" statistical programme, that even the most advanced country could benefit from, is planned for the series, some of the more advanced programme components, such as a country-wide early crop estimates sampling capability and an operational remote sensing crop monitoring capability, must await future coverage, further technological developments and cost efficiencies. In addition, most of the subjects covered in early issues will be improved upon with additional field experience and subsequent revision. But every country, even the poorest and least developed, both economically and in statistical capability, can initiate the planning and development of a particular programme component after an evaluation of its current capability and needs, with the first generation such component reflecting marginal improvement in the country's current capability and each successive programme development cycle resulting in a larger and more integrated programme.

Because statistics must have a sound conceptual base, with theoretical concepts relevant to real-world problems on the national policy agenda successfully operationalized, with the resulting data interpreted and analysed to become useful information to decision makers, this first manual in the series places statistical programmes in the context of a national information system for food and agriculture. Then, the basic statistical development components, such as the agricultural census, household surveys and community-level statistics, are treated in successive papers, as is the use of administrative records as a source of secondary data. Several issues concerning subject-matter statistics complete the series. Subjects to be covered include: socio-economic indicators of agrarian reform and rural development, natural resources with emphasis on agricultural land, marketing, credit, fertilizers, machinery and other manufactured inputs, farm management, type of farming, enterprise costs and returns, commodity supply and utilization accounts, agricultural input and output prices, food balance sheets, agricultural population and labour force, food consumption and nutrition, economic accounts for agriculture, and other statistical needs for monitoring and evaluating

the economic viability of the agriculture sector, food self-reliance, and other dimensions relevant to a country's food and agricultural complex.

In all areas, from the agricultural census as the cornerstone of the statistical development programme to the use of socio-economic indicators in monitoring agrarian reform and rural development, the emphasis will be on a balanced programme of data collection, processing and analysis as integral and inseparable parts of a national information system for food and agriculture.

Leroy Quance  
Director  
Statistics Division

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## CHAPTER 1

### INTRODUCTION

If we could just know where we are and whither we are tending  
we could better judge what to do, and how to do it.

Abraham Lincoln

#### 1.1 Background

One of the most basic objectives of FAO is the development and improvement of food and agricultural statistics, particularly in developing countries. Despite an increasing awareness of the importance of statistics in planning social and economic development, most developing countries do not have an adequate statistical organization or trained statistical personnel for collecting, processing and analysing food and agricultural information. In particular, statistical development is slow and agricultural censuses, surveys and other statistical inquiries are often undertaken in isolation from each other and from the uses their results are to serve. Further, there is often a lack of understanding and coordination between statistical agencies and economic analysis, planning and decision-making offices, making it difficult to obtain the necessary cooperation among these important elements of the national information system for food and agriculture.

The collection, processing, analysis, dissemination, and use of data are costly and time consuming processes, requiring trained personnel, organization, transport and related facilities and services. Developing countries, however, have severe financial, human and institutional resource limitations. These problems have been addressed through such technical assistance funds as the United Nations Development Programme (UNDP) (formerly, the Extended Programme of Technical Assistance and the United Nations Special Fund), government cooperative Trust Funds, and the FAO Technical Cooperation Programme. These funding sources have provided developing countries with badly needed technical assistance in the form of resident experts and consultants in food and agricultural statistics, training, data processing and the provision of related equipment. The earliest recorded technical assistance project in a developing country was on crop surveys in 1951. The number of such projects has grown to about

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## CHAPTER 1

### INTRODUCTION

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60, including regional statistical advisers on specific subjects, e.g., training and commodity statistics.

The FAO training programme for the 1960 World Census of Agriculture also benefitted from these funds for the organization of training centres at the international, regional and national levels. Due to the UNDP funding crisis in the late 1960s, however, funds for the regional statistical advisers and training centres were discontinued. The number of projects in food and agricultural statistics also declined significantly, recently levelling out at about 40. Further, a large share of the current projects are funded by the FAO Technical Cooperation Programme and are short-term projects designed to fill explicit, critical needs and not lasting more than one year. A few longer-term projects are funded by UNDP and Trust Funds.

Substantial progress has been achieved over the past several decades in improving food and agricultural statistics in developing countries. Approximately 150 countries conducted an agricultural census during the decade of the 1970 World Census of Agriculture Programme (1966-75), and similarly 150 countries will have conducted an agricultural census during the decade of the 1980 World Census of Agriculture (1976-85). In addition, a large number of countries routinely conduct sample surveys in food consumption, household income and expenditures, farm management, marketing, crop yields and production, and many other socio-economic areas of food and agriculture.

Yet, there continue to be problems and need for improvement. Often, field enumeration has been attempted without the development of sufficient statistical infrastructure, i.e., organization, trained manpower, vehicles and other equipment. Further, inadequate attention is often given to data processing and analysis and dissemination. In some statistical projects, the end of the field enumeration is also the end of the census or survey organization, and the material used, e.g., lists, sketches, maps, instructions and worksheets, is discarded without consideration for its possible future use. Also, there is often little or no ex post evaluation of the work done, where the performance of various processes is evaluated in terms of the frequency and types of errors, time spent, and costs in order to improve the conduct of future activities.

To overcome these problems, FAO has periodically promoted the preparation of national, long-term, integrated programmes of food and agricultural statistics in developing countries. For example, about two decades ago, FAO made an effort to facilitate the dialogue between

national statistical agencies, planners and decision makers regarding data needed for agricultural development planning. As a result, for the first time, an integrated, phased programme was prepared for developing statistics geared to agricultural development planning requirements. The programme, specifically targeting countries in the FAO Near East Region (FAO 1968), was meant to be a framework to guide each country in identifying its stage of statistical development and determining its statistical development priorities in light of its own resources and agricultural development planning data needs.

In another effort, J.S. Sarma, a member of the FAO Statistics Advisory Committee of Experts, proposed a multi-year programme of censuses and surveys in food and agriculture (Sarma 1971). Also, training centres in developing countries have promoted the concept and application of long-term, integrated programmes of food and agricultural statistics -- in Kenya in 1970 and at the Statistical Institute for Asia and the Pacific in Japan in 1974. Finally, the first UNDP project to implement a long-term integrated programme was carried out in the five central African countries in 1973 and recently in Ethiopia.

Statistical problems exist in different countries with differing degrees of severity and with emphasis on different causes and effects. Basically, however, in all cases, the roots of the problems are buried in inadequate national efforts of an interdisciplinary, inter-ministerial and continuing nature in the development and operation of an information system to support effective government intervention in the sector.

Information required for planning agricultural development and the methodology for collecting, processing and analysing data on food and agriculture are well summarized in references cited above and elsewhere. Also, most of the essential elements for developing a national information system for food and agriculture have been conceptualized and promoted over the last several decades (e.g., Bonnen 1977). What seems to be lacking is an institutional framework, firmly embedded in an interdisciplinary national effort, which promotes, in a balanced and coordinated way, the major dimension of such a programme -- an approach that provides dynamism through the continuous dialogue between users and producers of information in order to meet the changing demand for information effectively and efficiently -- constantly reviewing the underlying concepts, definitions and methods, and developing and maintaining the necessary human, financial and institutional resources.

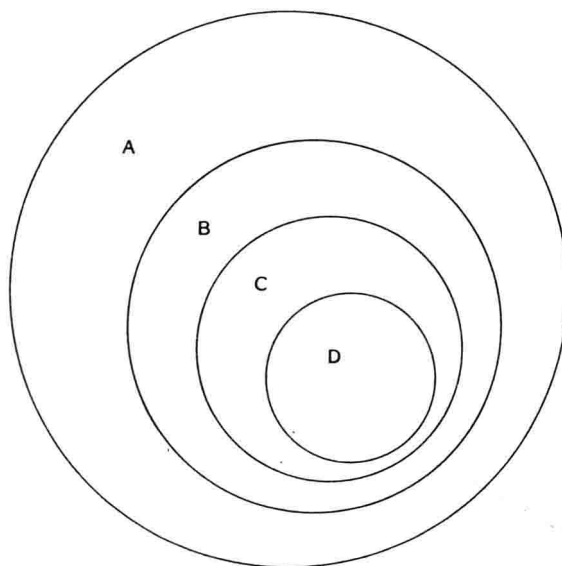
The national information system context for food and agricultural statistics presented herein can provide such a framework for the food and agricultural statistics programme component of such a system. It views the entire national information system, including decision makers, statisticians and analysts, as an integrated whole rather than as a collection of independent and unrelated activities. Each activity in the system, e.g., food and agricultural statistics, is designed to function in complementary interaction with other activities, so that concepts and definitions are harmonized and related activities are linked or coordinated to provide consistent, relevant, timely and reliable information.

The subject-matter scope of the national information system covers all areas relevant to public (and possibly some private) decision making, as indicated in the largest circle (A) in Figure 1.1. The conceptual focus of this manual is the subset of information of interest to food and agricultural decision makers, as indicated by circle B in the diagram, with special emphasis on food and agricultural information (circle C), of which food and agricultural statistics (circle D) comprise a further subset. Examples of information in B but not in C include demographics and national accounts, while examples of information in C but not in D include policy analysis studies and situation and outlook reports.

In the terminology of this manual, the "national information system" refers to the structure of information covered in A and the institutional organization which provides it. Similarly, the "national information system for food and agricultural decision making" corresponds to B, the "food and agricultural information system" to C, and the "food and agricultural statistical programme" to D.

## 1.2 Objective and Outline

The overall objective of this manual is to provide a general understanding of the structure and operation of a country's national information system for food and agricultural decision making and general guidelines on the planning and implementation of the food and agricultural statistical programme as an integral part of the total system. Such an information system will be: (a) effective and efficient in providing timely, relevant, accurate, accessible, and consistent information to food and agricultural decision makers; (b) able to adapt structurally and conceptually to changing conditions and an evolving policy agenda, thus avoiding conceptual and institutional obsolescence; and (c) consistent with the human, financial and institutional capabilities of the country as those capabilities develop and grow over time.



- A - Information for public decision making
- B - Information for food and agricultural decision making
- C - Food and agricultural information
- D - Food and agricultural statistics

**Figure 1.1 - Subject-matter coverage of a national information system from a food and agriculture perspective**

Following this brief introduction, food and agricultural decision makers are identified in Chapter 2, and the role of information, and thus of statistics, in decision making is discussed in Chapter 3. In Chapter 4, the system approach, defined as a formalized problem-solving process, is applied to the design of information systems. A general classification scheme for identifying and defining the operational concepts which specify the boundaries of food and agricultural information is detailed in Chapter 5. Chapters 6 and 7, then, focus specifically on features of statistical and analytical programmes, respectively, while programme implementation guidelines are offered in the final chapter, Chapter 8.

Countries following the guidelines contained in this manual will find that the information base supporting economic development and other policy concerns in food and agriculture will be more relevant and useful, that policy efforts will thus be more successful, and that, as a consequence, government intervention in food and agriculture will be more effective and better understood and appreciated.