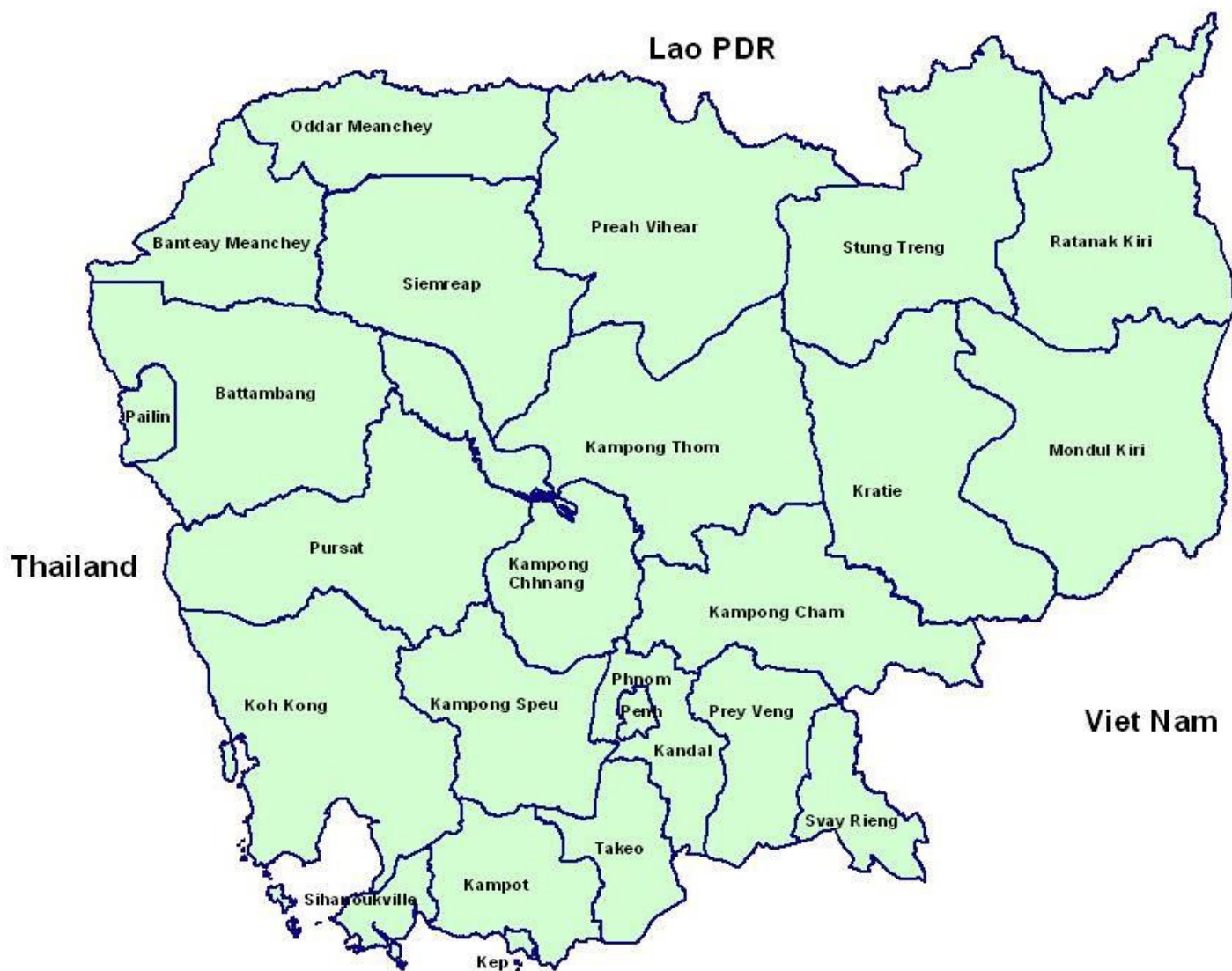


**IUSSP XXV International Population Conference
Tours, France 18-23 July, 2005**

**Paper for Cambodia
Mrs. Hang Lina
Deputy Director General
National Institute of Statistics, Ministry of Planning**



1.INTRODUCTION

After a long lapse of thirty six years Cambodia conducted a national census in March 1998. This was followed by Cambodia Inter-Censal Population Survey (CIPS) carried out in March 2004 which used a questionnaire almost on the census pattern. This paper makes a critical appraisal of both Census and CIPS data, throwing light on the current demographic situation of Cambodia. Both the census and the survey conducted with UNFPA assistance are valuable sources of data for monitoring the Millennium Development Goals (MDGs).

The CIPS is based on a nationally representative sample survey taken between two censuses, the 1998 census and the proposed 2008 census. It was designed to update information on population size and growth, fertility, mortality, migration and other population characteristics as well as household facilities and amenities. Due to the national elections and administrative issues, the CIPS was undertaken in March 2004 instead of 2003, which would otherwise have been the five-year mid point between the 1998 and 2008 Censuses.

In 1993, as soon as a democratically elected government was established the Royal Government of Cambodia requested UNFPA (the United Nations Population Fund) to provide technical and financial support for conducting a population census.

The Census project CMB/94/P02 started in 1995 and established and equipped a census office within the National Institute of Statistics (NIS) of the Ministry of Planning.

The 1990s saw two major demographic data collection exercises managed by the Census office; namely (1) the Demographic Survey of Cambodia 1996, conducted as a prelude to the 1998 Census and (2) the General Population Census of Cambodia 1998 mentioned above.

Because of these undertakings the exact size as well as the structure and distribution of the population of Cambodia were known for the first time in more than three decades, since there was no census after the 1962 Census due to war and political disturbances in Cambodia.

The process of formulating a National Population Policy has been greatly advanced through the availability of population and demographic data. At the same time data from specialized surveys such as the socio-economic survey and the Demographic and Health Survey have complemented the Census data and helped provide a body of essential statistics to guide the development process. The conduct of the Cambodia Inter-Censal Population Survey 2004 is an important step in the creation of a continuous flow of data that will allow Cambodia to prepare plans and programmes supported by a strong database.

2. Objectives of the Cambodia Inter-Censal Population Survey 2004 (CIPS)

The Cambodia Inter-Censal Population Survey 2004 was conducted with the objective of providing information on the following indicators:

- ◆ Sex, age and marital status
- ◆ Births and Deaths
- ◆ Migration status
- ◆ Literacy/Educational level
- ◆ Economic characteristics
- ◆ Housing and household amenities
- ◆ Other population and household information

These fresh data will allow for calculations and reliable projections of:

- ◆ Population size and growth
- ◆ Fertility
- ◆ Mortality
- ◆ Migration

The survey was also intended to train the national staff in sampling, data collection, data processing, analysis and dissemination.

3. Questionnaires

The draft questionnaires for the CIPS 2004 were more or less on the 1998 General Census pattern. Some modifications, however, were made by adding new questions on (i) whether children aged 0-14 living with own mother (ii) whether a person's mother is alive and (iii) details of deaths in households in the last one year with focus on maternal mortality. Questions mentioned at (i) and (ii) were intended respectively to estimate fertility (by application of own child method) and mortality (by application of orphan hood method). The questions to be included were carefully considered by a Working Group of Cambodia Inter-Censal Population Survey 2004, whose members were mostly from Ministries, NGOs and International Agencies. The Questionnaires were tested twice in the field (both urban and rural) by NIS staff in November 2003. The purpose of the pre-test was to have a full-dressed rehearsal of the whole process and particularly to test the questions in the field so as to make corrections in wording or definitions and to estimate the time taken for enumeration area mapping, house listing, sampling and enumeration of selected household. Based on the pre-test experience the questionnaires were modified and finalized.

Two types of questionnaires were used in the CIPS 2004: Form A House-list and Form B Household Questionnaire.

The Form A was used to collect information on buildings containing one or more households during the preliminary round preceding survey night (March 3, 2004). The information collected related to: construction material of wall, roof and floor, whether it is a wholly or partly residential building, number of households within the building, name and sex of head of household and number of persons usually living in the household.

The Form B, which has five parts, was used for survey enumeration in the period closely following the reference time. In Part I, information on usual members of the selected household present on survey night, visitors present as well as usual members absent on survey night, was collected.

Part II was used to collect information on each usual member of the household and each visitor present on survey night. The information collected included: full name, relationship to household head, sex, age, natural mother, child aged 0-14 living with own mother, marital status, age at first marriage, mother tongue, religion, place of birth, previous residence, duration of stay, reason for migration, literacy, full time education and economic characteristics.

Part III was used to collect information on females of reproductive age (15-49) as well as children born to these women. The information collected in part IV related to household conditions and facilities: main source of light, main cooking fuel used, whether toilet facility is available, main source of drinking water and number of living rooms occupied by household.

Part V was used to record the following information in respect of deaths in the household within the last one year:- name of deceased, sex, relationship to head of household, age at death, whether the death has been registered with the civil authorities or not, the cause of death and maternal mortality information.

4. Sampling Design

The CIPS 2004 was conducted in a nationwide representative sample of 21,000 households within selected 700 villages (primary sampling units) out of 13,886 villages in Cambodia. The 700 villages were selected from updated frame (list of villages for Cambodia).

A three-stage sample design has been used for the CIPS. In the first stage a sample of villages was selected. The villages were implicitly stratified into 45 strata (21 provinces each with rural/urban* strata i.e. 42 strata plus 3 provinces each totally urban, i.e. 3 urban strata). The villages were selected using systematic sampling with probabilities proportionate to size (PPS). The size **measure** used for the selection was number of households in the village according to the 1998 Census with estimation for a few additional villages not in the 1998 census frame.

In the second stage one Census Enumeration Area was selected randomly (in the head office) in each selected PSU. At the beginning of the fieldwork all households in the EA were listed. A systematic sample of 30 non-vacant households was selected as the third stage of selection.

The listing of households in the EA would become cumbersome if there **were** many households in the EA. This might be the case when the enumeration area had grown substantially since the census. When the EA was large (population wise) the interviewer was instructed to split the EA into two or more approximately equal-sized segments and to select one segment randomly. All households in the selected segment were listed. Out of the 700 Sample PSUs, 598 were from the rural super stratum and the remaining 102 were from the urban super stratum.

5. Organization of the Survey.

The Director General of NIS served as the Director of CIPS 2004. The provincial planning directors of each of the 24 provinces served as coordinators in their own area. About a hundred NIS survey coordinators were drawn from different divisions of NIS and allotted to provinces at the rate of about seven to eight villages per person. They then acted as the technical advisors to all survey staff and were responsible for technical aspects of the survey in the allotted province. Their foremost tasks were to train the supervisors and the enumerators, supervise the fieldwork and ensure proper distribution of CIPS material and collection of completed records.

For every enumeration area there was one enumerator and normally the work of three enumerators was monitored and supported by one supervisor. Enumerators and supervisors were drawn from the cadre of teachers and other civil servants. Preferably those residing within or near the selected villages were appointed by the provincial directors. All in all there were 700 enumerators and 234 supervisors busy in the field during early March 2004. Two staff from the National Institute of Public Health as well as two UNFPA Programme Staff also assisted in supervising the field activities. **Technical backstopping was provided by UNFPA.**

6. Training of Field Staff

The 100 NIS Survey Coordinators (NIS SC) were first intensively trained at the NIS (November-December 2003) on village EA mapping, sampling, houselisting, household questionnaires, concepts and definitions.

The Province Directors (with Deputy Directors) were trained on the CIPS at NIS for one week in January 2004, since they were deeply involved in organizing the survey and making field visits to ensure that the survey is proceeding on track. The training of appointed enumerators and supervisors on all aspects of the

survey, especially questionnaire and concepts (including practice), was conducted at the Provincial Headquarters by NIS SC assisted by the Provincial Director/ Deputy Director for six days (19 to 23 February, 2004).

7. Collection of Data

For every Primary Sampling Unit (PSU) or village, a field listing was organized in order to make a current and complete listing of the households located within selected EAs. At the first step the enumerator would have to draw sketch maps of villages and EA maps. Residential and partly residential building were numbered using stickers and marked on map by covering a prescribed path of travel in order to make sure that all buildings in which households resided were accounted for.

During the primary operations of the survey (lasting four days from 28 February to 2 March 2004) buildings/structures wholly or partly used for residential purpose in selected EAs (700 in all) were listed in the House List called Form A. After the listing operation had been completed, a fixed sample size of 30 households was selected in each EA by the supervisors. This selection was carried out systematically by computing the sampling interval in each EA and choosing the random start, by using linear sampling. It was closely supervised by NIS SC to ensure correctness in the selection process.

During the main phase of the survey, the Household Questionnaire called Form B was completed by enumerators in each of the 30 sample households selected in his/her EA. Overall, the supervisory teams found respondents were willingly answering the survey questions.

8. Data Editing and Coding

The completed records (Forms A, Form B, Form I, Form II, Map, and other Forms) were systematically collected from the provinces by NIS Survey Coordinators on the due date and submitted to the team receptionist at NIS. NIS Survey Coordinators formed into three teams of two persons were trained during March 7-10 to receive and arrange the completed forms and maps for processing after due checking from the field. Control forms were prescribed by DUC to record every form without any omission. These records were carefully checked, registered and stored in the record room. Editing and coding of the questionnaires were done manually, after which the questionnaires were submitted to the computer section for further processing.

The instruction for editing and coding were revised and expanded. Training on editing and coding was conducted for senior staff, who in turn had to train other editors and coders. The purpose of the editing process was to remove matters of obvious inconsistency, incorrectness and incompleteness, and to improve the quality of data collected. Coding had to be done very carefully in respect of

birthplace and previous place of residence by using the district and province codes, and occupation and industry by using the UN International Standard Classification of Occupation (ISCO) and the International Standard Industrial Classification (ISIC) respectively. For these purposes, NIS utilized staff with sound knowledge and experience of the survey and its concepts. Those who worked as trainers or supervisors were put on this job supplemented by well-trained and tested staff. Editing and Coding was done by two teams (each with six editors and one team leader); so that one of the editors who was trained specifically in occupation/industry coding should do that coding for columns 20 and 22 of part 2 household questionnaire. The work of team members was completely checked by the Team leaders. The training on editing and coding was done from 23 to 26 March. The manual processing commenced on March 29 and was completely done by the end of May 2004.

9. Data Entry and Computerization

As already mentioned, the form A is completely identical to the one used during the 1998 General Census, whereas the main survey questionnaire, Form B, has had a few new questions added on mother alive, whether living with own mother, age at first marriage, registration of birth and a new panel consisting of 9 questions related to Deaths in Households in the last 12 months.

In order to capture the data recorded on Form A and Form B two separate data entry applications needed to be **adopted**. A decision to develop the data entry using CPro software package, and to generate the tabulation using IMPS, had already been taken by NIS. CPro, which stands for Census and Survey Processing System, is a public service system free of cost disseminated by US. Census Bureau. IMPS (Integrated Microcomputer Processing System), has been adopted in many statistical offices, worldwide.

The data entry section consisted of 14 keyboard operators working under two supervisors. They were thoroughly trained on data entry procedures and the CPro data entry software from 20 to 23 April 2004. The questionnaires were keyed-in twice in order to minimize typing errors (i.e. full verification of the data was achieved). Data entry commenced on 26 April and was completed by 30 June 2004.

Computer editing and correction was performed using the CONCOR module of IMPS. After computing the weights the Survey results were tabulated with the CENT and QUICKTAB module of IMPS. Tabulation was completed by the end of August 2004. Multiple backups of the Survey data were made onto Magnetic Optical disks.

10. Limitations of Data

The various estimates presented in this report are derived from a sample of the surveyed population. As in any survey, these estimates are subject to both sampling and non-sampling errors.

Sampling errors are related to sample size. It is mainly constituted by variable errors called 'variance'. The variance is the average deviation of sample estimates from average of all possible estimates under the same sample design and the same essential conditions.

Non-sampling errors are errors in survey estimates occurring for reasons other than the fact that the estimates were obtained from only a selected portion of population. The main types of non-sampling errors are: coverage errors, response and content errors, non-response errors and processing errors (coding, data entry and tabulation). By intense supervision at every stage the non-sampling errors were kept at the minimum.

Given the sample size of about 21,000 households spread over 700 PSUs, the main estimates are expected to be reliable at the national level. However province level estimates were made separately after suitably grouping small provinces.

11- SALIENT RESULTS OF CIPS 2004

11.1- Population and Households

According to the Cambodia Inter-Censal Population Survey 2004 (CIPS), the estimated population in 2.530 million regular households in Cambodia as on 3 March 2004, the reference date, was 12.824 million. As CIPS did not cover institutional households (e.g. hostels, lodges, prisons etc.), homeless households, boat population and transient population, an estimate of the population in respect of these households has been made applying the same proportion of this type of population to total population in the 1998 census (2.04 per cent). The total estimated population of Cambodia thus works out to 13.091 million. The density of population at the national level works out to 74, a rise of ten points over the 1998 level.

11.2- Growth Rate

The annual growth rate of population of Cambodia at the national level between March 3, 1998, the reference date of the 1998 census and March 3, 2004 works out to 1.81 percent. The annual growth rate during 1998-2004 on the basis of the projected population of 13.588 million in 2004 and 12.169 million in 1998 works out to 1.84 per cent, which is only marginally more than the annual growth rate of 1.81 arrived at on the basis of CIPS.

Preliminary analysis of CIPS results at the national level has revealed that the estimated Total Fertility Rate (TFR) for Cambodia is 3.34. The projected TFR is 3.73 for 2003 and 3.68 for 2004. Compared to the TFR of 3.99 in 1998, there is clear indication that fertility is declining and is more or less at the level expected in the projection.

As regards infant and child mortality, CIPS shows lower levels than shown in the projection. These differences may be due to mortality declining faster than expected or due to underestimation. The average size of household has marginally decreased during 1998-2004 both in urban and rural areas indicating the beginning of a trend to have smaller sized households.

11.3- Female Headed Households

Out of 2.5 million households in Cambodia 29.2 per cent households are headed by females, registering thereby an increase of 3.5 points over and above the proportion of 25.7 per cent in 1998. It has to be pointed out in this connection that in CIPS which was on a de facto basis, if the usual head of household was away, the person managing that household in his or her absence was treated as head of household. This could have also contributed to a higher percentage of female-headed households. The percentages of female-headed households in urban and rural areas work out to 28.6 and 29.3 respectively.

11.4- Sex Ratio

Out of the total estimated regular household population of 12.824 million, 6.197 million are males and 6.627 million are females. This gives the overall sex ratio of 93.5 (number of males per 100 females). Females outnumber males both in rural and urban areas of Cambodia.

The sex ratio at the national level has slightly increased from what it was in 1998 (93.0). Urban areas have registered a marginal decline (1.4) from 95.7 in 1998 while rural areas have made a marginal increase (0.9) from 92.5 in 1998.

11.5- Age Structure

Tests have shown that the age returns of the survey may be considered fairly reliable despite some irregularities. The proportion of population in each of the broad age groups based on the survey and population projections are almost the same though there are variations when five-year age groups are compared.

The proportion of children in the population has decreased by about four points during 1998-2004. The proportions in the higher ages show an increasing trend indicating the setting-in of a trend towards ageing.

The proportion of children in the age group 0-4 (11.1 per cent) is less than that in the age group 5-9 (12.8 per cent). This may be due to recent decline in fertility or under-enumeration in the age group 0-4. The age pattern of sex ratio is more or less the same both in 1998 and 2004. The age dependency ratios (80 for males and 69 for females) are lower than the corresponding ratios in 1998.

11.6- Marital Status

Most of the males and females are currently married. The proportions of widowed, divorced and separated among women are much more than the corresponding proportions among males. This pattern, which was observed even in the 1998 census, is mainly due to higher mortality among men especially in older ages and less tendency among women to get remarried once they are widowed, divorced or separated. In the urban areas the proportion of never married is higher than that in rural areas both in respect of males and females.

11.7- Literacy, School Attendance and Educational Level

There is an overall improvement in the literacy level in Cambodia in respect of males and females and in urban and rural areas. In 1998 nearly two thirds of the population could read and write with understanding and in 2004 nearly three-fourths can do so. In 1998, over half the number of women was literate and in 2004 more than two-thirds of the women were literates. A remarkable increase is noticed in the percentage of literates among children in the age group 10-14, from 67.6 to 87.6 during the last six years.

There is considerable improvement in school enrollment of children, both boys and girls during the last six years. In the case of females the increase in percentage (11.6) is more than that among males (8.7). Overall the percentage of those attending school / education institution has increased from about 49 percent in 1998 to about 59 percent in 2004.

At the time of the survey among to literate population in Cambodia as a whole, about 61 per cent have not completed primary while only 23 per cent have completed the primary level. Those who have completed lower secondary level of education is only nine per cent while those who have secondary level qualification constitute a bare three per cent. Less than one per cent has qualification higher than secondary level (graduates, post graduates etc.).

The observation in the 1998 census data that more than half of the literate population aged 25+ (57 per cent) have not completed even the primary level of education is confirmed by CIPS 2004 also with a slightly lower percentage (54 per cent). Yet another confirmation by the survey is that 82 per cent of this population has not gone beyond primary level of education and that proportion of females (88 per cent) is more than that of males (78 per cent).

As already concluded on the basis of 1998 census, attention has also to be paid to improve the prevailing low educational level alongside efforts to achieve cent per cent literacy.

11.8- Economic Activity

Economically active persons or persons who constitute the labour force are the employed and the unemployed. The economic activity rate defined as the percentage of economically active population to total population has increased from 55.5 in 1998 to 65.5 in 2004 at the national level. The participation rate for males (66.4) is slightly higher than that for females (64.6) as was the position in 1998 also. The unemployment rate defined as the percentage of unemployed among the economically active population has increased from 5.3 in 1998 to 7.1 in 2004.

About 74 per cent of employed persons in Cambodia are in the primary sector of employment (agriculture, hunting, forestry and fishing). In 1998 the corresponding percentage was 77.5. The survey has revealed that about 7 per cent and 19 per cent are respectively in the secondary sector (Mining and quarrying, manufacturing, electricity, gas and water supply, and construction) and tertiary sector (trade, hotels and restaurants, transport, business, administration, service activities etc.). The shift from primary to secondary and tertiary sectors though on a modest scale, is a welcome trend.

Most of the employed persons are own account workers (41 per cent) and unpaid family workers (45.7 per cent) indicating that a large majority of employed persons in Cambodia are in the informal sector.

11.9- Migration

It is noted that the percentage of persons not born in the place of enumeration is 28.6. This is very close to the corresponding percentage of 26.8 in 1998. These persons are lifetime migrants who have moved out of their places of birth to the place of enumeration. As in 1998, the percentage of lifetime migrants to total population in urban areas (52.7) is more than double of that in rural areas (24.3)

Those who have never had a residence other than the place where they were enumerated constituted nearly 65 per cent as against 69 per cent in 1998. In other words 35 percent of the population are migrants in 2004 as against 31 per cent in 1998. This is as is to be expected in a developing economy.

Family moved (44 per cent) followed by Marriage (16.3 per cent), Repatriation/ Return after displacement (13.5 per cent) and in Search of Employment (12.2 per cent) is the main reason for people moving from their last residence to the place where they were enumerated.

Rural to rural migrants constitute the majority of migrants (68.9 percent) within Cambodia. Rural to urban migrants constitute the next highest percentage (13.9 percent) though much lower than the rural to rural migrants.

11.10- Housing

The estimated number of buildings in which people reside or in other words which have dwellings, is 2.3 million in Cambodia of which 2.03 million are located in rural areas. The number of buildings in 1998 was 1.99 million and there is therefore only an average annual increase of 2.6 percent in the number of residential and partly residential buildings in Cambodia during 1998-2004.

The survey has shown that about 47 per cent of the residential buildings are built of permanent materials. In 1998 the corresponding figure was 34.2. The proportion of semi-permanent buildings has increased by about five points from 21.3 in 1998 to 26.2 in 2004. The proportion of temporary structures has declined from 44.5 to 26.9. The quality of housing seems to be improving in Cambodia.

It is noted that about three-fourths of the households have one room only. In the 1998 Census also a similar proportion was observed. Those who have two rooms constitute about 20 per cent.

11.11- Household Amenities / Facilities

Nearly 44 per cent of households in Cambodia have access to safe drinking water in 2004 as against 29 per cent in 1998. While kerosene continues to be the main source of domestic light especially in rural areas there is a drastic decrease in the proportion of households using kerosene from nearly 80 per cent in 1998 to about 65 per cent in 2004.

There is only a modest increase during 1998-2004 in the proportion of households having toilet facility within their premises. The percentage has increased from 14.5 per cent to 21.9 per cent at the national level. In the urban areas majority of households having toilet facility have them connected to sewerage. In the rural areas septic tank is used by nearly half the number of households having toilet facility.

Only 11 percent of households in Cambodia have all the three facilities/amenities namely safe drinking water supply, electric power and toilet facility at home. There is therefore a long way to go in households achieving all the three facilities together.

At the national level most of the households use firewood for cooking as was revealed by the 1998 census also (90 per cent). Use of charcoal and LPG has increased marginally (by two to three points each) during the last six years. In

urban areas charcoal and LPG are more popular than in rural areas as was noticed in the 1998 census also.

12- Dissemination strategy/plan

Dissemination was an essential part of the 1998 Census and 2004 CIPS activities. The plan included release of Census and CIPS products which met the needs of specific user's best. The Census data were released through printed publications and CD-Roms. The dissemination plan specified the different products to be prepared and the means of dissemination. The plan is aimed at the dissemination of data being pro-active. Apart from producing the Census and CIPS reports the census office staff worked directly with key users to make aware of the data and what is more, to encourage them to incorporate the data in their own work. Consequently, the data dissemination plan included dissemination through conferences/seminars, training workshops, technical workshops for staff of Ministries and Government departments as well as international agencies and NGOs. Dissemination of CIPS results started in April 2005. The dissemination was user-oriented. The NIS staff was trained in dissemination by UNFPA CST Adviser.

The dissemination seminars and training workshops were organized at each and every province headquarter (in all 24 centers) for the benefit of such data users. The dissemination staff and trainers from the NIS moved from province to province. It had a tremendous impact on the provincial data users who needed the data. The NIS also provides statistical services to the Ministry of Planning and the Council of Minister in connection with population policy formation and advocacy thereby enabling further dissemination of CIPS data.

Thanks to the demographic data made available by the 1998 Census and subsequent surveys, the Royal government of Cambodia could evolve for the first time a National Population Policy of Cambodia in August 2003. This National Population Policy will be used by the Royal Government of Cambodia to influence population and development dynamics to be more commensurate with socio-economic development and with natural and human resources available in Cambodia.

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