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**Agricultural Data Collection in the Arab
Republic of Yemen**

This country paper has been prepared by Mr. Mohamed Al-Naweera, Director General Agricultural Data Collection project, Ministry of Agriculture and Fisheries, Yemen Arab Republic. The views expressed herein do not necessarily reflect those of the United Nations Economic Commission for Western Asia.

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I- AGRICULTURAL DATA COLLECTION IN THE ARAB REPUBLIC OF YEMEN

Definition of Agricultural Data Collection:

The expression refers to the process of collection of data on the various aspects of the agricultural sector (plant production, animal husbandry, and fisheries) and related questions such as manpower, production inputs (requirements), agricultural households, etc. This data is then expressed in figures, analyzed and presented in tabular form.

Purpose of Agricultural Data Collection

The main purpose of an agricultural statistics programme is to secure a sustained flow of statistical data to meet the requirements of planning in the agricultural sector. Such data relate to:

(1) Evaluation of the relative position of agriculture in the economy. This includes reference to the number of people who depend on agriculture for a living, the share of agriculture in the gross national product and the role of agriculture as a source of foodstuffs to support the population, a source of raw materials needed for local industry, and a source of income in hard currency;

(2) Estimates of current and future supply of, and demand for foodstuffs and agricultural products as well as average consumption and factor requisites of production;

(3) The extent to which the level of production is affected by variables in factors of production and capital. A reliable system of statistics presupposes the availability of two types of data, namely:

(a) Basic agricultural data, i.e. relating to stable factors, not subject to seasonal variations, and derived from agricultural censuses carried out at long intervals, e.g. once every five or ten years; and

(b) Current agricultural data, i.e. which varies from one season to another and, even, within the same season. Such data is obtained through studies conducted either periodically, in accordance with a fixed schedule (yearly, quarterly, monthly or even weekly, if necessary), or at irregular intervals, as the need arises, or yet once only, in order to collect data needed for a specific purpose in connection with operations that might never be repeated.

II- METHODS USED TO COLLECT DATA ON AGRICULTURE

The successive agricultural censuses carried out in various Governorates since 1978 constitute the first attempt ever to collect basic statistical data on the agricultural sector through field studies on villages and farmers. Contrary to normal practice, however, these were not all conducted in the same agricultural year, but their findings temporarily meet the desperate need for data and can be utilized pending the completion of a general agricultural census. For convenience the censuses were carried out using the sampling method, successively in the Governorates of Dhamar, Al-Hodeidah, Hajja, Al-Mahweet, Taiz, Ibb, Sa'ada, Al-Beida, Sana'a, Al Jowf and Ma'reb. The sampling method adopted is presented below, together with the method used to prepare the frame and select primary units and holdings.

Sampling Frame:

The agricultural censuses were carried out on stratified random samples in two stages. Accordingly, two frames had to be prepared, before the sample of holdings could be selected, namely

- (a) One frame for primary units,
- (b) one frame for holders.

(a) The Frame for Primary Units:

The frame for each Governorate, was prepared on the basis of preliminary field mission to every district. The purpose of the missions was to list sub-districts and villages, and enumerate the population of each village on the basis of the information contained in the registers of the district authority. Sub-districts and villages were then classified according to geographic contiguity, and additional data on the nature of the soil and prevailing means of irrigation was recorded in each sub-district to make way for delineation of strata of comparable characteristics; and in each stratum so identified, artificial primary units of roughly equivalent proportions were composed on the basis of village registers. On average, each artificial unit consisted of about 100 households (80-120), comprising a whole village or part of a village, or yet several small villages. After these units had been composed, the sample of primary units was selected from among them, thus completing the first stage.

(b) The Frame For Holders

Before the census itself could begin, the enumerator had to prepare a frame covering all holders and corresponding to each of the primary units, whereupon questionnaire (T-1) was filled out with the assistance of the Sheikh of the sub-district and

the notables of the villages comprising the unit. This questionnaire covered all households and provided information which helped to evaluate the status of agricultural holders and classify them according to the size of their holdings (namely large, medium and small). In addition, the questionnaire provided information on the number of members in each household and livestock comprised in its holding. From this list of holders, the second-stage sample was selected as a source of data for the census itself.

Selection of the Sample:

The sample of holders was selected in two stages:

First stage: A sample of primary units was selected from the frame of artificial primary units composed in each stratum. The sample was selected by systematic, random drawing, comprising 5 per cent of the primary units in Dhamar, Al-Hodeidah and Ibb, and 10 per cent of those in Sana'a, Hajja, Al-Mahweet, Taiz, Ma'reb, Fa'ada, Al-Beida and Al-Jowf.

Second stage: Following the preparation of a frame of holders for each of the primary units comprising the sample obtained in the first stage, the enumerator selected 20 per cent of the holders in each unit by systematic random drawing, first, from the column of large holdings, then from that of medium holdings and, lastly from that of small holdings. The sample of holders thus selected was then used to collect data for the census. The final sample was approximately 1 per cent in Dhamar, Al-Hodeidah and Ibb, and about 2 per cent in Hajja, Al-Mahweet, Taiz, Fa'ada, Al-Beida, Sana'a, Al-Jowf and Ma'reb.

Field Operations

In each province, the census involved the following operations:

(1) Establishment of contact with the province Governor and obtention of directives instructing the district chiefs to facilitate the census.

(2) Establishment of contact with the district chiefs and obtention of orders instructing the Sheikhs and notables of villages in the sample of statistical units to co-operate with enumerators.

(3) Establishment of contact with these officials with a view of explaining task of the enumerator.

(4) Enumeration of agricultural holders in the unit by enumerating all households in questionnaire (I-1) and classification into large, medium and small holdings according to the statements of officials in the unit.

(5) Selection of a sample of 20 per cent of the holders in the unit, by systematic random drawing from the categories of large, medium and small holdings, successively.

(6) Completion of questionnaire (T-2) on the agricultural holdings of each one of the holders in the sample.

(7) Completion of questionnaire (T-3) which covers general information on the villages with data concerning local weights and measures and their effective equivalents. In addition, this questionnaire also contains data on the yields of the various crops grown in the unit, on agricultural labour and prices as well as other pieces of information which, on the basis of past experience, are more conveniently obtained from the village as a whole rather than from individual holders.

Special Studies on Vegetable farming in Yemen

So far, agricultural surveys have focussed primarily on the main, basic crops such as grain (Sorghoms, Millet, Maize, Wheat, Barley) whereas all other crops have been grouped under a single heading in the production table. Such has been the case with vegetables. Indeed, previous surveys have shown only the area under vegetable crops in general, without providing any indication as to the area allotted to each specific crop. For this reason, considering the importance of vegetable farming in recent years and the yearly expansion of the area under these crops, special surveys based on systematic random sampling were conducted on this subject in each Governorate. Moreover, the coverage of the random samples under study was increased and now amounts to 25 per cent of all agricultural holdings under vegetables.

So far, five Governorates comprising 80 per cent of the total area under vegetables have been covered namely Sana'a, Taiz, Ibb, Al-Hodeidah and Al-Beida. And programmes for 1985 provide for the adoption of the same approach in respect of orchards.

Population and Agricultural Censuses

The first population census was conducted in 1974. This general census was followed by a CYDA population census in 1980. However, no census on agriculture as such has ever been carried out and this is unlikely to take place before 1986, i.e. after the population census scheduled for 1985 has been completed.

Statistical Institutes and Training:

Neither does the Arab Republic of Yemen have a statistical institute nor does its second Five Year Plan provide for the establishment of one. However, given the importance of improving the competence and skills of statisticians working on agricultural data collection, a number of alternatives were resorted to. The Arab Organization for Agricultural Development kindly organized a seminar of two weeks on agricultural data collection from 10 to 24 June 1982 in Sana'a, where experts in agricultural data collection gave instruction. A total of 20 persons registered for that seminar. They were agricultural statisticians representatives of the Central Planning Organization, the Bank of Agricultural Credit and Local Co-operatives for Development, the Ministries of Economy and Food Supplies, and agricultural projects. In addition, a number of agricultural statisticians were sent to attend seminars abroad in Arab countries, such as in Jordan, and in the United States. The duration of these seminars varied between two months and one year.

III- EVALUATION OF ACHIEVEMENTS

Considering the human resources available, the Department of Agricultural Statistics of the Ministry of Agriculture and Fisheries deserves considerable credit for what it has achieved during the past few years. The agricultural censuses conducted in the provinces are an important step towards the improvement of statistics. Furthermore, research in estimating yields, recording prices and publishing bulletins have provided valuable experience and guidance as to the orientation to be adopted in future.

IV- MAIN DIFFICULTIES HAMPERING AGRICULTURAL DATA COLLECTION

(1) The shortage of skills required to conduct statistical studies is one of the biggest problems confronting the statistical programme. This can be attributed to low salaries and the lack of incentives. Indeed good working conditions are a must if competent elements are to be attracted and retained, and high skills and broad experience are both preconditions of satisfactory statistical work.

(2) The Central Department is under considerable pressure because of the lack of statistical branch-offices in the Governorates. Offices staffed with competent, well trained personnel in each Governorate would facilitate the implementation of statistical programmes and spare the central department a considerable amount of effort and expenditure since they would do away with the need to send staff from Sana'a every time data on a given subject has to be collected from the field.

(3) The reticence of informants and the imprecision of data supplied are well illustrated by the difficulties encountered in attempting to collect data from traders in agricultural equipment and by the mistrust of farmers. Such difficulties, however could be overcome through advertising campaigns and the promotion of awareness of statistics among staff. The elimination of these obstacles, particularly in respect of qualified elements, would enable the elaboration of a successful statistical programme.

V- THE FORTHCOMING PLAN FOR AGRICULTURAL STATISTICS (1982 - 1986)

A rough outline of the successive stages in the agricultural statistics programme for the 1982-1986 plan is given below.

(1) Concentration on the establishment of statistical offices in the Governorates and formulation of simple programmes to be implemented by these offices in the first few years following their establishment. These programmes will be intensified gradually and priority will be given to the implementation of a programme to record prices on rural markets and from farmers. This will be followed by the introduction of statistics on acreages, yields and related questions.

(2) Updating of the agricultural censuses conducted in the Governorates, through the conducting of a complementary sample survey. Publication of adjusted results in a yearbook to be used as a source of information pending the conducting of proper agricultural census.

(3) Commissioning of a special study on fruit farming and enumeration of available wells and ploughs.

(4) Publication on specific dates of statistical periodicals containing all the data available on the agricultural sector.

(5) Continuation of efforts to introduce an area frame method and set up the machinery to establish it; utilization of the potential and experience available from the World Bank, the United States Department of Agriculture and the Swiss Government in connection with the recommendation to conduct an areal survey of Yemen because existing photographs, which were taken in 1973, are now outdated and no longer satisfy requirements in rapidly developing areas. If possible, a light aircraft should be used to up-date the photographs of areas comprising the sample so as to provide a more accurate picture of present conditions.

The area frame must be used to conduct an annual study of acreages, yields and livestock and, thereby, ultimately contribute to the agricultural census.

(6) Efforts to conduct the agricultural census, either with the traditional frame, i.e. the lists of villages, or with the area frame, i.e. areal maps.

The complete fulfilment of all above mentioned tasks calls for considerable human and material resources.

VI- PROJECTIONS UNTIL THE YEAR 2000

The proposed plan will no doubt satisfy minimum requirements in basic agricultural data. Yet, the compilation of statistics involves continuous and evolutive work. For this reason, in the years following the plan, efforts will have to concentrate on refining and supplementing data collected in previous years and updating data which no longer reflects existing conditions. In addition, another census will have to be conducted ten years after the completion of the first and fresh research work, likely to improve the accuracy of national accounts in the agricultural sector, must be undertaken.

Operations to be carried out in this connection can be summed as follows:

(1) The annual study of acreages and yields must be continued and methodological improvements must be introduced each year to keep pace with developments in data collection techniques.

(2) New data must be introduced into the yearly study of acreages and yields to satisfy the requirements of planners and researchers.

(3) A second national agricultural census must be conducted 10 years after the completion of the first census where upon a comparative study of both census must be undertaken and guidelines for future development in the agricultural sector must be laid down.

(4) The publication of periodic statistical bulletins must be continued with yearly improvements.

(5) The statistical offices of Governorates must be continuously strengthened to equip them to carry out the statistical programme entrusted to them.

(6) Special research must be undertaken to secure detailed figures on agricultural methods with a view to improving the accuracy of national accounts in the agricultural sector.