

Population and Housing Census in Thailand

by

Jirawan Boonperm

National Statistical Office, Bangkok, Thailand

Paper presented at the ASEAN Meeting on the 2010 Round of Population and
Housing Census, **Siem Reab, Cambodia, 31 July – 2 August 2006**

Population and Housing Census in Thailand

*Ms. Jirawan Boonperm
National Statistical Office
Bangkok, Thailand
jirawan@nso.go.th*

1. History of Census

Thailand's first population census was conducted in 1909 by the Ministry of Interior. Four subsequent censuses followed in 1919, 1929, 1937 and 1947. Since 1960, the National Statistical Office (NSO) has been responsible for undertaking population censuses every ten years under the 1952 Statistical Act (revised in 1965). In accordance with the United Nations' recommendation that countries should undertake national censuses every the year ending with 0 (zero) for the purpose of international comparison, Thailand has conducted its census in 1970, 1980, 1990 and 2000. In 1970, the first housing census was conducted simultaneously with the population census. The tenth population and fourth housing census was carried out in April, 2000. The NSO is currently planning to conduct its eleventh census in the year 2010.

For the 1960, 1970, 1980 and 1990 Censuses, the main method of data collection was field interview. After the data collection in all provinces was completed, questionnaires were sent to the central office in Bangkok. Manual editing, keyboard data entry, and other steps of data processing, including tabulation were then carried out.

The quality and timeliness of the data provided by the census can always be improved in order to meet the needs of various users. The timeliness of the census information is also important for a public relations campaign. The general public will acknowledge and use data if it is current and will then become more aware of the importance of statistics. Consequently, the statistical efforts of the country will improve, and in turn, the quality of statistics produced will be strengthening.

2. Experience with the most recent census

2.1 Strong points – Data Processing System

The 2000 Population and Housing Census in Thailand adopted Image Scanning and ICR System for data capture. This new technology was decreased the number of staff members for data entry and timeliness of data

entry. Image Scanning technology is a system used to capture data from a questionnaire (form), fax, or internet quickly and with a minimum amount of human intervention. It utilizes a scanner that quickly reads questionnaires or data forms, and a software application that automatically reads or evaluates the data or figures recorded in the forms and transforms them into an ASCII data file which can be used for further data processing. The Image Scanning can be OCR (Optical Character Recognition), OMR (Optical Mark Reader), BCR (Bar Code Reader) or ICR (Intelligence Character Recognition)

At this time the Image Scanning technology is considered a better option for data capture of large-scale survey and census data as it can reduce the time for data entry, requires less personnel and it cost-effective in the long run. Of the four types of Image Scanning, ICR and OMR are the methods of choice for statistical surveys and censuses, because survey or census forms are designed to record numbers, figures and / or blocks.

The National Statistical Office (NSO) was firstly used the ICR system in 2000 for Population Census. Its use allowed the NSO to release the census results within 1.5 years as compared with over 3 years for the 1990 census and to spend only 9 months instead of 30 months for data entry. The cost of the data entry in 2000 was reduced to less than a fourth of the cost in 1990 (from 108.5 million baht to 23.2 million baht).

Before utilizing the ICR system, the NSO had installed 3 clusters of key stations (1 server and 16 key stations for each cluster). The data entry staff keyed data from the questionnaire at each key station and these data were stored in the server. Another set of staff reentered the data to verify correctness and completeness. Then supervisors retrieved data from the server as a batch file and copied it onto diskettes or sent it to a mainframe for processing. The Manual Data Entry System has been used for capturing data for Population, Marine Fisheries and Agricultural censuses as well as for other NSO surveys before it was replaced in 2000 by the ICR system.

Field interview was the major method for data collection but self-enumeration forms were in more extensive use than in the previous censuses. Self-enumeration was more effective in apartment blocks. The period of data collection was 1-30 April 2000 with a census reference date of 1 April 2000.

There were about 40,000 enumerators and 5,600 Supervisors. For non-municipal areas, school teachers were employed for field personnel, while both school teachers and temporary employees were employed in Bangkok and municipal areas. In terms of qualification of field personnel, it was required university level for supervisors, and at least upper secondary level (Grade 11) for enumerator.

A more decentralized arrangement and new technology were adopted in order to improve timeliness of data reporting. Manual editing and coding was carried out at provincial statistical offices (PSOs) in all provinces in Thailand. Then, the questionnaires were sent to the central office for data capture using an Intelligent Character Recognition (ICR). Data processing, including tabulation and analysis, was carried out at the central office.

2.2 Problems encountered

Although, the ICR system provides very much beneficial in terms of speediness and accuracy for processing a great number of questionnaires of large scaled surveys or census, some issues arose and have to be taken into account, as follows;

1. Needs of high caution for taking good care of the questionnaires designed for this system due to the sensitivity of the machine, it would not accept the questionnaires with wrinkle, or it may cause the wrong interpretation of the data with the wrinkle questionnaire. However it is rather difficult to strictly control with couple reasons, i.e.

1.1 The questionnaires have to be transferred from the central office to the local offices throughout the country it is rather difficult to control all the questionnaires to be neat.

1.2 Enumerators have to carry the questionnaires with them about a month period of field operation; sometime they have to travel quite far away to remote area.

2. Questionnaire form needs a special design, in terms of quality of paper used for the form, size of page, color of the text, figures printed in the form and the square boxes for the answers, however, due to a great number of forms to be used for the census NSO has to hire many publishing

companies to do the work. Therefore the forms from various companies were not in the same standard and caused longer time for data capture stage.

3. Future Plan

National Statistical Office plans to conduct Pilot Census in 2008. Objectives of Pilot Census are to test for all steps of conducting population census, namely, preparation and planning step, data collection, data analysis, and data dissemination step. Lessons learnt from Pilot Census will be applied for the becoming 2010 Population and Housing Census.

In preparing for the next census, much effort have to be made in reviewing the users' needs. The content of the census should cover variables that are expected to be of great demand for the following 10 years and not only for the census year.

3.1 Census Methodology

The methodology used in the 2010 Census is quite the same as last census for both listing stage and enumeration stage. These two stages are doing in the same time. Sampling method is adopted because of limitation budget. Complete enumeration is applied into both persons and households by using short form questionnaire, however for the detailed information, only 20% sample households is collected and long form questionnaire will be used.

3.2 Field Personnel

The period of data collection is 1-31 May 2010 with census reference date of 1 May 2010. There are approximately 45,000 enumerators and 7,500 supervisors, with the ratio of one supervisor to 6 enumerators. An enumerator is assigned to be responsible for one enumeration district, which consists of 200-300 households.

The 2010 Population and Housing Census still adopt face to face interview as the major method of data collection. Other methods should be considered to apply for specific areas, such as apartment, condominium, high security areas etc., where the enumerators are not normally allowed to enter into those places to make interview. Then the self-enumeration method by asking cooperation from manager of the resident to collect the data.

It is still in the process of considering to change the field personnel from school teachers to village volunteers for the becoming census, following the best practice from the last agriculture census in 2003.

For non-municipal areas, volunteers in village are employed as field personnel, while temporary employees with at least Bachelor' s degree for supervisors and with at least upper secondary level (Grade 11) for enumerators, are planned to employed to work in Bangkok and municipal areas.

3.3 Data Processing

For data processing stage of the next Population and Housing Census, the NSO will be able to build a strong ICT infrastructure to enhance its system of data processing and dissemination. Image scanning system is a technology for efficiently managing the data capture for large-scale surveys and censuses. It provides accurate, timely and reliable data capture from the census forms with less human intervention than needed for manual data entry. Because the census requires large-scale data collection, the image scanning system to be installed must be sufficiently efficient to process the data within the required period. For such a large investment, the possibilities for using the technology after the census is completed will have to be considered.

Since Thailand has had experience in using the ICR technology from for the previous Census, it will be used again in the 2010 Population and Housing Census and more ICR system will be set in regional centers. The NSO will be able to build a strong training of trainers, implementing a public awareness and educating campaign on the 2010 Census. The lessons learnt from previous census, together with good planning and preparing will make the 2010 Population and Housing Census successfully.