

□

engaged in agricultural activity, the performance of this sector can also have major social, economic and political significance.

3. The common feature of both census programmes is the huge cost, not only financial, but also in terms of the often-scarce resources. In fact, such is the burden of census taking in many developing countries that it is often difficult to secure the necessary resources for one national census, let alone for two, and identifying ways in which the two census programmes can be more closely related is, therefore, very important.

4. An analysis of 145 census questionnaires from the last population and housing census round, available on the UNSD web site², indicated that some 28 percent of countries included additional questions specifically on agricultural activities, so there is certainly an awareness of the importance of the need to consider such possibilities. This paper, therefore, explores ways in which the population and housing census and the agricultural census can be more closely related to lessen the burden of taking both censuses and to add value to the data collected through extended analysis.

II. STATISTICAL UNITS IN THE POPULATION CENSUS AND THE AGRICULTURAL CENSUS

□

5. The primary statistical unit for the population census is the household, whereas for an agricultural census it is the agricultural holding. If we consider the agricultural sector as being comprised of two distinct types of agricultural holdings, the household based holdings and the non-household holdings, we can explore further the relationship between the household as a unit in the population and housing census and the household based holding in the agricultural census.

6. In many countries, particularly developing countries, the household has a one-to-one relationship with the household holding. Only in rare instances does one household operate two or more holdings or do two or more households operate a single holding. In these cases a set of rules has to be established to ensure all household based holdings are accounted for without duplication or omission. In this way, we can argue that the agricultural census of household holdings can also use the household as the primary statistical unit and thus establish commonality between the two censuses. The case for the non-household holdings is somewhat different and this paper does not consider how the population and housing census can facilitate the enumeration of such holdings, rather these holdings should be enumerated using special list frames compiled specifically for that purpose.

7. The relationship between the population and housing census and the agricultural census, as it relates to the relationship between the household unit and the household holding, can be considered in several ways, namely through:

- (a) use of common concepts, definitions and classifications;
- (b) sharing field materials;
- (c) using the population census as a household frame for the agricultural census;
- (d) making use of agriculture-related data from the population census;
- (e) collecting additional agriculture-related data in the population census;
- (f) linking data from the two censuses;
- (g) conducting the two censuses as a joint field operation.

□

III. USE OF COMMON CONCEPTS, DEFINITIONS AND CLASSIFICATIONS

8. The use of common statistical standards in the population and housing census and the agricultural census ensures that data from the two sources are consistent and comparable, making it easier to analyse and interpret population census data in relation to agricultural census data. This is particularly important for economic activity and employment characteristics.

IV. SHARING FIELD MATERIALS

9. Both censuses use the Enumeration Area (EA) as the basic enumeration unit (although it should be recognised that some agricultural censuses do use area frames, as an alternative, where area sampling techniques are used). Any work on updating the EA maps and the listing of households can be of great benefit to both censuses. This updating exercise can be used to build a frame of household holdings as a frame for the agricultural census. It can also be used to collect some basic information on agricultural activity at the household level as an alternative to a full agricultural census, or as a component of such a census for households with only very limited agricultural activity, such as in the urban areas.

10. Where an agricultural census is carried out by enumerating EAs, it can be based on the same EA boundaries as used in the population census and make use of maps and other field materials used in the population census. A further use of the population census EAs is as a primary sampling frame for agricultural censuses conducted on a sample basis.

□

V. USING THE POPULATION AND HOUSING CENSUS AS A FRAME FOR THE HOUSEHOLD SECTOR OF THE AGRICULTURAL CENSUS

□

11. Some countries carry out the household component of the agricultural census using the list of households from the population census as a frame. This approach has several benefits, especially as it provides the opportunity to link data from the two censuses. However, it can only be done if the agricultural census is carried out soon after the population census. Otherwise, the list of households quickly becomes out-of-date and the list needs to be updated. At the same time, much valuable time and resources can be wasted using this approach in areas where there is only very limited agricultural activity, such as in urban areas, and a list frame of household agricultural holdings, such as could be compiled during the EA updating exercise, is the preferred frame.

□

VI. EXISTING AGRICULTURE-RELATED DATA IN THE POPULATION CENSUS

□

12. In assessing data needs for the agricultural census, consideration should be given to the availability of existing agricultural data from other sources, to avoid duplication in data collection effort. Three items normally included in the population census are of special interest for agricultural analysis:

13. Main occupation This item is collected for each economically active person. It can be used to provide tabulations of persons working in an agricultural occupation. This includes household members of agricultural holdings working in an agricultural occupation (on the household's holding or another holding), as well as persons working as employees in an agricultural occupation.

□

14. Main industry. Industry is the activity of the establishment in which the person works in his/her main job. This item is collected for each economically active person, and can be used to provide tabulations of persons working in the agricultural industry. This includes household members of agricultural holdings working in the agricultural industry, as well as persons working as employees in the agricultural industry.

15. Status in employment. This item refers to whether the person is working as an own-account worker, family worker or employee, and is collected for each economically active person. This is useful for analysing persons with an agricultural main occupation according to whether they are agricultural holders (an “own-account worker”), working on the household’s holding (contributing family worker), or in paid agricultural work (employee).

16. One weakness in agricultural employment data from the population census is that they are normally collected in respect of a person’s main activity during a short reference period, such as a month. This may not identify all persons working in agriculture, because of the seasonality of agricultural activities. Nevertheless, data on occupation combined with status in employment from the population census could be used to help establish a frame for the agricultural census. The following group of households, closely related to agricultural holdings, can be identified:

17. Households in which any household member has both: (i) an agricultural main occupation; and (ii) status in employment “own-account worker”.

18. A household satisfying these two conditions could be considered as a household engaged in own-account agricultural production activities. The two conditions relate to the main occupation of household members. This will miss households with own-account agricultural production where no single household member has an agricultural main occupation. This could be significant in some countries.

19. A frame established in this way would not, however, uniquely identify agricultural holdings. This is because there may not always be a one-to-one correspondence between households and holdings.

20. Another weakness is that the information collected on occupation may not be sufficiently detailed to differentiate between the different occupations associated with agriculture.

VII. COLLECTING ADDITIONAL AGRICULTURE-RELATED DATA IN THE POPULATION AND HOUSING CENSUS

21. A country may consider including additional agriculture-related items in its population census for three main reasons. Firstly, the additional items can provide a wider range of agriculture-related data for the population census analysis. Secondly, the information can be used to help create the frame for the agricultural census. Thirdly, the country may not have any other means to collect agricultural census data and may wish to take the opportunity of the population and housing census to collect basic data on household based agricultural activities.

□

22. Collecting a very limited amount of additional agriculture-related data in the population and housing census can be extremely useful for the sample design and selection for a sample-based agricultural census. The information can also be useful in planning the agricultural census fieldwork; for example, information on the geographical distribution of households with own-account agricultural production can help in organizing enumerator workloads.

23. Bearing in mind the importance of not overloading the population and housing questionnaire, where the population and housing census is to be used to provide the frame for the agricultural census the required household level information can be collected in the pre-census listing or cartographic phase of the population and housing census. This later approach has the added advantage in that the frame for the census of agriculture can be compiled directly from the listing/cartographic exercise without having to wait for the questionnaire to be processed.

24. In some countries, the population census gives prominence to agriculture and it is possible to include a more detailed range of agriculture-related items in an agricultural module. Items that countries could consider for inclusion in the population census for such a module are:

- (a) Total area of holding and area of agricultural land (household);
- (b) Area harvested for each main arable crop (household);
- (c) Permanent tree crops on the holding by main type (household);
- (d) Number of each type of livestock (household);
- (e) Time worked on own-account agriculture (individual).

25. There are always heavy demands on the population census for the whole range of population, social and economic data, and it is often not possible to include additional agriculture-related items. There are constraints on the length of the questionnaire, the types of data collected, and the cost of data collection, as well as timing and operational factors. In developing their population censuses, countries need to determine priorities, taking into account the importance of agriculture to the national economy and how best to collect such additional data through the census questionnaire or as part of the listing exercise.

□

VIII. LINKING DATA FROM THE AGRICULTURAL AND POPULATION CENSUSES

□

26. One of the benefits of coordinating the agricultural and population censuses is that it opens up the possibility of linking data between the two collections. Linking data means that a particular household or household holding in the agricultural census is matched to the same unit in the population census through a unique 'record key' or identifier, so that data from the population census can be used in the agricultural census tabulation and analysis. For example, size of holding could be tabulated against household composition, income, or other data from the population census. Linking data in this way adds considerable analytical value to data sets from both censuses.

27. The ability to link data from the two censuses can also save on data collection costs. Normally, various demographic and activity status data are collected in the agricultural census, even though they are also included in the population census, because the data are needed for tabulation purposes. If data from the two censuses could be linked, it would no longer be necessary to collect these data again in the agricultural census. This could affect the following agricultural census items:

□

- (a) Core items
 - Sex of agricultural holder
 - Age of agricultural holder
 - Household size
- (b) Supplementary items
 - National/ethnic group of household head or agricultural holder
 - Sex of each household member
 - Age of each household member
 - Relationship to household head for each household member
 - Marital status of each household member
 - Educational attainment of each household member
 - Activity status of each household member
 - Status in employment for each economically active household member
 - Occupation of main job for each economically active household member

28. Linking data is a complex statistical process, especially matching units between different statistical collections carried out at different times. The use of different statistical units in the two censuses also creates problems. Agricultural census data can only be linked to the population census through the household unit. Thus, for example, area of holding data from the agricultural census could be related to demographic data from the population census by associating the agricultural holding with a particular household in the agricultural census, and linking that household to the corresponding household in the population census. The possibility of more than one holding in a household also complicates the linking of data.

IX. CONDUCTING THE TWO CENSUSES AS A JOINT FIELD OPERATION

29. Some countries conduct the data collection for the population and housing census and the agricultural census as a joint field operation. Normally, each census retains its separate identity and uses its own questionnaire, but field operations are synchronized so that the two data collections can be done at the same time by the same enumerators. Occasionally, the two censuses are merged into one or an agricultural module forms part of the population and housing census. Synchronizing the two census field operations in this way has several benefits:

- (a) By doing the data collection for both censuses in a single field visit, the cost of data collection is reduced;
- (b) It facilitates the use of the population census as a frame for the agricultural census, as it eliminates the problem of the population census household lists being out-of-date;
- (c) It provides an immediate link between population and agricultural census household-level data. Demographic and economic activity status data required in the agricultural census can be obtained directly from the population census, rather than having to collect the data again as in a normal agricultural census, which results in further savings in data collection costs. The ability to link data also provides opportunities for wider analysis of both the population and agricultural censuses;
- (d) Doing the data collection together makes it easy to apply standard concepts and definitions in the two censuses.

