



KINGDOM OF CAMBODIA
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**CAMBODIA INTER-CENSAL POPULATION
SURVEY 2013**

**Analysis of CIPS Results
Report 2**

Spatial Distribution and Growth of Population



**National Institute of Statistics, Ministry of Planning
Phnom Penh, Cambodia**

**Sponsored by
United Nations Population Fund
Japan International Cooperation Agency**

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FOREWORD

By HE. Senior Minister, Minister of Planning, Cambodia

I have great pleasure in presenting this report on Spatial Distribution and Population Growth in Cambodia, containing an in-depth analysis of the results of the Cambodia Inter-censal population Survey (CIPS), conducted by the National Institute of Statistics (NIS) in March 2013 under technical and financial support by UNFPA, JICA and Government of Japan. From the point of view of a nationally representative sample survey of 955 Primary Sampling Units and 28,650 households, this survey could be considered as a major statistical exercise in the country in recent time. This database created by the present survey could be useful on an interim basis until the next population census is conducted.

This survey is follow-up of the successful Population Census conducted in 2008 after Population Census 1998. The census results have been widely disseminated within the line Ministries and among large body of data users and public. The National Population Policy for Cambodia formulated in August 2003 was one of the significant outcomes of the census results.

The successful conduct of the next census is crucial to obtain a correct population count and to update the much needed demographic data in the country. Such information is required for planning not only at national and provincial level but also at district, commune and event at village levels.

The present survey is in the nature of preparation for the gigantic task of the census. More than a thousand staff of the NIS and Provincial Planning Office was trained in this survey. Their services will be available for the next census to train a large number of enumerators and supervisors who will be recruited. The CIPS 2013 may therefore be called the harbinger of the next Population in Cambodia due in the year 2018.

On behalf of the Ministry of Planning, I wish to place on record our gratitude to the United Nations Population Fund (UNFPA) for supporting the whole process of CIPS, 2013 including resources and technical assistance program with emphasis on capacity development. Thanks are due to Japan International Cooperation Agency (JICA) for providing technical assistance for mapping villages and Enumeration Area (EAs), and for participating in analysis and dissemination of the results.

I appreciate the hard work put in by the staff of the NIS under the guidance and supervision of H.E. Mrs. Hang Lina, Director General, NIS and the Provincial Planning Offices in making the survey a success as well as in the preparation of this report. I wish to take this opportunity to thanks all staff in the National Institute of Statistics as well as all survey field staff who have taken part and contributed to success of the Cambodia

Inter-censal Population Survey, 2013. We are also thankful to technical advisers for the survey: Mr. Nott Rama Rao, Dr. Hans Petterson, Mr. Yi Soktha, Mr. Gregory Martin, Mr. Fumihiko Nishi, Mr. Akihiko Ito and Mr. Akihito Yamauchi.

I am sure this report would be welcomed by the line-ministries, international agencies, non-government organization, policy makers, program implementers, development planners, and researchers a publication with a plethora of useful information. We hope to received feedback and comments to improve our subsequent publication. *Sad 1/15 5/4 1/11/13*



CHHAY THAN
Senior Minister,
Minister of Planning

Ministry of Planning
Phnom Penh
December 2013

PREFACE

The Cambodia Inter-censal Population Survey, 2013 was conducted not only to obtain the much-needed demographic data following the census, but also to serve as a means to train the staff of the NIS and Provincial Planning Offices in demographic data collection. We are happy to record that the survey achieved both objectives.

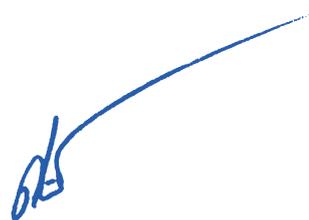
This report contains an in-depth analysis on Spatial Distribution and Population Growth in Cambodia based on the results of CIPS, 2013. A general report at national level and separate report for each province will be prepared later. There was planned to produce more in-depth studies based on the results of the survey, on other topics of interest.

Our special thanks are due to H.E. Chhay Than, Honorable Senior Minister, Minister of Planning, Cambodia whose keen interest in the census and in the survey was always a source of inspiration and encouragement both to the national and international staff of the project.

We sincerely thank to the United Nations Population Fund (UNFPA) for supporting the whole process of CIPS, 2013 including resources and technical assistance program with emphasis on capacity development. Thanks are due to Japan International Cooperation Agency (JICA) for providing technical assistance for mapping villages and Enumeration Area (EAs), and for participating in analysis and dissemination of the results.

The success of the survey was mainly due to the enthusiastic participation of a large number of staff in fieldwork, data processing and other survey activities. To every one of them our thanks are due. The UNFPA and JICA national project staff closely assisted the NIS and the provincial staff. The names of personnel associated with this report are mentioned separately. We are thankful all of them. *thor*

Phnom Penh, Cambodia
December, 2013



Hang Lina
Director General
National Institute of Statistics

Cambodia Inter-censal Population Survey, 2013 Personnel Associated with this report

National Institute of Statistics H.E. Mrs. Hang Lina, Director General

Mr. Has Bunton, Deputy Director General

Mr. Sok Kosal, Deputy Director General

Mr. Try Menseang, Deputy Director of Demographic, Census and Survey Department

Mr. Chea Kung, Deputy Director of Demographic, Census and Survey Department

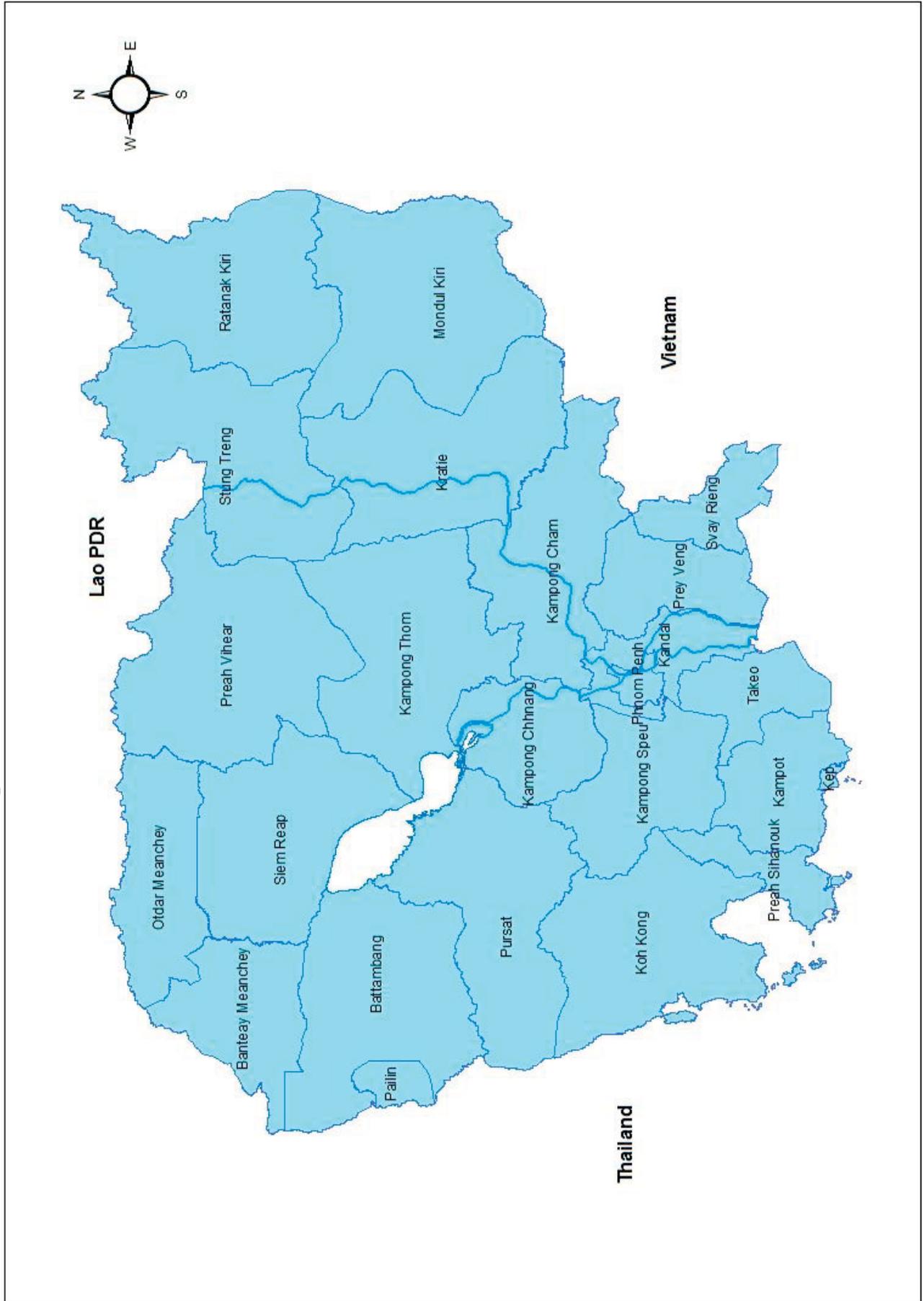
Mr. Seang Rith, Vice Bureau Chief

Mr. Chap Ratana, PD Assistant

List of Abbreviations and Acronyms

ASFR	Age-Specific Fertility Rates
CDHS	Cambodia Demographic and Health Survey
CD-ROM	Compact Disc Read-only Memory
CEB	Children Ever Born
CIPS	Cambodia Inter-censal Population Survey
CMDGs	Cambodia Millennium Development Goals
CS	Children Surviving
CWR	Child Woman Ratio
CSPro	Census and Survey Processing System
DDG	Deputy Director General
DG	Director General
DUSC	Data Users Service Center
EA	Enumeration Area
GIS	Geographic Information System
GRR	Gross Reproduction Rate
IMR	Infant Mortality Rate
JICA	Japan International Cooperation Agency
MOP	Ministry of Planning
NGO	Non-governmental organization
NIS	National Institute of Statistics
NSDP	National Strategic Development Plan
PES	Post Enumeration Survey
POPMap	Population Map
PSU	Primary Sample Units
QA	Quality Assurance
REDATAM	Retrieval of Data for Small Areas by Microcomputer
RGC	Royal Government of Cambodia
RS	Rectangular Strategy
SSU	Secondary Sampling Units
TFR	Total Fertility Rate
TV	Television
U5MR	Under-Five Mortality Rate
UN	United Nations
UN CensusInfo	United Nation Census Information
UNFPA	United Nations Population Fund
WHO	World Health Organization
WB	World Bank
WinR+	Redatam Plus for Windows

Map 1. CAMBODIA- PROVINCES



Cambodia Inter-censal Population Survey 2013
Final Result
Figures at a Glance

Basic Characteristics of administrative			
Number of municipality	1		
Number of provinces	23		
Number of cities/Krongs	26		
Number of khans	9		
Number of districts	159		
Number of sangkats	204		
Number of communes	1,429		
Number of villages	14,119		
Characteristics	Total	Males	Females
Total population	14,676,591	7,121,508	7,555,083
Urban population	3,146,212	1,527,479	1,618,734
Percentage of urban population	21.4	21.5	21.4
Annual growth Rate	1.46 %		
Population density	82/sq.km		
Percentage of population under 15	29.4	31.2	27.8
Percentage of population 15-64	65.6	64.7	66.4
Percentage of population 65 +	5.0	4.1	5.8
Age dependency ratio			
Total	52.4	54.5	50.5
Urban	41.8	43.0	40.6
Rural	55.6	57.9	53.5
Sex ratio			
Total	94.3		
Urban	94.4		
Rural	94.2		
Median age			
Total	24.5	23.4	25.6
Urban	26.9	25.8	27.8
Rural	23.9	22.8	25.1
Number of Households			
Percent of female headed households	3,163,226		
	27.1		
Average household size			
Total	4.6		
Urban	4.8		
Rural	4.6		
Percentage of population aged 15 and over by marital status			
Never married	31.1	35.3	27.4
Married	61.9	62.5	61.3
Widowed	5.0	1.3	8.4
Divorced	1.8	0.8	2.7
Separated	0.2	0.1	0.3
Singulate Mean age at Marriage			
Total	25.0	26.2	23.7
Urban	27.5	29.1	25.8
Rural	24.2	25.4	23.0
Adult literacy rate (population aged 15 and more)			
Total	79.7	86.4	73.6

Urban	90.3	94.2	86.8
Rural	76.5	84.1	69.7
Educational attainment of Literate population aged 7+			
No educational level	3.1	2.8	3.4
Primary not completed	40.8	37.5	44.3
Primary completed	29.4	29.4	29.3
Lower secondary	21	23.4	18.5
Secondary/diploma	3.9	4.5	3.2
Beyond Secondary	1.8	2.4	1.3
Proportion currently attending school/educational institution			
Aged 5-11	74.2	73.2	75.2
Aged 12-14	88.2	88.2	88.2
Aged 15-17	61.4	64.1	58.7
Aged 18-24	21.5	25.4	17.6
Aged 25 +	0.7	1.0	0.4
Percentage of disabled population			
	2.1	2.2	1.9
Percentage of disabled population by type of disability			
Difficulty in seeing	34.8	31.4	38.6
Difficulty in speech	5.4	4.4	6.5
Difficulty in hearing	9.0	7.4	10.8
Difficulty in movement	33.4	41.4	24.7
Mental	12.2	9.8	14.7
Mental retardation	5.2	3.6	6.8
Mental illness	7.0	6.2	7.9
Any other	3.5	3.9	3.1
Multiple disabilities	1.6	1.7	1.6
Employment and Unemployment			
Labour force participation rate	62.3	63.8	60.9
Employment rate	60.8	62.4	59.3
Unemployment rate	1.5	1.4	1.7
Economically inactive rate	37.7	36.2	39.1
Labour force participation rate aged 15-64			
Total	82.2	84.5	80.0
Urban	73.2	79.5	67.4
Rural	84.8	86.0	83.7
Unemployment rate aged 15-64			
Total	2.3	2.1	2.5
Urban	4.4	3.5	5.4
Rural	1.8	1.7	1.9
Employment rate by industrial sector			
Primary	64.3	62.3	66.3
Secondary	11.5	11.6	11.5
Tertiary	23.8	25.6	21.9
Employed population aged 5 + with secondary activity			
	42.3	44.3	40.4
Percentage of migrant by place of last residence			
Total	28.9	30.0	27.9
Urban	49.4	48.6	50.1
Rural	23.3	24.9	21.8
Percentage of internal migrants by migration stream			
Rural to Rural	58.4	60.3	56.5
Rural to Urban	24.5	23.5	25.5

Urban to Rural	5.1	5.1	5.1
Urban to Urban	12.0	11.1	12.9
Percentage of buildings by nature of construction	Permanent	Semi-Permanent	Temporary
Total	73.6	19.7	6.7
Urban	93.0	5.3	1.7
Rural	68.9	23.2	7.9
Percentages of households by source of drinking water			
Piped water	19.8		
Tube/wipe well	29.5		
Protected dug well	6.2		
Unprotected dug well	14.3		
Rain	1.4		
Spring, river, etc	18.7		
Bought	8.6		
Other	1.4		
Percentage of households using electricity as main source of light			
Total	48.0		
Urban	94.0		
Rural	36.0		
Percentage of households by main type of fuel used for cooking			
Firewood	77.9		
Charcoal	8.4		
Kerosene	0.1		
Liquefied Petroleum gas (LPG)	12.1		
Others	1.4		
Percentage of households having toilet facility within premises			
Total	48.7		
Urban	87.5		
Rural	38.5		
Percentage accessibility to internet facility			
No Access	94.5		
Accessed at home	2.6		
Accessed outside home	1.3		
Accessed at home and outside home	1.6		
Total fertility rate per 1,000 live birth			
Total	2.8		
Urban	2.1		
Rural	3.1		
Infant mortality rate per 1,000 live birth			
Total	33		
Urban	9		
Rural	38		
Under five mortality rate per 1,000 live birth			
Total	53		
Urban	15		
Rural	60		
Life expectancy at birth			
Total	68.9		
Urban	76.8		
Rural	67.6		

Chapter 1

Introduction

1.1 Background

The Cambodia Inter-censal Population Survey 2013 (CIPS) was conducted in March 2013. The reference time for the survey was the midnight of March 3 (00 hours). This is the second Inter-censal Population Survey to be conducted in Cambodia (CIPS 2013). The first one (CIPS 2004) was conducted in March 2004. The Inter-censal Population Survey in March 2013 was planned to take place exactly in the middle of the two censuses held in 2008 and 2018. For the first time, the 2013 Inter-censal Population Survey provides estimates up to the provincial level. The target population set for CIPS, 2013 was the normal household population (regular households) of Cambodia. People living in institutions, such as hospitals, hostels, police quarters and prisons as well as homeless populations were not covered in the survey. However, normal households residing within institutional settings were covered.

It is a nationally representative sample survey conducted for updating information on population size and growth, fertility, mortality, migration and other population characteristics as well as household facilities and amenities.

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 Demographic and Health Survey, labour force surveys and migration studies have complemented the census data and helped build a body of essential statistics to guide the development process. The conduct of the Cambodia Inter-censal Population Survey 2013 is an important step in the creation of a continuous flow of population data that will enable Cambodia prepare plans and programmes of development supported by a strong database.

1.2 Survey Objective

The Cambodia Inter-censal Population Survey 2013 was conducted with the objective of providing information on the following characteristics of the population: Population size and distribution; sex, age and marital status; fertility and mortality; migration status; disabled population; literacy and educational level; employment and unemployment; housing and household amenities; and other population and household information. These fresh data will enable calculation of reliable estimates and projections of: Population size and growth, fertility and mortality levels, volume of migration, housing and household amenities and related details. The survey was also intended to train the national staff in sampling, data collection, data processing, analysis and dissemination.

1.3 Survey Content

The draft questionnaires for the CIPS 2013 were more or less on the 2008 General Census pattern. Some modifications, however, were made by adding new questions and amending some of the old questions. Two types of questionnaires were used in the CIPS 2013: Form A House-list and Form B Household Questionnaire (see Appendix I and II).

The Form A was used to collect information on buildings containing one or more households during the preliminary round preceding the survey night (March 3, 2013). Form B which has five parts, was used for the survey enumeration in the period closely following the reference time.

1.4 Survey Organization

The sampling design and estimation procedure adopted in the survey are described in Chapter 2. The first preliminary field work for the survey was mapping that was carried out with technical assistance from Japan International Cooperation Agency (JICA). Trained NIS staffs were deputed to draw the sketch map of the villages and detailed EA maps.

The Director General of NIS served as the Director of CIPS 2013. The provincial planning directors of each of the 23 provinces and Phnom Penh Municipality served as coordinators in their respective areas. About a hundred NIS survey coordinators were drawn from different divisions of NIS and allotted to provinces at the rate of about eight to nine villages per person. They then acted as 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 materials and collection of completed records.

For every selected enumeration area, there was one enumerator and normally the work of three enumerators was monitored and supervised 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. In all there were 955 enumerators and 318 supervisors busy in the field during early March 2013. The Senior Minister, Minister of planning, Secretaries and Under-Secretaries of State, and other Directors of Departments also assisted in supervising the field activities.

A technical consultant appointed by UNFPA undertook a few short-term missions at appropriate stages to provide training and overall guidance to the NIS and to ensure proper organization and implementation of the CIPS field undertaking as well as to assist in the preparation of the tabulation plan and reports. A sampling consultant provided guidance on sampling particularly on estimation procedure and computation of sampling errors. Data Processing consultant (DPC) in his short-term missions gave training to the staff in data processing and guided and supervised the processing of CIPS results.

1.5 Training for Field Staff

The 100 NIS Survey Coordinators (NIS SC) were first intensively trained at the NIS (November-December 2012) by senior officers on updating village/EA maps, sampling, house-listing, interviewing households and filling-in household questionnaires, concepts and definition. The Province Directors (with their Deputy Directors) were trained on CIPS at NIS for one week in January 2013, since they were expected to be deeply involved in organizing the survey and making field visits to ensure that the survey was proceeding smoothly. The training of appointed enumerators and supervisors on all aspects of the survey, especially questionnaires and concepts (including practice), was conducted at the Provincial Headquarters by NIS survey coordinators assisted by the Provincial Director/Deputy Director for six days (19 to 23 February, 2013).

1.6 Data Collection and Supervision

For every selected EA, a field listing was organized in order to make a current and complete listing of households located within it. At the first step the enumerator would have to update sketch maps of

villages and EA maps. Residential and partly residential buildings were numbered using sticker 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 operation of the survey (lasting five days from 26 February to 2 March, 2013) building/structures wholly or partly used for residential purpose in selected EAs (955 in all) were listed in the House List called Form A (Appendix 1). After the listing operation was completed in an EA, a fixed sample size of 30 households was selected from the house list by the respective supervisor. This selection was carried out systematically by computing interval in each EA and choosing the random start, by using linear sampling. It was closely supervised by NIS survey coordinators to ensure correctness in the selection process.

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

1.7 Data Processing

The completed records (Form A , Form B, Form I, Form II, Map, and other prescribed Forms) were systematically collected from the provinces by NIS Survey Coordinators on the due dates and submitted to the team receptionist at NIS. Training on editing and coding of filled-in schedules was conducted for senior staff, who in turn trained 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. In order to capture the data recorded on Form A (House List), Form B (Household Questionnaire) and Form 2 (Enumerator's Summary), three separate data entry applications using CSPro software package were made. CSPro package was used for tabulation as well. The data entry section consisted of 14 keyboard operators working under two supervisors. They were thoroughly trained on data entry procedures and the CSPro data entry software in the third week of March 2013.

1.8 Tabulation and Analysis Plans

In consultation with data users, NIS decided to produce about 78 basic priority tables (see Appendix III) most of which are for both National and provincial levels. The Provincial level Tables are only for Total and not separately for rural and urban areas due to smallness of the sample size. These tables cover most of the topics included in the CIPS 2013 questionnaires and their cross classification should satisfy most of the requirements of all sections of data users. The production of priority tables may be followed by the preparation of additional tables called supplementary tables if proposed by the data users, and other tables produced in the course of in-depth analysis.

Analysis of the survey data will include preliminary analysis of provisional population totals, general analysis at the National and Provincial levels of the final survey data as well as in-depth analysis in respect of the following topics by the NIS analysis team with technical assistance by UNFPA and JICA: (i) Fertility and mortality (ii) spatial distribution and Population growth (iii) Nuptiality (iv) Gender and age composition (v) Disability (vi) Migration (vii) Literacy and educational attainment (viii) Economic activity and employment (ix) Housing and household amenities (x) Family and Household (xi) Population Projections (xii) Women in Cambodia and (xiii) Urbanization and development in Cambodia. Some more topics may also be taken up for study if needed. A separate report on each topic is expected to be prepared. For this purpose a workshop may be held for each subject involving the national staff not only within the NIS but also from other line Ministries concerned. This will afford an opportunity to the staff concerned to interact with each other and study deeply the survey results and

draw conclusions which could be incorporated in the analytical report. Such a system worked very well in the past census analysis programmes.

1.9 Dissemination Plan

The reports mentioned under the analysis plan will be printed and published. The preliminary report based on provisional population totals was released in August 2013. The present report contains general analysis mostly at the national level, of the data contained in the priority tables. This will be followed by the publication of analytical reports mentioned above in stages.

Off-line electronic dissemination products will be mainly in the form of CD-ROM. The project plans to produce a variety of electronic dissemination products based on CD ROMs. These include: a Table Retrieval System, a Community Profile System and a thematic mapping application. Census Info will also be used as dissemination tool. The NIS maintains a web site (www.nis.gov.kh) for providing information from population censuses, the results of various types of surveys, periodical publication, etc. The salient results of CIPS 2013 will be put on the web site. Seminars for the presentation of the survey results and workshops to train planners in the line Ministries and other data users may be conducted in the course of 2013-14 in Phnom Penh and every province/district so as to benefit participants down to the district level.

1.10 Quality Assurance

Adequate steps were taken to ensure quality of data at every stage of the Survey. For quality assurance in field work, the importance of collecting quality information was stressed in the training classes for enumerators and supervisors. The need to collect accurate data by gender was also emphasized. For every four enumerators, there was a field supervisor who closely checked the work of every enumerator under him/her. The data processing division initially carried out manual coding and editing of filled-in schedules. Computer editing was also carried out to produce clean data sets freed of errors and ready for tabulation. QA was maintained in production of tables also so as to maintain timeliness and security of the tables. In the dissemination of census results accessibility, relevance and user satisfaction is proposed to be ensured.

1.11 Limitations of the Survey

The various estimates presented in this report are derived from a sample of the surveyed population. As in any such survey, these estimates are subject to both sampling and non-sampling errors. Although the CIPS 2013 sample was chosen at random, the people who took part in the survey might not necessarily be a representative cross-section of the total population. Like all sample surveys the results of the present survey are estimates of the corresponding figures for the whole population and these results might vary from the true value in the population. Nevertheless the demographic, social and economic indicators produced are broadly comparable with earlier census and survey results contained so as to serve as a measure of change over time, useful for planning and monitoring.

Chapter 2

Sampling Design, Estimation and Evaluation

2.1 Introduction

This is the second Inter-censal Population Survey to be conducted in Cambodia (CIPS 2013). The total sample size determined in order to make reliable estimates at provincial level was 955 out of 28,000 Enumeration Areas (EAs) of the 2008 Census as Primary Sampling Units (PSUs) and 28,650 households as the Secondary Sampling Units (SSUs).

The survey was designed to provide reliable estimates for urban and rural areas at the national level but at provincial level, it was expected to provide reliable estimates only for total population disaggregated by sixth sample fraction varied by stratum and data were weighted to correctly represent the population. Usually data would be weighted if the sample design gave each individual an equal chance of being selected. This can be achieved by using survey weights. Weights can also serve other purposes, such as helping to correct for non-response.

2.2 Sampling Frame

The sampling frame used for the 2013 CIPS was the complete list of all EAs of the 2008 General Population Census of Cambodia. The list was updated to reflect administrative changes since the last census up to September 2011. The main administrative change was the relocation of the boundary between Kandal and Phnom Penh provinces with the result that 20 communes were shifted from Kandal province to Phnom Penh. Twelve new communes were established, six of them in Battambang province. In addition there were less significant changes like shifting of communes from one district to another within a province, splitting and merging of villages etc. and creation of another Khan in Phnom Penh (called Khan Pur Senchey) by annexing some part of Khan Dangkor and Kandal province. Taking into account all aspects, some geographic areas have been re-coded for construction of a revised and updated sampling frame for utilization in the multistage sample design.

2.3 Stratification

The main domains of study for the survey are the provinces. Reliable estimates were required for each province. Consequently, the sampling frame was stratified by province. Within province a further stratification by urban and rural was done. There was no explicit stratification of province as urban and rural in the Demographic Survey of 1996 and CIPS 2004. The list of EAs was geographically ordered in a serpentine fashion within each stratum. This ordering provided a further implicit stratification on geographical location within the explicit strata as systematic sampling was employed.

2.4 Sample Size and Sample Allocation

An approximately almost equal allocation number of households over the provinces were employed, giving a sample of approximately 1,200 households in each province. The size of the provinces (population-wise) varies substantially; the largest province represents 13.1 percent of the total households in the country; the smallest one represents just 0.3 percent of the total households in the country. Within each province the sample was allocated approximately proportionally between urban and rural areas.

Table 2.1 Distribution of Sample Enumeration Areas (EA) and Households by provinces

Province	Sample Size	
	Enumeration Areas (EAs)	Households
(1)	(2)	(3)
Cambodia	955	28,650
BanteayMeanchey	41	1,230
Battambang	41	1,230
Kampong Cham	41	1,230
Kampong Chhnang	40	1,200
Kampong Speu	41	1,230
Kampong Thom	40	1,200
Kampot	40	1,200
Kandal	41	1,230
Koh Kong	39	1,170
Kratie	40	1,200
MondulKiri	37	1,110
Phnom Penh	41	1,230
PreahVihear	39	1,170
Prey Veng	41	1,230
Pursat	40	1,200
Ratanak Kiri	39	1,170
Siem Reap	41	1,230
Preah Sihanouk	40	1,200
Stung Treng	39	1,170
Svay Rieng	40	1,200
Takeo	41	1,230
OtdarMeanchey	40	1,200
Kep	35	1,050
Pailin	38	1,140

2.5 Survey design

The sample design for the survey was a stratified two-stage sampling design, where the Enumeration Areas (EAs) were considered as the Primary Sampling Units (PSUs) and the households as Secondary Sampling Units (SSUs).

2.5.1 Primary Sampling Units (PSUs)

The EAs or the primary sampling units (PSUs) were well-defined geographic units for which reliable population data are available. The EAs were arranged by geographical codes like province code, district code, commune code, and village code village code and enumeration area code. The sample EAs were then selected using the Linear Systematic Sampling without Replacement (LSSWR).

Selected EAs with less than 40 regular households were discarded and replaced by a neighboring EA of sufficient size. Altogether 12 EAs were replaced in this manner. This procedure was not strictly correct. It meant that the households in the small EAs had no chance of being included in the sample-a violation of the basic principle in sampling. The proper procedure would be to combine the selected EA with a neighboring EA in a random way. However, the number of replacements being so small, it does not significantly affect the quality of the estimates.

Large EAs-the number of households exceeding 150-were divided into roughly equal sized segments containing approximately 60-80 households and one segment was selected randomly. In the case of segmenting, the field team recorded the number of segments that were created and the segment that was selected out of them. The EA map prepared clearly indicated the EA and the segments created within the EA.

An important principle followed was that as far as possible the selected sample of EAs should not be tampered with. If a selected EA turned out to have very few households, still this EA was kept in the sample. Still, in a few cases practical considerations might have overruled this principle. There were two cases where whole villages were relocated from one place to another because the old place had to be cleared for development projects (villages 09020103 and 09020302). In these cases it was decided to keep the villages in the sample.

2.5.2 Secondary Sampling Units (SSUs)

For the purpose of selection of the secondary sampling unit, a household was defined as follows to guide the field staff:” It is a group of people who presently live together and take food from a common kitchen. By this definition, a household does not include persons who are currently living elsewhere for purposes of study or work. The household includes domestic workers or temporary visitors. And, in practice, we want to select our respondent from among persons in the household who will be available for interview on that same day”.

In multi-household dwelling structures (like blocks of flats, compounds with multiple houses, or backyard dwellings for rent, relatives, or household workers), each household was treated as a separate sampling unit.

At this stage, sample households in the sample EA were selected, by Linear Systematic Sampling (LSS) with Random start method as described below:

$R_1 = 1$ to I : Random start in range between 01 to Interval ($R = 1$ to I)

I = Interval between household to another households in the listing sheet

Where:

$$I = M_{hi} / m_{hi}$$

M_{hi} : Actual number households in a listed in EA at the time of survey

m_{hi} : (30hhs) the sample of households select from the selected EA

Assume $R = R_1$ Random start or the 1 sample household ($R = 01$ to I)

The 30 sample households are calculate as below

$$R = R_1, R_2 = R_1 + I, R_3 = R_1 + 2I, \dots, R_{30} = R_1 + 29I$$

2.6 Probability Selection

There was no proportional allocation of the sample at the national level. The spreadsheet containing all sampling parameters and selection probabilities were prepared to facilitate the calculation. Sampling was carried out based on separate sampling probabilities for each sampling stage.

2.6.1 Probability 1

The first-stage sampling probability involved in selection of each i^{th} EA in h^{th} Stratum is:

$$P_{1hi} = \frac{n_{hi}}{N_{hi}}$$

Where:

n_{hi} is the number of EAs selected in h^{th} stratum. N_{hi} is the total number of EAs in the h^{th} stratum

2.6.2 Probability 2

The second-stage sampling probability involved in selection of certain households within the selected EA in stratum h is:

$$P_{2hi} = \frac{m_{hi}}{M_{hi} \cdot S_{hi}}$$

Where:

m_{hi} is the number of households selected in EA i in stratum h (m_{hi} is usually =30; will be less than 30 if the EA is very small, having less than 30 households in total).

M_{hi} is the number households listed in EA (or segment) i in stratum h .

S_{hi} is the number of segments created in the EA (in most cases=1, i.e. when no segmentation has been done. If 3 segments have been created then S_{hi} is equal to 3).

2.7 Extrapolation

A spreadsheet containing all sampling parameters and selection probabilities were prepared to facilitate the calculation of sampling weights. Sampling weights were adjusted for household and individual records. The overall selection probability of each household in cluster i of stratum h is the product of the two stages of selection probabilities.

$$P_{hi} = P_{1hi} \cdot P_{2hi}$$

2.7.1 Basic weight

The sampling weight (design weight) for each household in cluster i of stratum h is the inverse of its overall selection probability:

$$w_{hi} = \frac{1}{P_{hi}} = \frac{1}{P_{1hi}} \cdot \frac{1}{P_{2hi}} = w_{1hi} \cdot w_{2hi} = \frac{N_h}{n_h} \cdot \frac{M_{hi} \cdot S_{hi}}{m_{hi}}$$

2.7.2 Adjustment weight

A study of the sizes of the sampled EAs in terms of number of households showed that the EA sizes (M_{hi}) were on the low side. There was probably some confusion in some areas regarding the exact location of the EA boundaries resulting in under listing of households. Furthermore, there could be cases where the EA was segmented but the segmentation was not properly recorded in the sampling

sheets. It was therefore decided to introduce an adjustment to the design weights with the effect that the sample households in the EA would not be raised to the EA-total (M_{hi}) but rather to the number of households per EA in the village where the EA is located. The weights became:

$$w_{hi} = \frac{N_h}{n_h} \cdot \frac{\bar{M}_{hi}}{m_{hi}}$$

where \bar{M}_{hi} is the number of households per EA in the village where the EA is located.

These weights were used for estimates of household characteristics based on Form B data. The weights can be expressed in terms of first and second stage weights as:

$$w_{hi} = w_{1hi} \cdot w_{2ji} = \frac{N_h \cdot \bar{M}_{hi}}{n_h \cdot M_{hi}} \cdot \frac{M_{hi}}{m_{hi}}$$

The first stage weight (w_{1hi}) was used for estimates of household characteristics based on the Form A questionnaire. (Form A covered all households in the selected EA so there was no need for the second stage weight).

The sum of the first stage weights over the sample constituted an estimate of the total number of regular households in the country. The estimate of total number of households was short of the number of households reported in the Commune Data Base (CDB). It was therefore decided to adjust the first stage household weights slightly upwards so that the estimates would agree with CDB totals. This “calibration” of the weights was done at the province level by urban/rural. A further adjustment was done in Phnom Penh and Kandal provinces due to the changes in boundaries between the two provinces (20 Kandal communes were transferred to Phnom Penh province in 2011).

2.8 Standard Errors and Confidence Intervals

The sample survey is always affected by two types of errors: non-sampling errors and sampling errors. Non-sampling errors are the results of mistakes made in implementing data collection and data processing, such as failure to locate and interview the correct household, misunderstanding of the questions on the part of either the interviewer or the respondent, and data entry errors. To minimize this type of error, non-sampling errors are impossible to avoid and difficult to evaluate statistically. Sampling errors, on the other hand, can be evaluated statistically. It is usually measured in terms of the standard error for a particular statistic (mean, proportion), which is the square root of the variance. The standard error can be used to calculate confidence intervals within which the true value for the population can reasonably be assumed to fall. The standard errors are calculated in the SPSS Complex Samples module. The variance of an estimate of a total is:

$$V(\hat{Y}) = \sum_{h=1}^L \left[\frac{n_h}{n_h - 1} \sum_{i=1}^{n_h} \left(\hat{Y}_{hi} - \frac{\hat{Y}_h}{n_h} \right)^2 \right],$$

where:

$$\hat{Y}_{hi} = \sum_{j=1}^{m_h} W'_{hi} y_{hij} \quad \hat{Y}_h = \sum_{i=1}^{n_h} \hat{Y}_{hi}$$

Some of the estimates from the CIPS will be in the form of proportions or percentages. The variance estimator of a ratio can be expressed as follows:

$$V(\hat{R}) = \frac{1}{\hat{X}^2} \left[V(\hat{Y}) + \hat{R}^2 V(\hat{X}) - 2 \hat{R} COV(\hat{X}, \hat{Y}) \right],$$

where:

$$COV(\hat{X}, \hat{Y}) = \sum_{h=1}^L \left[\frac{n_h}{n_h - 1} \sum_{i=1}^{n_h} \left(\hat{X}_{hi} - \frac{\hat{X}_h}{n_h} \right) \left(\hat{Y}_{hi} - \frac{\hat{Y}_h}{n_h} \right) \right]$$

$V(\hat{Y})$ and $V(\hat{X})$ are calculated according to the formula for the variance of a total.

2.8.1 Confidence Intervals

Table 1 provides standard errors, confidence intervals and coefficients of variation for estimated number of people by province. The overall reliable estimate at 95 percent of confidence interval of population figures at national level of the CIPS, 2013 falls between 14,356,392 and 14,996,822. These confidence intervals vary from province to province of Cambodia as may be seen in Table 2.2.

Table 2.2 Standard Errors, Confidence Intervals and Coefficient of Variation for estimated number of people by Province

Province	Estimate	Standard Error	95% Confidence Interval		Coefficient of Variation
			Lower	Upper	
Country	14,676,607	163,166	14,356,392	14,996,822	.011
Banteay Meanchey	729,624	38,444	654,177	805,071	.053
Battambang	1,121,001	42,729	1,037,145	1,204,857	.038
Kampong Cham	1,757,190	66,630	1,626,427	1,887,953	.038
Kampong Chhnang	523,202	28,006	468,240	578,164	.054
Kampong Speu	755,465	35,831	685,145	825,785	.047
Kampong Thom	690,386	39,344	613,172	767,599	.057
Kampot	611,583	30,548	551,632	671,534	.050
Kandal	1,115,959	37,863	1,041,652	1,190,267	.034
Koh Kong	122,258	6,417	109,664	134,853	.052
Kratie	344,195	14,053	316,615	371,775	.041
Mondul Kiri	72,680	4,338	64,166	81,194	.060
Phnom Penh	1,688,040	66,892	1,556,763	1,819,318	.040
Preah Vihear	235,355	10,925	213,914	256,796	.046
Prey Veng	1,156,821	34,578	1,088,962	1,224,680	.030
Pursat	435,562	18,288	399,672	471,453	.042
Ratanak Kiri	183,699	15,812	152,667	214,730	.086
Siem Reap	922,975	65,890	793,665	1,052,285	.071
Preah Sihanouk	250,180	19,315	212,274	288,086	.077
Stung Treng	122,791	7,168	108,724	136,857	.058
Svay Rieng	578,461	21,575	536,121	620,802	.037
Takeo	923,297	29,982	864,457	982,137	.032
Otdar Meanchey	231,387	11,328	209,156	253,618	.049
Kep	38,700	842	37,047	40,353	.022
Pailin	65,795	2,407	61,071	70,520	.037

Chapter 3

Size and Distribution of Population

3.1 Concepts and Methodology

The spatial distribution of population is one of the most important topics of human development and geography spreading. It is significantly important, because population has brought tremendous change over the territory of the country. The term distribution refers to the way the people are spaced over the earth's surface; the emphasis is that, on the pattern of actual place locations of a population. This spatial distribution can be derived from results of administrative recorded, survey data and commonly from population census is the insight it provides into the patterns of population settlement across the country. The main objective of this for the stratified this spatial distribution is used for generally form of administrative purposed implementation programme and determining the electoral constituencies.

There are several methods used for describing spatial distribution of population. The simplest of spatial distribution of population is distribution of population by percent according geographical areas. Another methodology usually adopted is to list the geographical areas of a given class into rank order which enables comparison of ranking from census to census. This provides changes in population trends over time. There are also other methods which are generally used to study population distribution like calculation of median point, the mean point or the centre of population, the point of minimum aggregate travel, and the point of maximum population potential. In this report, however, the simple methods of percentage distribution and population composition of the geographical areas are used to study the population distribution in Cambodia.

Population density also have been used to measure the spatial distribution of population is it refer to population per square kilometer (Km²) after excluding area occupied by water. These ratios are known as arithmetic density, physiological or nutritional density, agricultural density, economic density etc. In this chapter the analysis of population density will be confined to the ratio of population of a given geographical or administrative unit to the area occupied by that unit.

3.2 Factors Affected Population Distribution

The spatial distribution of population might influent by economic, social and physical reasons lead people migrate, and they can usually be classified into push and pull factors. Push factors are those associated with the residence of origin, while pull factors are those that are associated with the residence of destination.

The dominant motive for migration is economic, and pull factors tend to be higher wages and greater demand for labour perhaps found in centers of industry and commerce. This economic pull factors loom large in all human movements, but are particularly important with regards to migration. Better economic opportunities, more jobs, and the promise of a better life often pull people towards a new place of residences. Sometimes this is encouraged by the destination place of residences, such as the employment absorbs in the Phnom Penh, provincial town and other urban residences by garment and other services require of labourers, which actively recruited young men to move for these purpose. The social and political factors also play an important actors pull people from their place of original residence such as better of food or shelter, health care facilities, high standard of living, good and fair in educational opportunities, no religious discrimination, fair legal system, enfranchisement and insecurities. In the last decades an opening sky and rapidly development by government pull young couple to take new land for shelter in some part of the country especially in north part of the country and provinces sharing to the neighbors'.

Economic push factors can include overpopulation and the absence of economic opportunity. Social and physical reasons tend to involve forced migration, and an example of a social push factor would be intolerance towards a certain cultural group. Economic push factors tend to be the exact reversal of the pull factors; a lack of economic opportunity and jobs tend to push people to look out of their residence of origin for their futures due to often work low-wage, long-hour jobs in farming, construction and domestic labour. It is difficult to classify this case purely with push factors however, as often the factors associated with the residence of origin are just as important as the factors associated with the residence of destination. It is also observe that the social and political factors play an important reasons push people from their place of residence such as lack of food or shelter, health care facilities, lower standard of living, educational opportunities, religious discrimination, unfair legal system, disenfranchisement and insecurities. Another factor may called physical factors we are not including things like the promise of fertile lands and natural calamity that prompted compelled people to seek safety elsewhere.

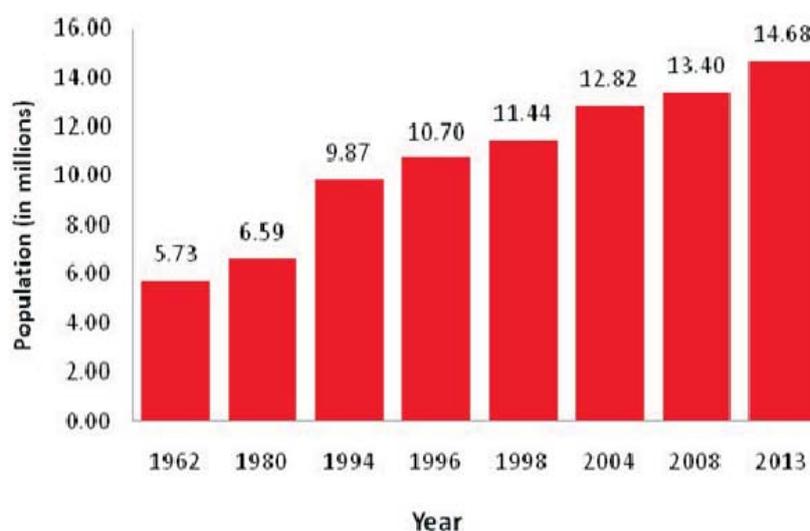
3.3 Population Size

According to Cambodia Inter-Censal Population Survey 2013 (CIPS 2013) the populations of Cambodia at 00 hour March 2013 were 14.68 million compared to 13.40 million in 2008. In absolute terms, Cambodia population has increased by 1.28 million during haft decade 2008-2013. The average annual exponential growth rate in households was 1.83 percent. Considering all the aspects, the growth rate of population in Cambodia during 2008-2013 may be the average of the three estimates (1.83 per cent, 1.28 per cent and 1.27 per cent) work out 1.46 per cent.

Cambodia population has steadily increased 5.7 million since the 1962 when the first census was conducted after the country attained independence from the French rule. Cambodia’s demographic scenario had changed completely after that census due to war and unrest.

There were no further censuses until 1998. However, the population estimation has been done by various demographer for certain planning and policies. The General Demographic Survey 1979-1980 was estimated about 6.59 million. The Socio-Economic Survey of Cambodia conducted by the NIS in April 1994 estimated the country’s population as 9.87 million. The NIS carried out the Demographic Survey in March 1996 covering 20,000 households and estimated the population as 10.7 million. This remained as the only source of population until the 1998 census conducted in March 1998. Cambodia’s population according to the Census was 11.4 million in 1998. This had increased by about 1.96 million during the decade 1998-2008 reaching the figure of 13.40 million.

Figure 3.1 Population trends of Cambodia during 1962-2013



Sources: First Census, 1962, General Demographic Survey 1980, Socio-Economic Survey of Cambodia, 1993-94, Demographic Survey of Cambodia, 1996, Second Census, 1998, Cambodia Inter-Censal Population Survey, 2004, Third Census, 2008 and CIPS 2013.

3.4 Cambodia in Regional Population of the Southeast Asian Countries

Southeast Asia consists of eleven countries squeezed between the Indian Ocean and the Pacific Ocean. Southeast Asia one of the most populated regions in the world, an estimated regional population in 2013 United Nations, Department of Economic and Social Affairs, Population Division was 618,793 thousand.

The population of eleven countries in the region is given in **Table 3.1** Their relative share in absolute number and percentage of population is given in **Figure 3.2**.

Map 3.1 Location of Country in South East Asia



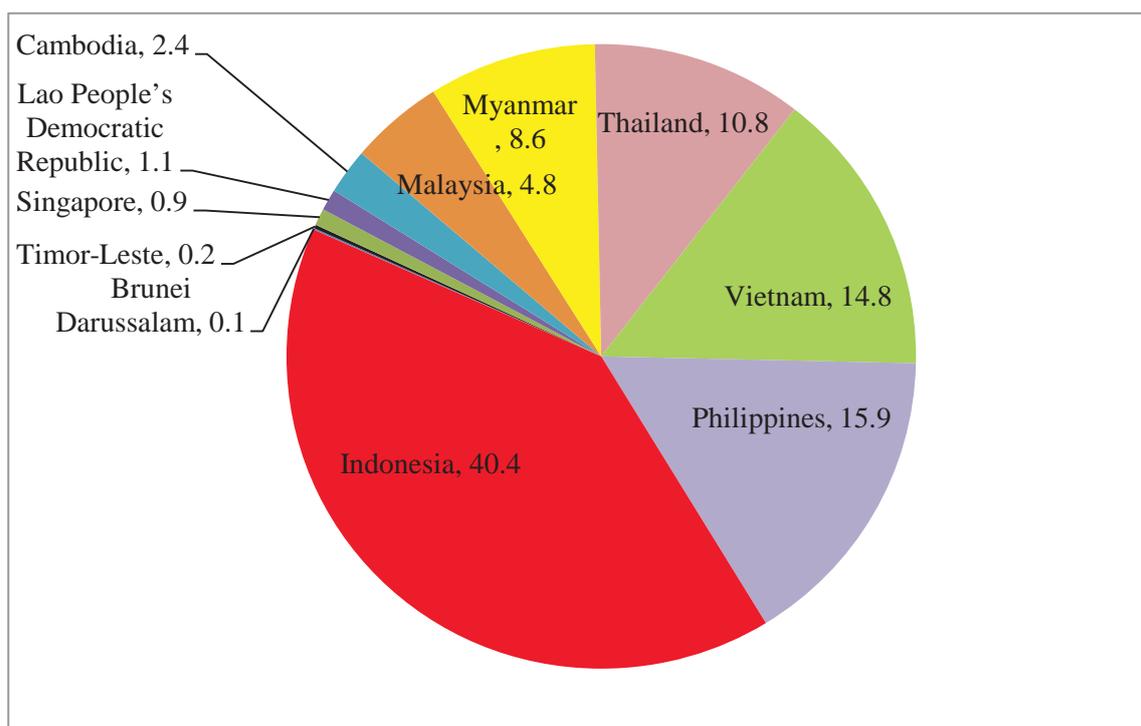
Among the eleven countries, Indonesia contributed largest population in Southeast Asia region, It's contributed about 249,866 thousand or 40.4 per cent, the second largest is Philippines 98,394 thousand or 15.9 percent, third is Vietnam 91,680 thousand or 14.8 percent, fourth is Thailand 67,011 thousand or 10.8 percent, fifth is Myanmar 53,259 thousand or 8.6 percent, sixth is Malaysia 29,717 thousand or 4.8 percent while Cambodia contributed only 14,677 thousand or 2.4 percent. The rest of the countries are very small in their population size.

Table 3.1 Spatial distribution population size in Southeast Asia regional, 2013

Countries	Population in thousand	Population in Percent
Southeast Asia	618,793	100
Brunei Darussalam	418	0.1
Cambodia	14,677	2.4
Indonesia	249,866	40.4
Lao People's Democratic Republic	6,770	1.1
Malaysia	29,717	4.8
Myanmar	53,259	8.6
Philippines	98,394	15.9
Singapore	5,412	0.9
Thailand	67,011	10.8
Timor-Leste	1,133	0.2
Vietnam	91,680	14.8

Note: United Nations, Department of Economic and Social Affairs, Population Division (2013). World Population Prospects: The 2012 Revision, DVD and Cambodia from CIPS 2013

Figure 3.2 Spatial distribution population size in Southeast Asia regional, 2013



3.5 Distribution of Population

Population and the natural resources are the most important aspects of regional development. In this context distribution of Cambodia population is an important aspect. Cambodia is having firths smallest concentration of population in the Southeast Asia.

In 2013, about 21.4 percent of the populations are living in urban areas as compared to 19.5 percent in 2008. Between 2008 and 2013, the national population increased 1.28 million, of which urban areas saw an increase of 0.52 million persons (accounting for 41.6 percent) while rural areas saw an increase of 0.75 million persons (accounting for 58.4 percent).

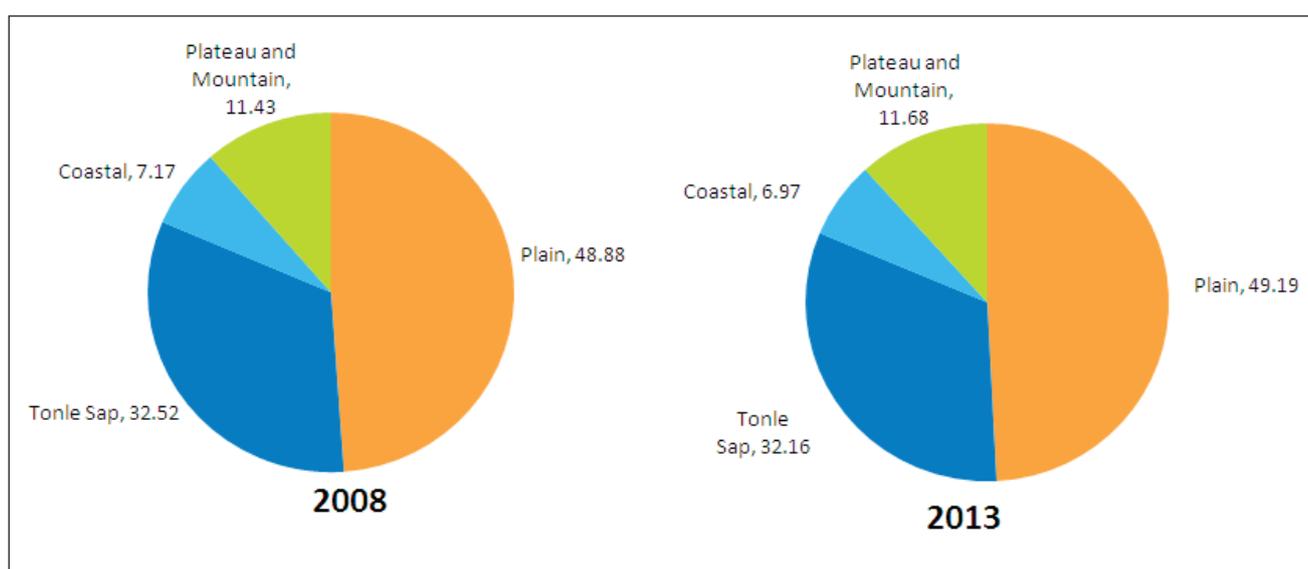
Table 3.2 Spatial distribution population size by natural regions 1998-2013

Region	Population			Share in Percent		
	1998	2008	2013	1998	2008	2013
Cambodia	11,437,656	13,395,682	14,676,591	100	100	100
Urban	2,095,074	2,614,027	3,146,212	18.3	19.5	21.4
Rural	9,342,582	10,781,655	11,530,379	81.7	80.5	78.6
Plain	5,878,305	6,547,953	7,219,724	51.4	48.9	49.2
Tonle Sap	3,505,448	4,356,705	4,719,967	30.6	32.5	32.2
Coastal	844,861	960,480	1,022,701	7.4	7.2	7.0
Plateau and Mountain	1,189,042	1,530,544	1,714,200	10.4	11.4	11.7

The Plain region had a relatively high share of spatial population distribution 49.2 per cent as compared to 2008 when the figure was 48.9 percent, this can be explained by the fact that this region also contains six large province such as Kampong Cham, Kandal, Takeo, Prey Veng, Svay Rieng and the capital city of Phnom Penh. Tonle Sap is the second high shared of spatial population distribution 32.2 percent as compared to 2008 when the figure was 32.5percent accounted a marginal declined. This declined may be due to migration movement and other demographic factors. Plateau and mountain is a high mountain region with difficult transportation conditions and large concentrations of ethnic minority people shared only 11.7 percent of the nation’s population. However, during 5 years period this region increased by 0.2 million or 0.3 percentage point. Coastal is the smallest region with the combination of four provinces share to the gulf includes Kampot, Koh Kong, Sihanouk and Kep.

This region hared a small population distribution only 7 percent of population of the country. The population in this region had a marginal declined also during 2008-2013.

Figure 3.3 Distribution of Population (Per cent) by Natural Region of Cambodia, 2008 and 2013



3.6 Distribution of Population by Provinces

Table 3.3 and **Figure 3.4** shows the spatial distribution population size by provinces and sex Cambodia 2008- 2013. According to CIPS, 2013; there is tremendous variation in the aggregate population size across the province. It varies from 231,390 persons or 0.26 percent in Kep to 1,757,223 persons or 12 per cent in Kampong Cham. Since 2008, Kampong Cham province has the largest share of the population followed by Phnom Penh municipality, Prey Veng, Kandal, Battambang and Siem Reap. Approximately 12 percent of Cambodia’s population lives in Phnom Penh. Kep province have the smallest population. Pailin has the second smallest share of the Cambodia population, constituting approximately 0.5 percent of the population.

Figure 3.4 Distribution of population by province Cambodia, 2008 – 2013

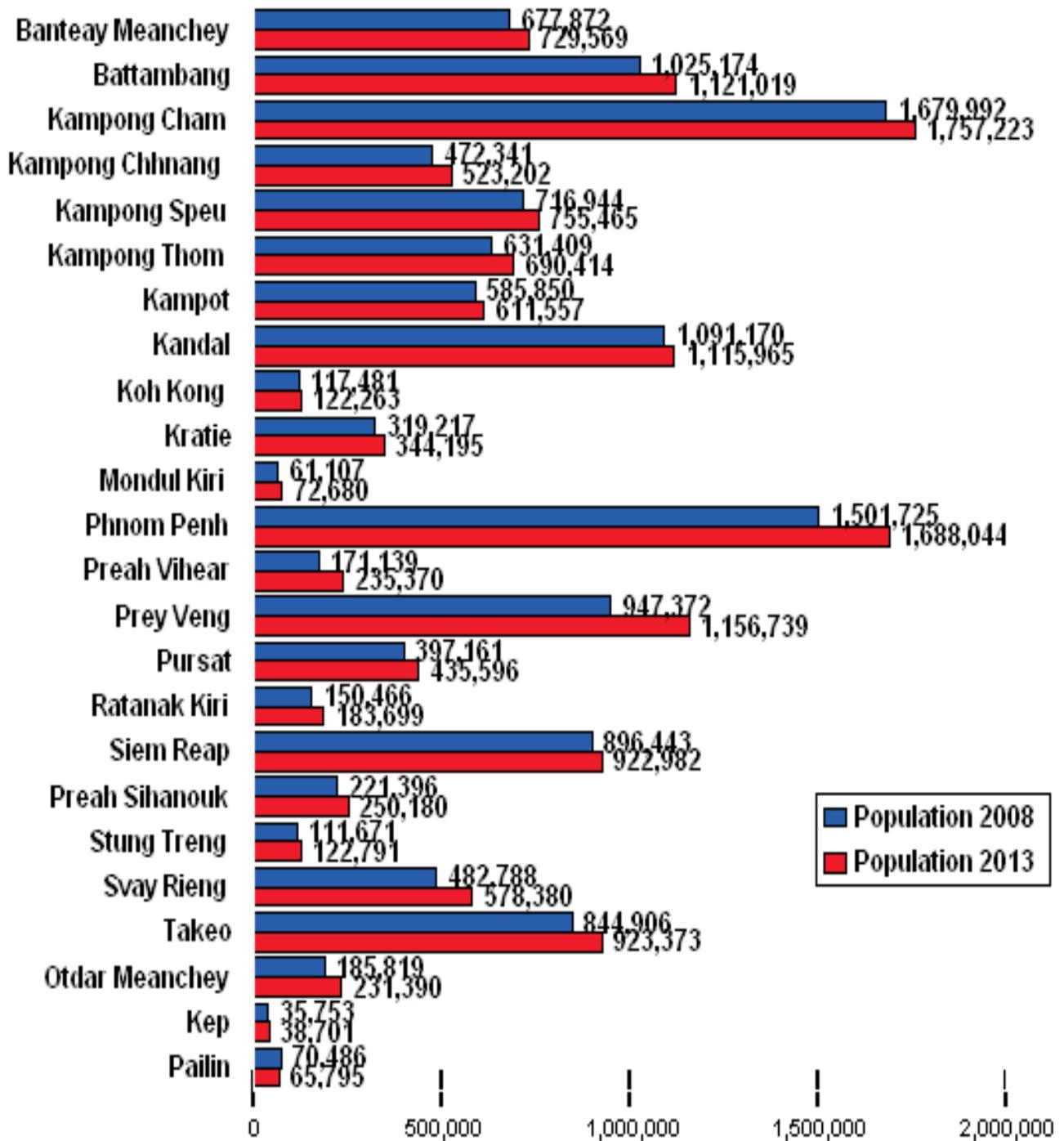
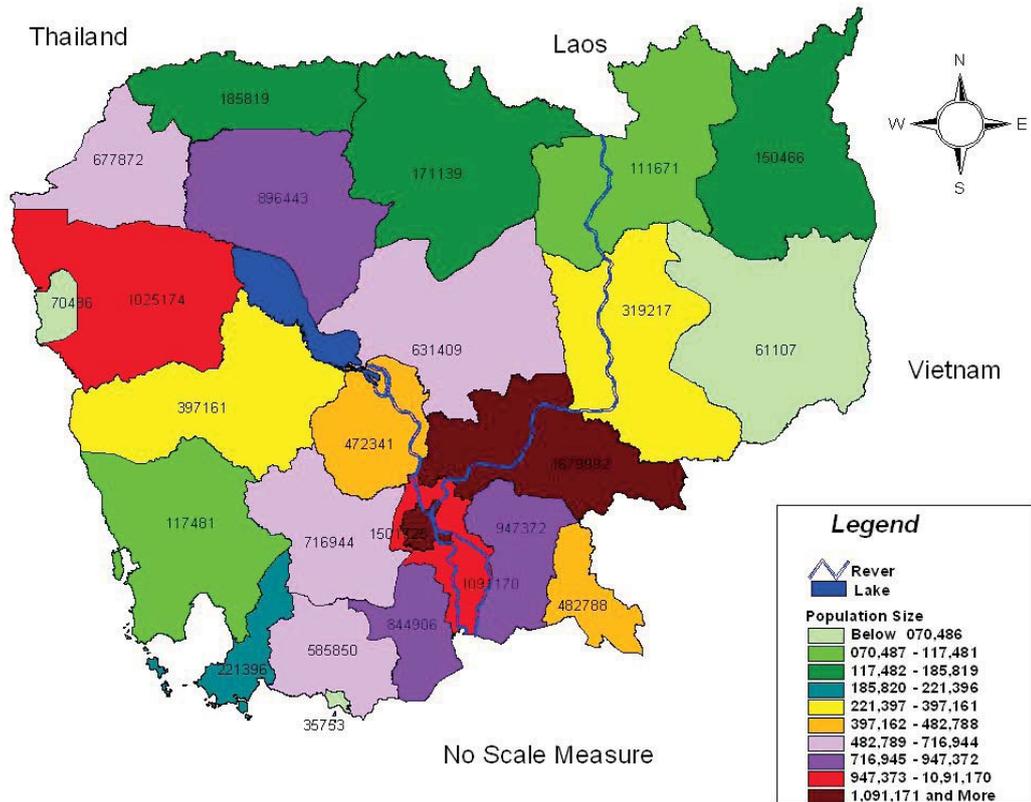


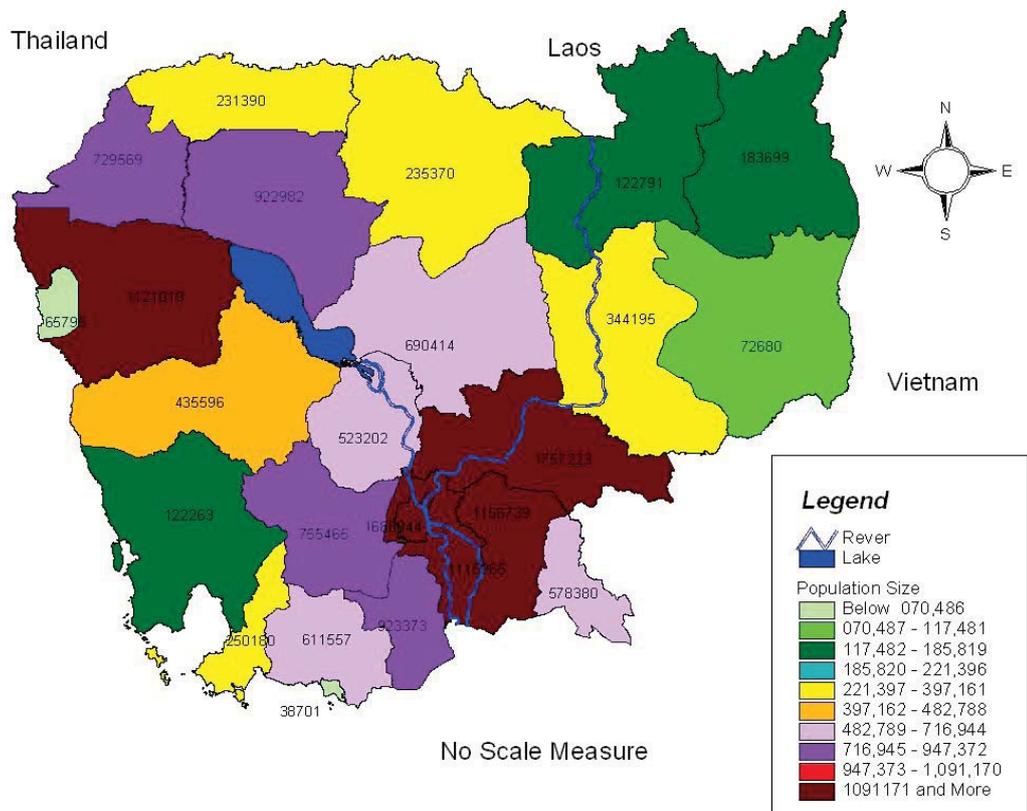
Table 3.3 Spatial distribution population size and sex by province 2008- 2013

Province	2008			2013		
	Both Sexes	Males	Females	Both Sexes	Males	Females
Cambodia	13,395,682	6,516,054	6,879,628	14,676,591	7,121,508	7,555,083
Bantey Meanchey	677,872	331,715	346,157	729,569	354,604	374,965
Battambang	1,025,174	506,351	518,823	1,121,019	557,164	563,855
Kampong Cham	1,679,992	818,662	861,330	1,757,223	836,965	920,258
Kampong Chhnang	472,341	227,007	245,334	523,202	250,548	272,654
Kampong Speu	716,944	348,512	368,432	755,465	363,337	392,128
Kampong Thom	631,409	307,724	323,685	690,414	333,979	356,434
Kampot	585,850	284,123	301,727	611,557	303,709	307,849
Kandal	1,091,170	529,433	561,737	1,115,965	538,040	577,924
Koh Kong	117,481	59,327	58,154	122,263	61,319	60,944
Kratie	319,217	159,146	160,071	344,195	167,425	176,770
MondulKiri	61,107	31,372	29,735	72,680	37,098	35,582
Phnom Penh	1,501,725	708,799	792,926	1,688,044	816,145	871,900
PreahVihear	171,139	85,319	85,820	235,370	116,737	118,633
Prey Veng	947,372	453,082	494,290	1,156,739	557,793	598,946
Pursat	397,161	192,954	204,207	435,596	208,292	227,305
RatanakKiri	150,466	76,115	74,351	183,699	91,265	92,434
Siemreap	896,443	439,982	456,461	922,982	447,089	475,893
Preah Sihanouk	221,396	110,777	110,619	250,180	123,007	127,173
Stung Treng	111,671	55,634	56,037	122,791	62,149	60,641
SvayRieng	482,788	231,578	251,210	578,380	286,073	292,307
Takeo	844,906	410,782	434,124	923,373	440,805	482,568
OddarMeanchey	185,819	93,646	92,173	231,390	116,090	115,299
Kep	35,753	17,674	18,079	38,701	19,016	19,685
Pailin	70,486	36,340	34,146	65,795	32,859	32,936

Map 3.2 Spatial distribution population sizes by province 2008



Map 3.3 Spatial distribution population sizes by province 2013



3.7 Ranking of Population by Provinces

Table 3.4 provides the population proportion and ranking by province of Cambodia according to CIPS 2013. Kampong Cham and Phnom Penh have maintained the first and second rank respectively since 2008 and 2013. Kep continues to be the last province in terms of population size. The change in population size of each province during 2008-2013 would be analyzed in the main report with reference to fertility; mortality and migration are in fertility, mortality and migration chapters. Prey Veng have shift from rank number 5 in 2008 to rank number 3, Preah Vihear shift from rank number 18 in 2008 to rank number 17, Stung Treng from 21 to 20 and Mondul Kiri from 23 to 22 in 2013 while Kandal and Battambang fall from number 3 and 4 to rank 4 and number 5 respectively.

Table 3.4 Spatial Distribution Population Ranking by Province 1998- 2013

Province	Percentage of Population			Ranking		
	1998	2008	2013	1998	2008	2013
Kampong Cham	14.1	12.5	11.9	1	1	1
Phnom Penh	8.7	11.2	11.8	3	2	2
Prey Veng	8.1	7.1	7.8	4	5	3
Kandal	9.4	8.2	7.7	2	3	4
Battambang	6.9	7.7	7.6	5	4	5
Siem Reap	6.1	6.7	6.3	7	6	6
Takeo	6.9	6.3	6.2	6	7	7
Kampong Speu	5.2	5.4	5.1	8	8	8
BanteayMeanchey	5.1	5.1	5.0	9	9	9
Kampong Thom	5.0	4.7	4.7	10	10	10
Kampot	4.6	4.4	4.1	11	11	11
SvayRieng	4.2	3.6	3.9	12	12	12
Kampong Chhnang	3.7	3.5	3.6	13	13	13
Pursat	3.2	3.0	3.0	14	14	14
Kratie	2.3	2.4	2.3	15	15	15
Preah Sihanouk	1.5	1.7	1.7	16	16	16
PreahVihear	1.0	1.3	1.6	17	18	17
OddarMeanchey	0.6	1.4	1.6	21	17	18
RatanakKiri	0.8	1.1	1.2	19	19	19
Stung Treng	0.7	0.8	0.8	20	21	20
Koh Kong	1.0	0.9	0.8	18	20	21
MondulKiri	0.3	0.5	0.5	22	23	22
Pailin	0.2	0.5	0.5	24	22	23
Kep	0.3	0.3	0.3	23	24	24

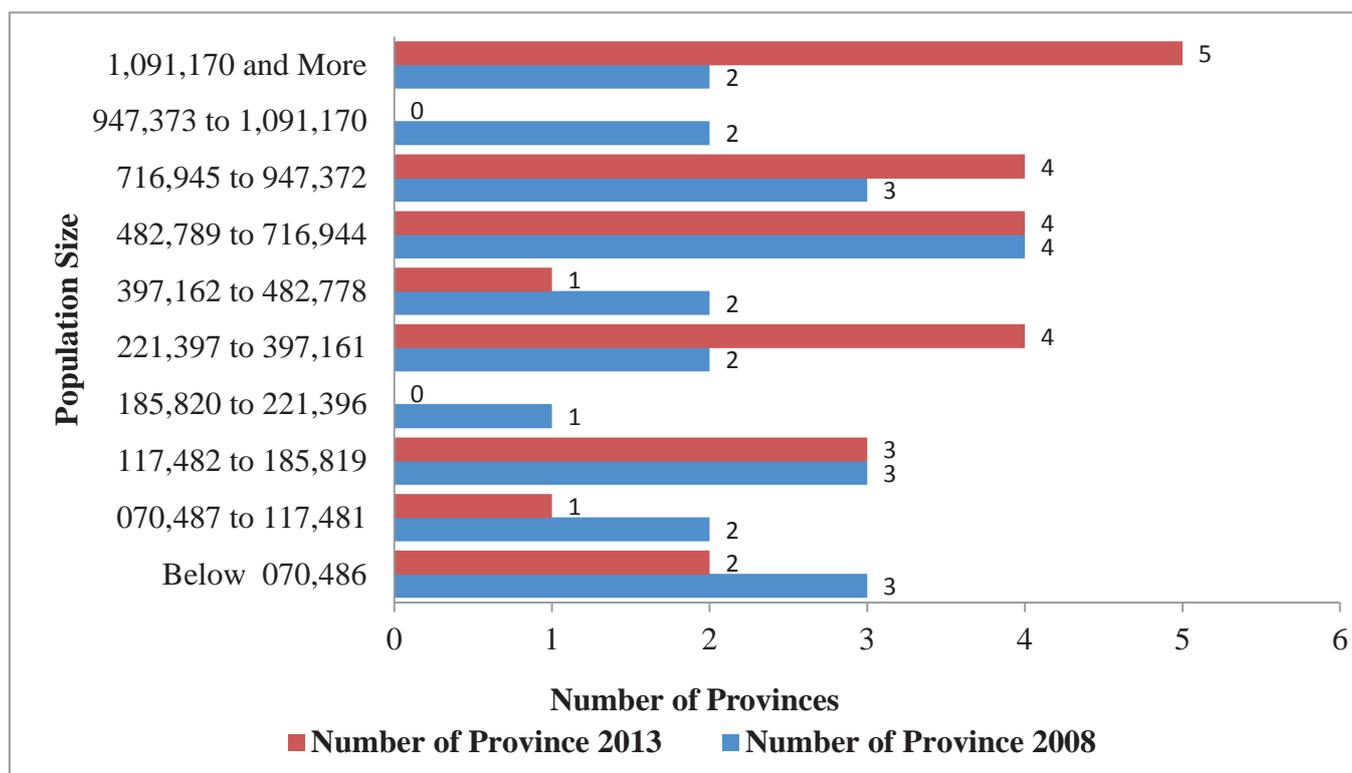
3.8 Spatial Distribution of Population

Table 3.5 shows the number of provinces classified by population size. There are 23 provinces and 1 municipality. Out of these 24 political boundaries, the highest number is in the population size class 1,091,170 and above (47 percent) these figures were increased from 2 provinces with (24 per cent) in 2008. However there still remaining 2 provinces which are distributed over the lowest size classes of population less than 70,486 with account less than 1 percent of the population of Cambodia. However, these figures were decreased from 3 provinces in 2008.

Table 3.5 Spatial Distribution Province by Population Size, Cambodia 2008-2013

Population Size Class	Number of Province 2008	Number of Province 2013
Total	24	24
Below 070,486	3	2
070,487 to 117,481	2	1
117,482 to 185,819	3	3
185,820 to 221,396	1	0
221,397 to 397,161	2	4
397,162 to 482,778	2	1
482,789 to 716,944	4	4
716,945 to 947,372	3	4
947,373 to 1,091,170	2	0
1,091,170 and More	2	5

Table 3.5 Spatial Distribution Province by Population Size, Cambodia 2008-2013



3.9 Population Density by Regions

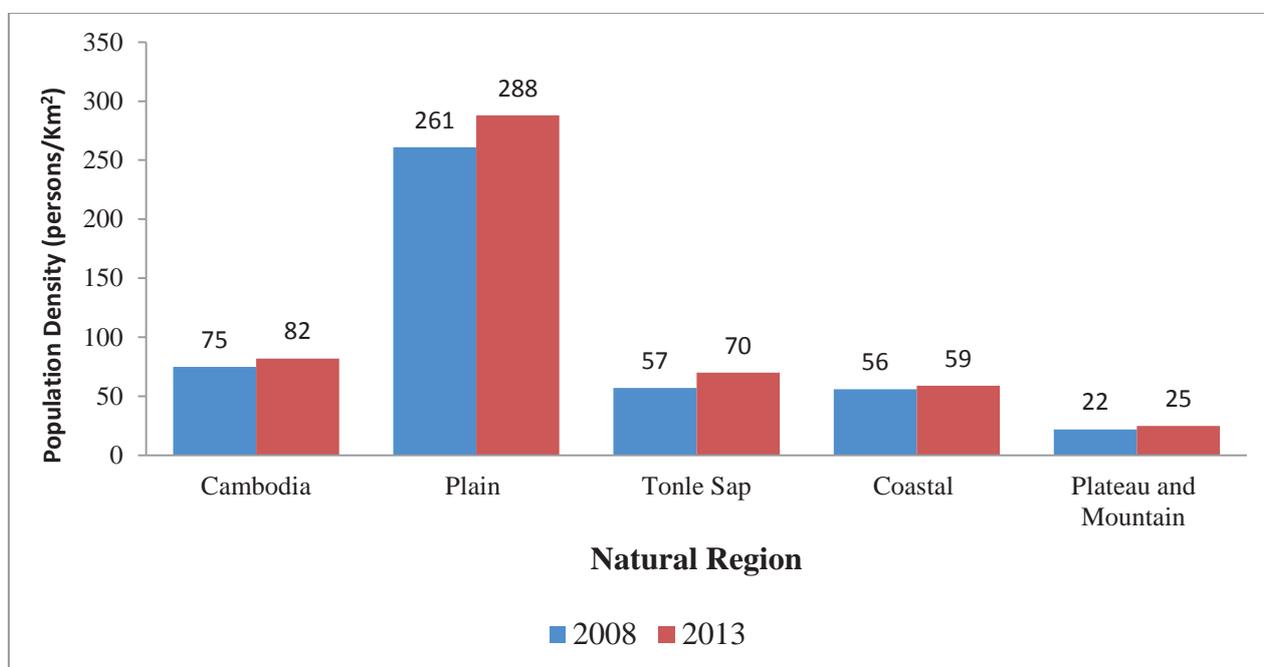
Population density is one of the important indices of population it's measure the concentration of population. It is refer to the number of persons per square kilometre. According to CIPS 2013, Cambodia's population density stead for 82 per square kilometre. It has increased by 7 points from the population density of 75 as per 2008 Census. However it continues to be much less than 126 for South East Asia. The urban population density of Cambodia 2013 is extremely higher than correspondence to rural.

Table 3.6 Distribution of land area, population and population density by natural region, 2008-2013

Region	Area (%)	Population (%)		Population density (Persons/km ²)	
		2008	2013	2008	2013
Cambodia	181,035*	100	100	75	82
Plain	25,069	48.9	49.2	261	288
Tonle Sap	67,668	32.5	32.2	57	70
Coastal	17,237	7.2	7.0	56	59
Plateau and Mountain	68,061	11.4	11.7	22	25

Table 3.6 and **Figure 3.6** present population density by residences for 2008 and 2013. Even within a region, population density varied substantially across region of Cambodia. In general, region with large land area were those with the lowest population density in contrast the region with small land area were those with the highest population density. The population density in Plain accounted highest 288 per square kilometre following 70 per square kilometre for Tonle Sap region and Plateau and Mountain have a lowest density that is 25 per square kilometre.

Figure 3.6 Distribution of population density by natural region, 2008-2013



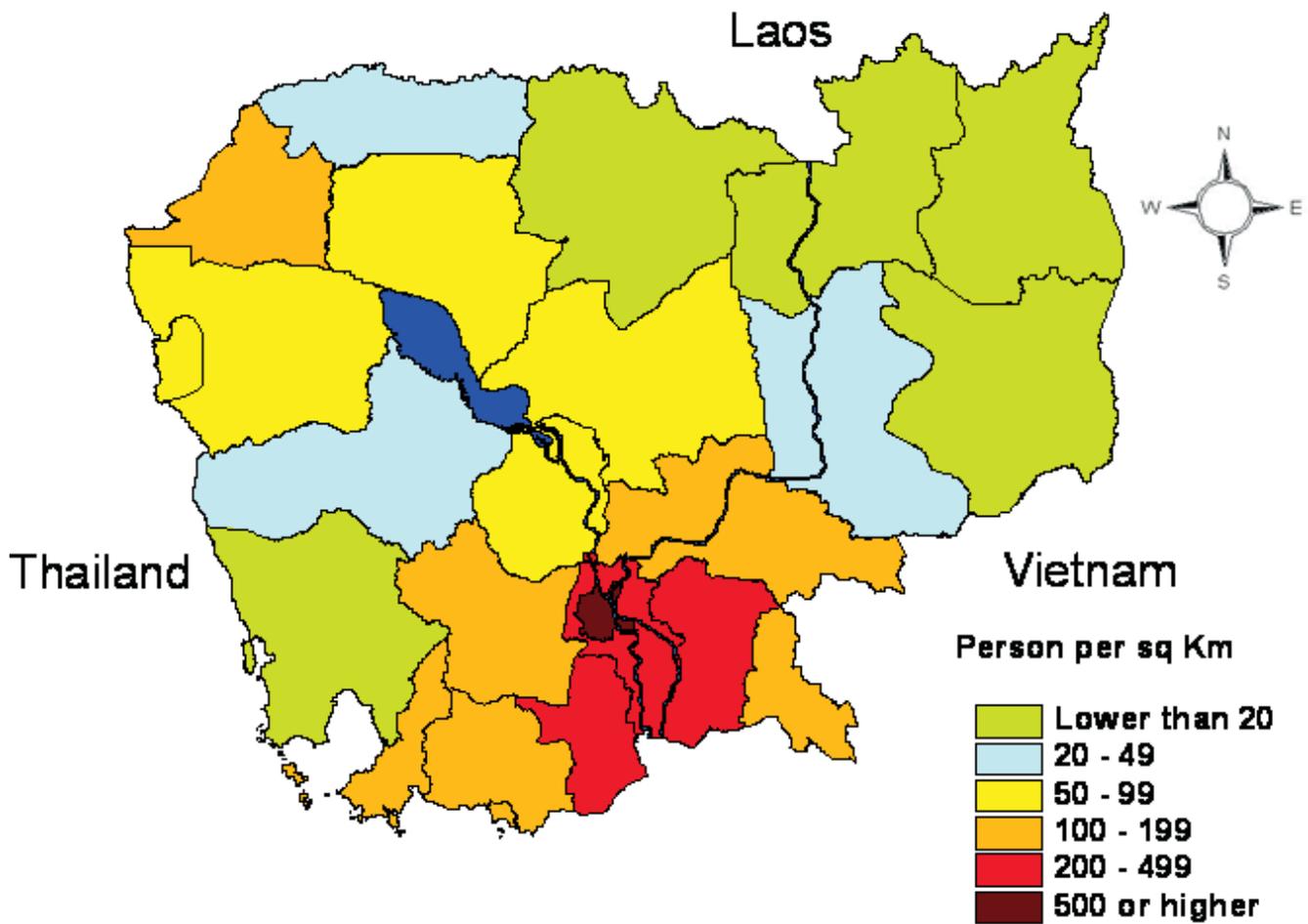
3.10 Population Density by Provinces

A thematic map of Cambodia **Map 3.4** and **Table 3.7** is using shading colours to indicate distribution population density by province. This map also shows political boundaries, provincial borders, provincial names, country capital city, major river systems, and major lakes. Provinces with green colour represented to level of population density less than 20 persons per square kilometre. These shading green colour are mostly located in north part of the country includes Modol Kiri, Preah Vihear, Rattanak Kiri, Stung Treng and another province located in southwest is Koh Kong. The provinces with sky colour is represented to level of population density from 20-49 per square kilometre, these are spreading in different part of the country which are includes Kratie, Pursat and Otdar Meanchey. The light yellow colour is the medium population density from 50-99 per square kilometre which are spread in surrounding Tonle Sap Lake includes Kampong Chhnang, Kampong Thom, Siem Reap, Battambang and Pailin. The provinces with dark yellow colour represented to level of population density from 100-199 per square kilometre, these provinces are mostly located in plain and coastal region such Kampong Cham, Svay Rieng, Kampot, Preah Sihanouk and another is located in neighbour country of Thailand which is Banteay Meanchey. The map also indicates the spatial pattern of development in regions of Cambodia, with high concentration distribution population density such Kandal, Prey Veng, Takeo and especially in Phnom Penh as seen in red and brown colour.

Table 3.7 Distribution of population density by province Cambodia 2013

Province	Population Density		
	1998	2008	2013
Cambodia	64	75	82
Banteay Meanchey	87	101	109
Battambang	68	88	96
Kampong Cham	164	171	179
Kampong Chhnang	76	86	95
Kampong Speu	85	102	108
Kampong Thom	41	46	50
Kampot	108	120	125
Kandal	339	344	352
Koh Kong	12	12	12
Kratie	24	29	31
Mondul Kiri	2	4	5
Phnom Penh	1,462	2196	2468
Preah Vihear	9	12	17
Prey Veng	194	194	237
Pursat	28	31	34
Ratanak Kiri	9	14	17
Siem Reap	68	87	90
Preah Sihanouk	88	114	129
Stung Treng	7	10	11
Svay Rieng	161	163	195
Takeo	222	237	259
Otdar Meanchey	11	30	38
Kep	85	106	115
Pailin	29	88	82

Figure 3.4 Distribution of population density by province Cambodia 2013



3.11 Population Concentration by Provinces

Distribution and concentration differ from the location and area point of view. Distribution is known as their spatial spread of population in the region and concentration explains the actual location of the particular population in the region applying some statistical techniques. Here the study intended to find out by calculating the actual concentration of population in the provinces through applying location Loren curve called Gini index.

The graph measure involves plotting cumulative percentages of population of provinces against the cumulative percentages of the area of the provinces. This has been done after arranging the provinces in the ascending order in terms of density and calculating the percentages of population (x_i) and land area (y_i) of each province.

It is the deviation of the curve from the diagonal line which is the line of equal distribution. CI is the proportion of inequality in the distribution of population in relation to the area. An index of concentration equal to zero would indicate that each province of Cambodia contained a proportion of the country's total population equal to its proportion of the country's total land area. Conversely, an index of concentration equal to 100 would indicate that the entire population of Cambodia was contained in one province only. Another interpretation of the index of concentration ($CI=0.42$) is that 42 per cent of the Cambodia's population would have to be redistributed in different provinces to produce an exact correspondence between population size and land area.

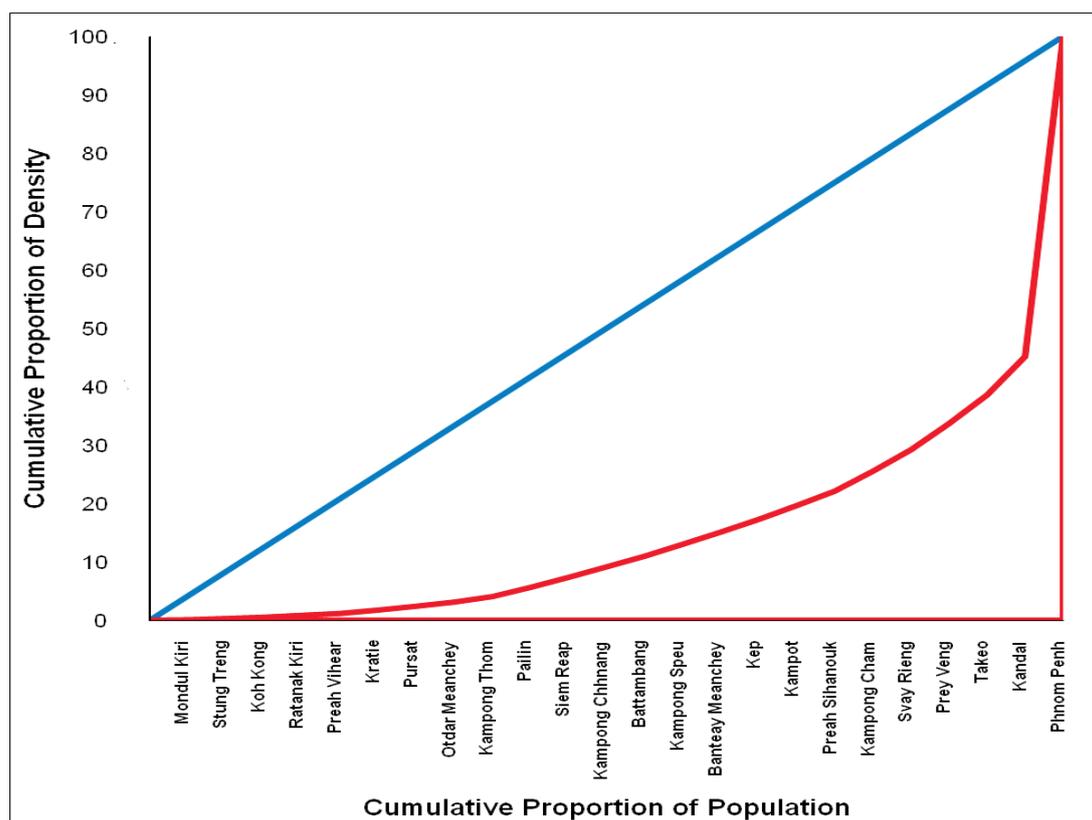
The overall concentration found in the curve may also be measured in terms of the ratio of the area between the curve and the diagonal line, on the one hand, and the total area of the triangle formed by the two axes and the diagonal line, on the other, this is called Gini concentration ratio. The Gini concentration ratio works out 0.56 it indicates that 56 per cent of the area under the diagonal line is above the Lorenz curve and denotes a fairly medium degree of segregation or unequal distribution of population, as the Gini index varies between zero and 1.

As per the location quotient index, the concentration of population in 2013, the high index value is found in the Phnom Penh municipality and Kandal province and respectively by followed by Takeo, Prey Veng, Svay Rieng, Kampong Cham and Preah Sihanouk. These are the minority provinces where the geographical condition is very low such as Mondul Kiri, Stung Treng, Koh Kong, Ratanak Kiri, Preah Vihear, Kratie, Pursat, Otdar Meanchey and Kampong Thom.

Table 3.8 Computation of Index of Concentration and Gini Concentration Ratio for Provinces of Cambodia, 2013

Province	Population 2013	Area in Km ²	Density per Km ²	Proportion		Index	Cumulative		Production		
	X _i	Y _i	X _i /Y _i	X _i	Y _i	X _i -Y _i	X _i	Y _i	X _i Y _{i+1}	Y _i X _{i+1}	
MondulKiri	72,680	14,288	5	0.00	0.08	0.08	0.00	0.08	0.00	0.00	
Stung Treng	122,791	11,092	11	0.01	0.06	0.05	0.01	0.14	0.00	0.00	
Koh Kong	122,263	10,090	12	0.01	0.06	0.05	0.02	0.20	0.01	0.01	
RatanakKiri	183,699	10,782	17	0.01	0.06	0.05	0.03	0.26	0.01	0.01	
PreahVihear	235,370	13,788	17	0.02	0.08	0.06	0.05	0.34	0.02	0.02	
Kratie	344,195	11,094	31	0.02	0.06	0.04	0.07	0.40	0.03	0.04	
Pursat	435,596	12,692	34	0.03	0.07	0.04	0.10	0.47	0.05	0.06	
OtdarMeanchey	231,390	6,158	38	0.02	0.03	0.02	0.12	0.51	0.07	0.08	
Kampong Thom	690,414	13,814	50	0.05	0.08	0.03	0.17	0.58	0.10	0.10	
Pailin	65,795	803	82	0.00	0.00	0.00	0.17	0.59	0.11	0.14	
Siem Reap	922,982	10,299	90	0.06	0.06	0.01	0.23	0.65	0.16	0.17	
Kampong Chhnang	523,202	5,521	95	0.04	0.03	0.00	0.27	0.68	0.20	0.23	
Battambang	1,121,019	11,702	96	0.08	0.07	0.01	0.35	0.74	0.27	0.29	
Kampong Speu	755,465	7,017	108	0.05	0.04	0.01	0.40	0.78	0.33	0.35	
BanteayMeanchey	729,569	6,679	109	0.05	0.04	0.01	0.45	0.82	0.37	0.37	
Kep	38,701	336	115	0.00	0.00	0.00	0.45	0.82	0.38	0.40	
Kampot	611,557	4,873	125	0.04	0.03	0.01	0.49	0.85	0.42	0.43	
Preah Sihanouk	250,180	1,938	129	0.02	0.01	0.01	0.51	0.86	0.46	0.54	
Kampong Cham	1,757,223	9,799	179	0.12	0.06	0.06	0.63	0.91	0.58	0.61	
SvayRieng	578,380	2,966	195	0.04	0.02	0.02	0.67	0.93	0.64	0.69	
Prey Veng	1,156,739	4,883	237	0.08	0.03	0.05	0.75	0.96	0.73	0.77	
Takeo	923,373	3,563	259	0.06	0.02	0.04	0.81	0.98	0.81	0.87	
Kandal	1,115,965	3,253	343	0.08	0.02	0.06	0.88	1.00	0.88	1.00	
Phnom Penh	1,688,044	684	2,468	0.12	0.00	0.11	1.00	1.00	0.00	0.00	
Total	14,676,592	178,114	82	1	1	0.83			6.63	7.20	
Concentration Index						0.42	Gini Index			0.56	

Figure 3.7 Lorenz Curve for Population Concentration in Cambodia, 2013



Gini concentration index indicates the spatial inequality in distribution population across the country. **Table 3.8 and 3.9** shows that Gini concentration index had declined consistently over the years and indicates the low concentration of population in provinces with large population compare to the provinces with small size of population. Increasing the high annual growth in small provinces shared in spatial distribution population in large provinces.

Table 3.9 Concentration Index (CI) and Gini Concentration Index (GCI) of Cambodia 1998, 2008 and 2013

Index	Year		
	1998	2008	2013
Concentration Index (CI)	0.41	0.42	0.42
Gini Concentration Index (GCI)	0.59	0.57	0.56

Table 3.10 shows the distribution of population, land area shared and density level Cambodia, 2013. The unevenness in population distribution is also illustrated by the fact that nearly 12 percent of Cambodia’s population is concentrated in a little over a quarter of its area (0.3 percent) of the total area of the country with a highest density concentration that is in Phnom Penh 2,468 persons per square kilometre. Likewise about 31.3 percent of the country accounts only for only 22 percent of its population. While only 5 percent of population shared big coverage areas of land in the country (24.8 percent with average 12 persons per square kilometre. All these indices show that there is a significant amount of inequality in the distribution of the population of Cambodia in relation to the area.

Table 3.10 Distribution of population and Area and density level Cambodia, 2013

Density	Number of provinces	Percentage share		Average Density
		Population	Area	
Total	24	100.0	100	82
under 20	5	5.0	24.8	12
20 - 49	3	6.9	12.4	34
50 - 99	4	22.6	17.4	82
100 -199	7	32.0	13.9	137
200 - 499	3	21.7	31.3	280
500 and above	1	11.8	0.3	2,468

Chapter 4

Distribution Population by Urban and Rural Residence

4.1 Concepts and Classification

Urbanization is a global phenomenon transcending various physical, economic, culture, religious and social barriers. Over the years, the entire nations in the world have undergone this process at various levels. Some nations already reached their phase of transition, where as some nation are infancy stage and some in transition stage like Cambodia.

Urbanization classification constitutes an important framework for collection and compilation of population in the country. The criterions' defining of urban varies from country to country. The urban can be defined in many ways based on social, physical and economic aspects. In general, urban are defined based on two important criteria which are;

1. **Statutory Administrative Aspects:** The towns identified on the basic of statutory administration or recognised by degrees and laws. These may included all places in the headquarters of the province or districts.
2. **Economic and Demographic Aspects:** This criteria based on population size, density and percentage of workforce in non-agriculture sector.

In Cambodia, special study and classification urban by NIS in both 2004 and 2008 have been used as guidance for measure of urban in this report. Consideration of all relevant aspects, field study and consultation with agencies concerned the study decided to apply the following criteria to every commune so as to treat it as urban:

- (a) Population density exceeding 200 per km²
- (b) Percentage of total employment in agriculture sector 50 percent and more
- (c) Total population of the commune exceeding 2,000.

There are various methods to measure the level of urbanization such degree of urbanization, annual growth rate, tempo urbanization and Gini concentration index and Lorentz curve. The degree of urbanization or distribution population by urban and rural residence is common use for measure the spatial distribution of population by scholars and demographers.

4.2 Spatial Distribution of Urban Population in region

Southeast Asia's level of urban is fairly low by the world standards. However, it has been gradually rising during the last decades, in 2011, roughly 45 percent of Southeast Asia's population living in urban residence. Whole Singapore absolutely urban, Brunei Darussalam and Malaysia are highly urban, while haft of Indonesia and Philippine lived in urban residence. Timor-Leste, Cambodia and Lao PDR are much low of urban in region.

Table 4.1 Spatial distribution percent of urban population in Southeast Asia regional, 2010

Countries	Percent of urban
Southeast Asia	44.7
World	52.1
Brunei Darussalam	76.0
Cambodia	21.4*
Indonesia	50.7
Lao People's Democratic Republic	34.3
Malaysia	72.8
Myanmar	32.6
Philippines	48.8
Singapore	100.0
Thailand	34.1
Timor-Leste	28.3
Vietnam	31.0

Note: United Nations, Department of Economic and Social Affairs, Population Division (2010). World Urbanization Prospects: The 2011 Revision, DVD and * Cambodia from CIPS 2013

Table 4.2 and **Table 4.3**, gives the spatial distribution of population by regions and sexes both Cambodia General Population Census, 2008 and Cambodia Inter-Censal Population Survey, 2013. According to the definition the urban population was estimated to be 2.6 million (19.5 percent) in 2008 and 3.2 million (24.4 percent) in 2013 that is increased almost 2 percentage point between the years 2008-2013. Correspondingly the rural population of the country has risen from about 10.8 million counted in 2008 to about 11.5 million in 2013. Still the urbanization level in Cambodia is much less than that for Southeast Asia as a whole (45 percent).

4.3 Spatial Distribution of Urban Population

Table 4.2 Population by urban-rural residence and sex, Cambodia 2008- 2013

Residence	Population					
	2008			2013		
	Both Sex	Males	Females	Both Sex	Males	Females
Total	13,395,682	6,516,054	6,879,628	14,676,591	7,121,508	7,555,083
Urban	2,614,027	1,255,570	1,358,457	3,146,212	1,527,479	1,618,734
Rural	10,781,655	5,260,484	5,521,171	11,530,378	5,594,029	5,936,349

The increase in the level of urbanization in Cambodia has been rather small (2 percentage points) during the haft decade. It may be of interest to know that according to the 1962 Census the urban population constituted 10.3 percent of the total population. At that time Phnom Penh, three other municipalities of Kaeb, Bokor and Sihanouk Ville and 14 urban centres in provinces were treated as urban and the rest of the country as rural.

Table 4.3 Population by urban-rural residence and sex, Cambodia 2008- 2013

Natural Regions	Population 2008			Population 2013		
	Total	Male	Female	Total	Male	Female
Cambodia	19.5	19.3	19.7	21.4	21.5	21.4
Plain	24.8	24.3	25.2	26.3	26.3	26.3
Tonle Sap	15.4	15.4	15.4	17.5	17.7	17.4
Coastal	18.6	18.7	18.5	24.0	23.4	24.5
Plateau and Mountain	9.3	9.4	9.2	10.3	10.4	10.1

Chapter 5

Population Growth

5.1 National Population Growth

The term growth of population is used in its broadest connotation to cover change in population numbers inhabiting a territory during a specific period of time, irrespective of the fact whether the change is positive or negative. This change/ growth can be measured both in terms of absolute numbers and percentages. General Population Census of Cambodia 2008 accounted for 13.40 million as compare to the extrapolate population of CIPS 2013 is 14.68 million with this; the annual growth rate of population during 2008-2013 works out to 1.83 per cent. The official population projections for Cambodia as of 1 July 2013, is 14.96 million. By interpolation, as of 3 March 2013, the projected population would be in the order of 14.89 million. Hence in terms of absolute figures the CIPS 2013 estimated population (14.68 million) is less than the projected population (14.89 million) by about 0.21 million or about 1.4 per cent.

However, as was done during the projection exercise, this has to be viewed in the light of under enumeration in the 2008 Census which is officially estimated as 2.77 per cent from the Post Enumeration Survey (PES). Adjusting for this under enumeration in the 2008 Census, the base population in 2008 is given by 13.77 million. Based on this population the growth rate of population as per CIPS 2013 during 2008-2013 is calculated as 1.28 per cent.

Another way of looking at the population growth rate is by comparing with the estimated population from CIPS 2004 (13.09 million). If this is done the annual growth rate during the nine years 2004-2013 works out to 1.27 per cent. Considering all the aspects, the growth rate of population in Cambodia during 2008-2013 may be the average of the three estimates (1.83 per cent, 1.28 per cent and 1.27 per cent), namely 1.46 per cent.

The population growth rate at national level was projected as 1.54 per cent in 2013 which is slightly higher than 1.46 per cent arrived at as population growth rate during 2008-2013 by the CIPS 2013 estimate. The relatively small difference between the projections and CIPS 2013 estimate may be accounted for by the fact that two different methodologies were adopted in projections and sample survey estimations. Projections are based on several assumptions pertaining to fertility, mortality and migration. Any sample survey is subject to sampling and non-sampling errors.

Table 5.1 Population size and population growth by residences and natural region, 1998-2013 and 2008-2013

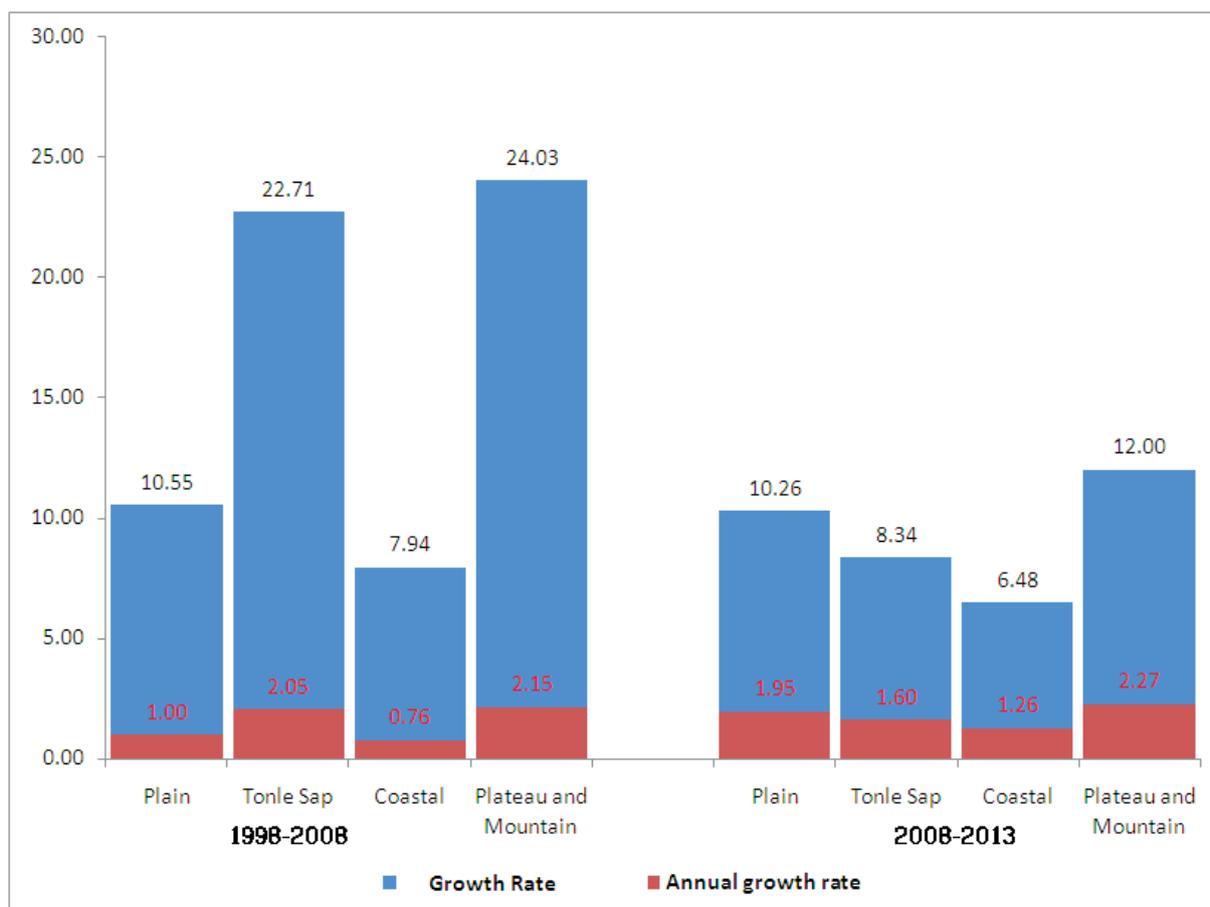
Regions	Population			Growth Rate		Annual Growth Rate	
	1998	2008	2013	1998-2008	2008-2013	1998-2008	2008-2013
Cambodia	11,437,656	13,395,682	14,676,591	16.7	9.6	1.5	1.8*
Urban	2,095,074	2,614,027	3,146,212	24.8	20.4	2.2	3.7
Rural	9,342,582	10,781,655	11,530,379	14.9	6.9	1.4	1.3
Plain	5,878,305	6,547,953	7,219,724	10.6	10.3	1.0	2.0
Tonle Sap	3,505,448	4,356,705	4,719,967	22.7	8.3	2.1	1.6
Coastal	844,861	960,480	1,022,701	7.9	6.5	0.8	1.3
Plateau and Mountain	1,189,042	1,530,544	1,714,200	24.0	12.0	2.2	2.3

5.2 Population Growth by Regions

During the period 2008–2013, average annual population growth in urban areas was 3.7 percent /year, while in rural areas it was only 1.34 percent /year. Between 2008 and 2013, the national population increased 1.28 million persons, of which urban areas saw an increase of 0.52 million persons (accounting for 41.55 percent) while rural areas saw an increase of 0.75 million persons (accounting for 58.45 percent).

The Plateau and Mountain registered highest average annual population growth rate as compared to other region may be due to flow of migration still continue to this areas. These figures are following by plain as the second highest growth and Tonle Sap is the third while coastal is the lowest growth. Compared to 1998-2008 the average annual population growth rate all regions have increased except only Tonle Sap has declined.

Figure 5.1 Population growth by region of Cambodia, 1998-2013 and 2008-2013



5.3 Population Growth by Provinces

Compared to the previous five-year period 2008 -2013, the rate of population growth has increased in all provinces and municipality except only Pailin had seen their population declined between, 2008-2013. The largest increases in population growth rate were found in PreahVihear, Otdar Meancheay, Rattanak Kiri and Modol Kiri this may due to high fertility rate, absorption of migration from other provinces for available new land settlement, economic opportunities and new development took place in these areas. Of all provinces, Preah Vihear, at 6.37 percent, has experienced the largest population growth between 2008 and 2013. As in the previous two census periods (1998 to 2008), Pailin posted the

highest population growth at 11.24 percent, almost ten times to the national average (1.54 percent). In contrast, compared to previous five-year period 2008 -2013 annual population growth rate Pailin has shown the negative growth rate (-1.38 percent). Compared between 1998-2008 and 2008-2013, there are sixteen provinces has declined in annual population growth rate these included Banteay Meanchey, Battambang, Kampong Speu, Kampong Thom, Kampot, Kandal, Kratie, Mondul Kiri, Phnom Penh, Ratanak Kiri, Siem Reap, Preah Sihanouk, Stung Treng, Otdar Meanchey, Kep and Pailin. For other remaining eight provinces the annual population growth rate continued increase slightly compared to 1998-2008.

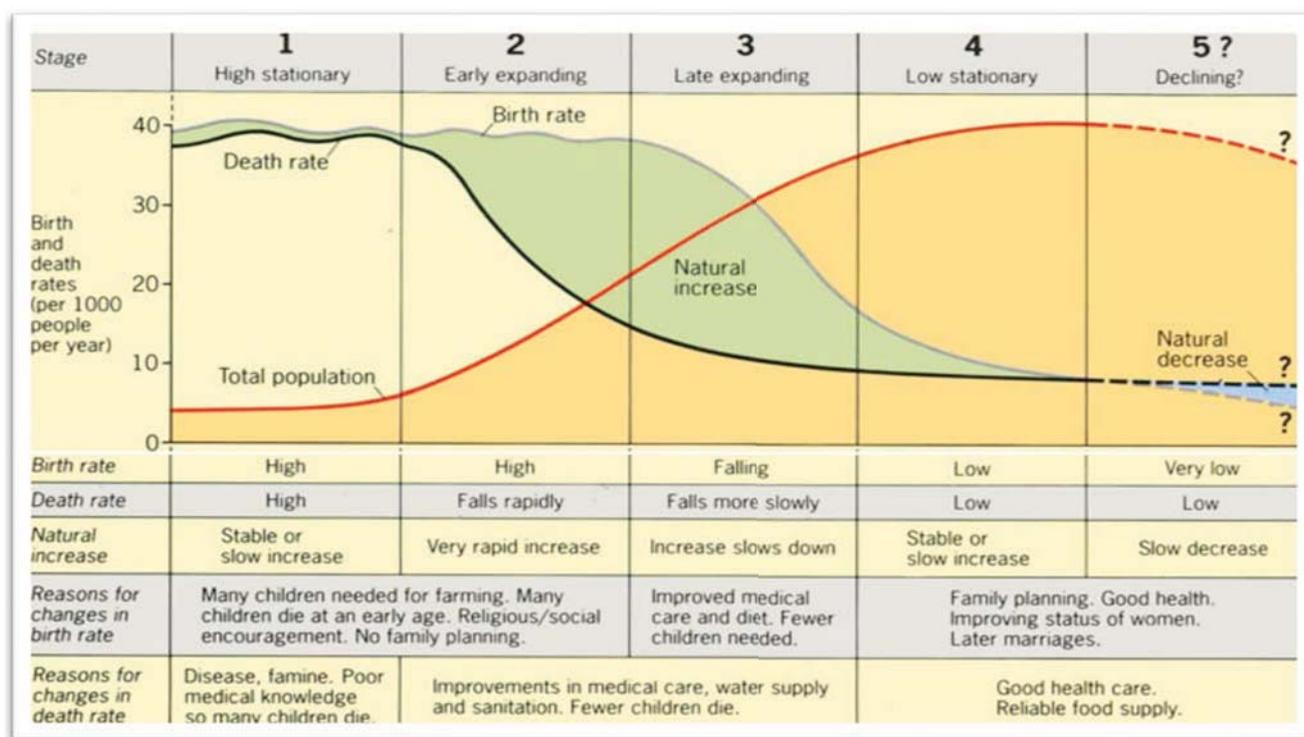
Table 5.2 Distribution of Population (Percent) by Province of Cambodia, 1998-2008 and 2008-2013

Cambodia/Province	Population			Annual Growth Rate	
	1998	2008	2013	1998-2008	2008-2013
Cambodia	11,437,656	13,395,682	14,676,591	1.54	1.83*
Banteay Meanchey	577,772	677,872	729,569	1.56	1.47
Battambang	793,129	1,025,174	1,121,019	2.28	1.79
Kampong Cham	1,608,914	1,679,992	1,757,223	0.43	0.90
Kampong Chhnang	417,693	472,341	523,202	1.22	2.05
Kampong Speu	598,882	716,944	755,465	1.79	1.05
Kampong Thom	569,060	631,409	690,414	1.03	1.79
Kampot	528,405	585,850	611,557	1.03	0.86
Kandal	1,075,125	1,091,170	1,115,965	1.62	0.45
Koh Kong	116,061	117,481	122,263	0.12	0.80
Kratie	263,175	319,217	344,195	1.93	1.51
MondulKiri	32,407	61,107	72,680	6.34	3.47
Phnom Penh	999,804	1,501,725	1,688,044	2.83	2.34
PreahVihear	119,261	171,139	235,370	3.61	6.37
Prey Veng	926,042	947,372	1,156,739	0.01	3.99
Pursat	360,445	397,161	435,596	0.69	1.85
RatanakKiri	94,243	150,466	183,699	4.67	3.99
Siem Reap	696,164	896,443	922,982	2.52	0.58
Preah Sihanouk	171,735	221,396	250,180	2.54	2.44
Stung Treng	81,074	111,671	122,791	3.20	1.90
SvayRieng	478,252	482,788	578,380	0.09	3.61
Takeo	790,168	844,906	923,373	0.66	1.78
Otdar Meanchey	68,279	185,819	231,390	8.64	4.39
Kep	28,660	35,753	38,701	2.21	1.58
Pailin	22,906	70,486	65,795	11.24	-1.38

5.4 Demographic Transition in Cambodia

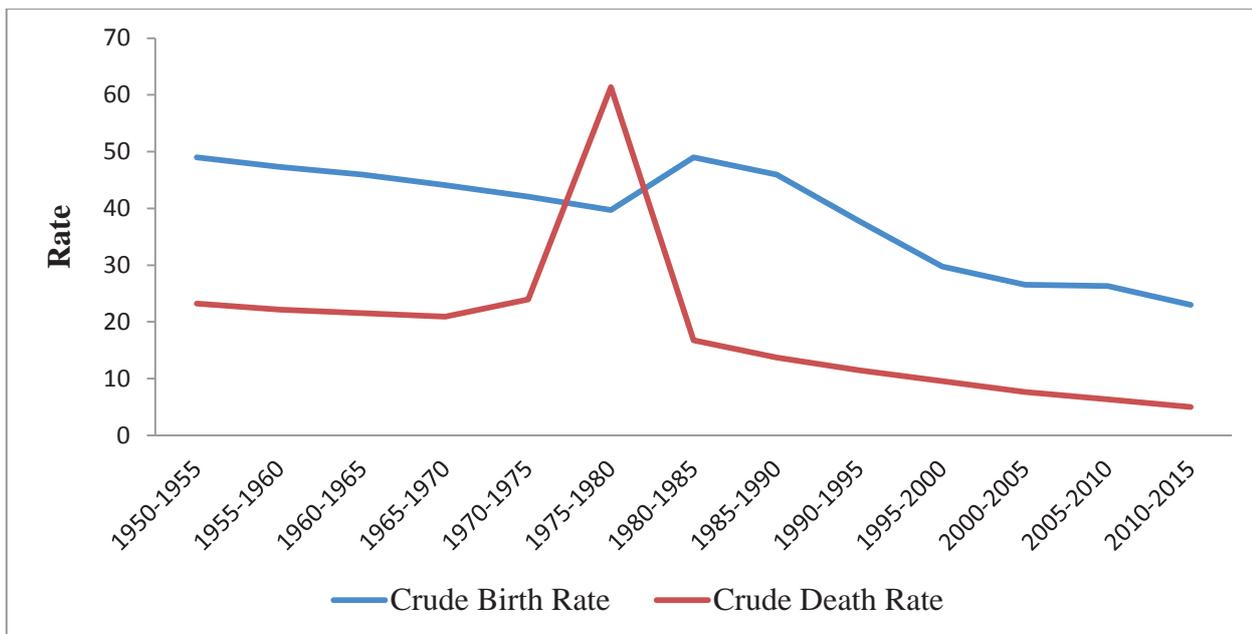
Demographic Transition is the results of combination of declines in mortality in the first and declines in fertility in the second. There are changes in large a function of decreases in mortality in the lat few decades, in the first instance, and, later, of declines in fertility. Reduced mortality, child mortality especially, which results from the adoption of improved agricultural production techniques and health care practices, among other things, determine to a great extent the significant population growth that takes place in the early stages of the transition. Children and adolescents make up a relatively large share of the population at this time. The age and sex structure of a population affects the level of social, economic and political structure of any population. The age and sex structure are determined by the past and current trends in fertility, mortality and migration. The shifts in the population age structure have had far reaching consequences on a country’s work force, economic prospects, public and personal budgets, security risks, cultural organizations and family structures.

Figure 5.2 Demographic Transition Pattern experiences world



In the case of Cambodia it is not possible to study the trend in population growth over the past several decades due to lack of data and historical reasons. It can be examined only with reference to the two censuses in 1998 and 2008, Cambodia Inter-censal Population Survey 2004 (CIPS2004), Cambodia Demographic Health Survey (CDHS) 2000, 2005, 2010 and Cambodia Inter-censal Population Survey 2013 (CIPS 2013). The total fertility rate in Cambodia has declined from more than 6 children per woman in the early 1980s to 4.0 in 1998, 3.4 in 2004, 3.1 in 2008, 3 in 2010 and around 2.8 in 2013. After a period of erratic variations with a high level range, infant and child mortality have also experienced substantial decline. According to census 1998 the infant mortality rate accounted for 93 deaths per 1,000 births declined to 66 in 2003. It has further declined to around 60 in 2006 according to the estimate made on the basis of the 2008 census results, then drop to 45 in 2010 and around 33 in 2013. The continued decline in the rate of population growth in Cambodia in the most recent years is indicative of the fact that its population is gradually moving towards the end of the third or late expanding change (birth and death rates below 30 and 15 respectively) of demographic transition.

Figure 5.3 Demographic Transition in Cambodia using data from UNESCAP



Note: United Nations, Department of Economic and Social Affairs, Population Division (2010). World Urbanization Prospects: The 2010 Revision, DVD

5.5 Population's interaction

Big provinces and more development in Cambodia were able to attract the most migrants from rural residence compared to smaller province. Urban population growth or urbanization is expanding rapidly in Cambodia. The number of province with population of 1,091,170 and above in Cambodia has increased from 2 in 2008 to 8 in 2013. With an average of 3.7 per cent increase each year saw rapid development of urbanization process in Cambodia. This phenomenon has a direct impact on the spatial distribution, density and concentration of urban centres in Cambodia. This study will attempt to identify the number of urban centres, concentration as well as spatial distribution of urban centres growth in Cambodia.

Internal migration is now recognized as an important factor of spatial distribution of population and influencing social and economic development, especially in speed developing of the country. According to CIPS2013 about 4,134,015 persons were migrants based on place of last residence, which constitute about 28.9 percent of the total population of the country. This figure indicates an increase of around 26.5 percent from census 2008 which recorded 3,538,130 migrants. Out of total internal migrant about 728,640 of population had moving across Province of Cambodia.

Although in-migration and out-migration are enough to measure the amount of net migration, the direction to/from which the migrants moved can be used to explain the spatial distribution of population within the country. From the largest four or five magnitudes pull in migrant's factors from other provinces, the majority of interaction migrants were founded in Takeo, Pursat, Kandal, Kampong Cham, Prey Veng and Kampot (please see Table 5.4). Likewise, pull in migration, push out migrant's factors to other province were founded in Pailin, Oddar Meanchey, Sihanouk, Phnom Penh, Ratanak Kiri and Preah Vihear.

Table 5.4 Numbers of in and out and net internal migration all duration by province of Cambodia 2013

Province	Population	Migrant		Net Migrant		Percent	
		In	Out	In	Out	In	Out
Cambodia	14,676,592	1,785,171	1,785,171	728,640	728,640	5.0	5.0
BanteayMeanchey	729,569	76,469	77,317		848	0.0	0.1
Battambang	1,121,019	123,089	174,276		51,187	0.0	4.6
Kampong Cham	1,757,223	263,627	92,251	171,376		9.8	0.0
Kampong Chhnang	523,202	44,369	25,116	19,253		3.7	0.0
Kampong Speu	755,465	69,656	59,671	9,985		1.3	0.0
Kampong Thom	690,414	84,012	32,676	51,336		7.4	0.0
Kampot	611,557	100,504	51,911	48,593		7.9	0.0
Kandal	1,115,965	263,040	129,130	133,910		12.0	0.0
Koh Kong	122,263	15,518	29,330		13,812	0.0	11.3
Kratie	344,195	41,122	37,340	3,782		1.1	0.0
MondulKiri	72,680	2,190	13,085		10,895	0.0	15.0
Phnom Penh	1,688,044	116,051	498,150		382,099	0.0	22.6
PreahVihear	235,370	6,166	49,371		43,205	0.0	18.4
Prey Veng	1,156,739	145,758	54,288	91,470		7.9	0.0
Pursat	435,596	83,459	25,324	58,135		13.3	0.0
RatanakKiri	183,699	2,642	36,660		34,018	0.0	18.5
Siemreap	922,982	57,475	67,301		9,826	0.0	1.1
Sihanouk	250,180	19,354	76,713		57,359	0.0	22.9
Stung Treng	122,791	5,829	24,030		18,201	0.0	14.8
SvayRieng	578,380	62,351	72,221		9,870	0.0	1.7
Takeo	923,373	184,115	43,315	140,800		15.2	0.0
OddarMeanchey	231,390	11,572	70,347		58,775	0.0	25.4
Kep	38,701	1,884	7,512		5,628	0.0	14.5
Pailin	65,795	4,919	37,836		32,917	0.0	50.0

Chapter 6

Summary and Conclusions

Concepts and Methodologies

There are several methods have been used for describing spatial distribution of population. The simplest of spatial distribution of population is distribution of population by percent according to geographical areas. Another methodology usually adopted is to list the geographical areas of a given class into rank order which enables comparison of ranking from census to census. This provides changes in population trends over time. Population density also have been used to measure the spatial distribution of population is it refer to population per square kilometer (Km²) after excluding area occupied by water.

The spatial spared of population concentration actual location of the particular population in the region applying some statistical techniques. Here the study intended to find out by calculating the actual concentration of population in the provinces through applying location Loren curve called Gini index.

Factors Affected Population Distribution

The spatial distribution of population might influent from economic, social and physical reasons lead people migrate, and they can usually be classified into push and pull factors. Push factors are those associated with the residence of origin, while pull factors are those that are associated with the residence of destination.

Size and Distribution of Population

Cambodia's populations in March 2013 were 14.68 million compared to 13.40 million in 2008. In absolute terms, Cambodia population has increased by 1.28 million during haft decade 2008-2013. The average annual exponential growth rate in households was 1.83 percent. Considering all the aspects, the growth rate of population in Cambodia during 2008-2013 may be the average of the three estimates (1.83 per cent, 1.28 per cent and 1.27 per cent) work out 1.46 per cent.

Among the elevens countries, Indonesia contributed largest population in Southeast Asia region, It's contributed about 249,866 thousand or 40.4 per cent while Cambodia contributed only 14,677 thousand or 2.4 percent.

The urban population was estimated to be 2.61 million (19.5 percent) in 2008 and 3.15 million (24.4 percent) in 2013 that is increased almost 2 percentage point between the years 2008-2013. Plain region had a relatively high share of spatial population distribution 49.2 percent as compared to 2008 when the figure was 48.9 percent, this can be explained by the fact that this region also contains six large province and capital city such as Kampong Cham, Kandal, Takeo, Prey Veng, Svay Rieng and Phnom Penh. Tonle Sap is the second largest shared of spatial population distribution 32.2 percent as compared to 2008 when the figure was 32.5percent

The evidence available suggests that these factors have had an impact, as the trend for higher demographic dynamism in the large province is on the wane. There is tremendous variation in the aggregate population size across the province of Cambodia. It varies from 231,390 persons or 0.26 percent in Kep to 1,757,223 persons or 12 percent in Kampong Cham. Kampong Cham province had the largest share of the population followed by Phnom Penh municipality, Prey Veng, Kandal, Battambang and Siem Reap.

Cambodia's population density accounted for 82 per square kilometre in 2013. It has increased by 7 points from the population density of 75 in 2008. However it continues to be much less than 126 for South East Asia. The urban population density of Cambodia 2013 is extremely higher than correspondence to rural.

The population density in Plain accounted highest 288 per square kilometre following 62 per square kilometre for Tonle Sap region and Plateau and Mountain have a lowest density that is 25 per square kilometre.

The spatial pattern of development in regions of Cambodia, with high concentration distribution population density such Kandal, Prey Veng, Takeo and especially in Phnom Penh while population density less than 20 persons per square kilometre were mostly located in north part of the country which are includes Modol Kiri, Preah Vihear, Rattanak Kiri, Stung Treng and another province located in southwest is Koh Kong.

The index of concentration shows that 42 per cent of the Cambodia's population would have to be redistributed in different provinces to produce an exact correspondence between population size and land area. The Gini concentration ratio works out 0.56 it indicates that 56 per cent of the area under the diagonal line is above the Lorenz curve and denotes a fairly degree of segregation or unequal distribution of population. As per the location quotient index, the concentration of population in 2013, the high index value is found in the Phnom Penh province and Kandal province and respectively by followed by Takeo, Prey Veng, Svay Rieng, Kampong Cham and Preah Sihanouk. These are the minority provinces where the geographical condition is very low such as Mondul Kiri, Stung Treng, Koh Kong, Ratanak Kiri, Preah Vihear, Kratie, Pursat, Otdar Meanchey and Kampong Thom.

Concentration index had declines across different years consistently over the years and vindicates the low concentration of population in provinces with large population compare to the provinces with small size of population. Increasing the high annual growth in small provinces shared in spatial distribution population in large provinces.

Population Growth

The annual growth rate works out to 1.83 per cent during 2008-2013. The actual growth rate during 2008-2013 would be in the order of 1.46 per cent which is only marginally less than the projected rate of 1.54 per cent. The annual growth rate of the population of Cambodia is higher than that of Southeast Asia as a whole (1.1 per cent).

The majority relates to the process of urbanization, which has remained a driving force of movement and spatial distribution of population. The rate of urbanization or the average annual rate of increased in the urban percentage. During the period 2008–2013, average annual population growth in urban areas was 3.7 percent /year, while in rural areas it was only 1.34 percent /year. Between 2008 and 2013, the national population increased 1.28 million persons, of which urban areas saw an increase of 0.52 million persons (accounting for 41.55 percent) while rural areas saw an increase of 0.75 million persons (accounting for 58.45 percent).

The Plateau and Mountain registered highest average annual population growth rate as compared to other region may be due to flow of migration still continue to this areas. These figures are following by plain as the second highest growth and Tonle Sap is the third while coastal is the lowest growth. Compared to 1998-2008 the average annual population growth rate all regions have increased except only Tonle Sap has declined.

The rate of population growth has increased in all provinces and municipality except Pailin had seen their population declined between, 2008-2013. The largest increases in population growth rate were in Preah Vihear, Otda Meanchey, Rattanak Kiri and Modol Kiri this may due to high fertility rate, absorption of migration from other provinces for available new land settlement, economic opportunities and new development took place in these areas. Of all provinces Preah Vihear, at 6.37 percent, has experienced the largest population growth between 2008 and 2013. As in the previous two census periods (1998 to 2008), Pailin posted the highest population growth at 11.24 percent, almost ten times to the national average (1.54 percent). In contrast, compared to previous five-year period 2008 -2013 annual population growth rate Pailin has the negative growth rate (-1.38 percent). Compared between 1998-2008 and 2008-2013, there are sixteen provinces has declined in annual population growth rate these included Banteay Meanchey, Battambang, Kampong Speu, Kampong Thom, Kampot, Kandal, Kratie, Mondul Kiri, Phnom Penh, Ratanak Kiri, Siem Reap, Preah Sihanouk, Stung Treng, Otdar Meanchey, Kep and Pailin. For other remaining eight provinces the annual population growth rate continued increase slightly compared to 1998-2008.

Glossary

Total population sizes

Total population is number of usual residents at time-point of 0 hour 3rd March 2013. A person is considered as “a usual resident” of a household if he/she has actually lived in that household for 6 months or more by the time-point of the survey enumeration.

Average annual growth rate

Average annual growth rate of population is expressed as a percentage at which a population is increasing or decreasing on average in a year for the period of 5 years between censuses 2008 and intercensal population survey, 2013.

Household

Household comprises either one person living alone or a group of people living in the same dwelling and sharing meals together. For households with 2 persons or over, its members may or may not share a common budget; or be related by blood or not; or in combination of both. Household head is the representative of the household recognized by all household members.

Population change

- Is measured as the difference in population size between two points of time,
- Can be expressed in terms of absolute change, percentage, average annual absolute change, geometric or exponential growth rate and
- Can refer to changes in size, distribution, or composition, or to any combination of the three

Measures of population change:

P_t = population at later date

P_0 = population at the earlier data

y = number of years between P_0 and P_t

Absolute change = $P_t - P_0$

Percent change = $[(P_t - P_0)/P_0] * 100$

Annual Arithmetic Growth Rate

$R_a = [(P_t / P_0) - 1] / y$

Annual Geometric Growth Rate

$R_g = (P_t / P_0)^{(1/y)} - 1$

Annual Exponential Growth Rate

$R_e = [\ln(P_t / P_0)] / y$

Fertility

Fertility is defined as the childbearing performance of a woman or group of women measured in terms of the actual number of children born.

Total Fertility Rate (TFR)

The total fertility rate is the number of children which a woman of hypothetical cohort would bear during her life time if she were to bear children throughout her life at the rates specified by the schedule of age specific fertility rates for the particular year and if none of them dies before crossing the age of reproduction. Therefore Total fertility rate is the number of births a woman would have if she experienced a given set of age specific birth rates throughout her reproductive span. It is the sum of age-specific fertility rates.

Age-Specific Fertility Rate

The number of births to women of a given age group per 1,000 women in that age group

Crude Birth Rate (CBR)

It is the number of live births in a given year per 1,000 populations.

Crude Death Rate

It is the number of deaths in a given year per 1,000 populations.

Infant Mortality Rate

Is the probability of infant death per 1000 live births before reach age one year or the number of deaths of infants under age one year per 1,000 live births in a given years.

Under Five Mortality Rate

The number of deaths of children age under-five's per 1,000 children age under-five's in a given year.

Maternal Mortality Ratio

Maternal mortality ratio is the number of women who die as a result of complications of childbearing or pregnancy per 100,000 live births in a given year.

Migration

This is the process of changing residence from one geographical location to another. In the 2008 Census it meant shifting residence by the person enumerated from another village or country (which was his/her previous residence) to the village in which he/she was enumerated.

Lifetime Migration

It is the migration status of persons as determined by comparing the place of birth with place of residence.

In-migration rate

In-migration rate indicates the number of in-migrants from other territorial units arriving in the territorial unit during enumeration period express as percentage at that destination.

Out-migration rate

Out-migration rate indicates the number of out-migrants departing from a territorial unit during an observed period enumeration period express as percentage in that territory.

Population Density

Population density is the average number of persons residing in a territory, divided by the area of that territory in square kilometres.

Sex ratio

Sex ratio is expressed as the number of males for every 100 females of population.

Sex ratio at birth

Sex ratio at birth is expressed as the number of male births for every 100 female births among total births in 12 months prior to the census.

Urban

Urban areas are based on the criteria adopted in the “Reclassification of Urban Areas in Cambodia” (November 2011). In Cambodia, special study and classification urban by NIS in both 2004 and 2008 have been used as guidance for measure of urban in this report. Consideration of all relevant aspects, field study and consultation with agencies concerned the study decided to apply the following criteria to every commune so as to treat it as urban:

- (a) Population density exceeding 200 per km²
- (b) Percentage of total employment in agriculture sector 50 percent and more
- (c) Total population of the commune exceeding 2,000.

Rural

Areas other than urban are treated as Rural.

APPENDIX



Identification Particulars

Khet (Municipality)	Srok / Khanh/ Krong	Kham / Sangkat	Phum/Mondul	Enumeration Area No.	Building No.	Household No.	Name of Head of Household	S. No. of Household Selected (Copy from col.14 of Form A)
Name Code								

STRICTLY CONFIDENTIAL
FORM B HOUSEHOLD QUESTIONNAIRE PART 1



Population Particulars

Statement 1.1 : Usual Members Present on Survey Night

Sl. No.	Full Name	Relationship to Head of Household (Write in words)	Sex 1 = Male 2 = Female (Enter code)
1	2	3	4
1			
2			
3			
4			
5			
6			
7			
8			
9			
0			

Statement 1.2 : Visitors Present on Survey Night

Sl. No.	Full Name	Relationship to Head of Household (Write in words)	Sex 1 = Male 2 = Female (Enter code)	Usual Residence	
				Within Cambodia Give name of district and write name of province within brackets	Outside Cambodia Give name of country
1	2	3	4	5	6
1					
2					
3					
4					
5					
6					
7					
8					
9					
0					

Statement 1.3 : Usual Members Absent on Survey Night

Sl. No.	Full Name	Relationship to Head of Household (Write in words)	Sex 1 = Male 2 = Female (Enter code)	Age	Location on Survey Night		How long Absent (in completed months), Write 0 for less than 1 month
					Within Cambodia Give name of district and write name of province within brackets	Outside Cambodia Give name of country	
1	2	3	4	5	6	7	8
1							
2							
3							
4							
5							

Total No. of Persons in Statement 1.1	
---------------------------------------	--

Total No. of Persons in Statement 1.2	
---------------------------------------	--

Total No. of Persons in Statements 1.1 & 1.2	
--	--

Number of Form B used for the Household	
---	--

Enumerator: _____
Supervisor: _____

Name _____
Name _____

Signature _____
Signature _____

Day _____ Month _____ Year _____
Day _____ Month _____ Year _____

For All Persons

Literacy		Full Time Education					Physical/Mental Disability, if any	Main Activity	Employment Period	Occupation	Employment Status	Industry, Trade or Service	Sector of Employment	Secondary economic activity (For all Codes 1 to 8 in Col 13)
16	17	18	19	20	21	22	23	24	25	26	27	28	29	
(A) Can the person read and write with understanding in either language? 1: Yes 2: No (Enter Code from list below)	(A) Has the person attended School (Instructional Institution)? 1: Never 2: Now 3: Past (Enter Code from list below)	(B) Currently attending Grade 2 of col. 17(a) (Enter Code from list below)	(C) Highest Grade completed (Enter Code from list below)	(D) Main subject of study for codes 15 to 20 in Col 17(b) or 17(c) (For other codes is col. 17(b)(c) skip to col. 18)	(E) If the person is physically/mentally disabled give appropriate code number from the list below. (Otherwise enter 0)	(F) Main activity of the person during last year (Enter Code from list below)	(G) Number of months employed in the last 12 months (Enter Code from list below)	(H) Name of Occupation (Enter Code from list below)	(I) Employment Status (Enter Code from list below)	(J) Name of Industry, Trade or Service (Enter Code from list below)	(K) Sector in which Employed (Enter Code from list below)	(L) In terms of contribution to income or subsistence, what was the second most important economic activity of this individual over the last year? (Enter code from list below)		

Codes for column 16(b)
Literacy in any other language
1: No other language
2: Vietnamese
3: Chinese
4: Lao
5: Thai
6: French
7: English
8: Cham
9: Other (Specify)

Codes for column 17(a)
Currently attending Grade
For code 1 skip to col. 17(b) and code 2 skip to col. 17(c)
Codes for column 17(b)
Highest Grade/Upper Diploma completed
For code 1 in Col. 17(b) skip to col. 17(c)
For code 2 skip to col. 17(c), Code from list below
DIPLOMA (DIPLOMA) and (DIPLOMA)

Codes for column 17(c)
Currently attending Grade
For code 1 skip to col. 17(b) and code 2 skip to col. 17(c)
Codes for column 17(d)
Main subject of study
1: Science
2: Agriculture
3: Arts
4: Education
5: Health Sciences
6: Humanities
7: Law
8: Medicine
9: Other (Specify)
10: Multiple (Specify by code)

Codes for column 18
Type of Disability
1: Is seeing
2: Is speech
3: Is hearing
4: Is movement
5: Mental Retardation
6: Mental Illness
7: Any (Specify)
8: Multiple Disability (Specify by code)

Codes for column 19
Main Activity During last Year
1: Employed (Full time, 20 to 24)
2: Unemployed (Specified any item below)
3: Unemployed (Specified any item below)
4: Unemployed (Specified any item below)
5: Unemployed (Specified any item below)
6: Home maker
7: Student
8: Dependent
9: Other (Specify)
(For codes 1, 4, 5, 6, 7 & 8 put ticks (✓) in Col. 20 to 24)

Codes for column 20
Employment Status
1: Employee
2: Part employee
3: Own account worker
4: Unpaid family worker
5: Other (Specify)

Codes for Col. 17(b)
1: Lower Secondary Diploma/Certificate
2: Upper Secondary Diploma/Certificate
3: Technical/vocational post secondary diploma/certificate
4: Graduate Degree
5: Master's Degree
6: Doctoral Degree
7: Any other Diploma/Degree completed (Specify)
8: No grade completed

Codes for Col. 17(c)
1: Science
2: Agriculture
3: Arts
4: Education
5: Health Sciences
6: Humanities
7: Law
8: Medicine
9: Other (Specify)
10: Multiple (Specify by code)

Codes for column 21
Name of Occupation
1: Unemployed (Specified any item below)
2: Unemployed (Specified any item below)
3: Unemployed (Specified any item below)
4: Unemployed (Specified any item below)
5: Unemployed (Specified any item below)
6: Home maker
7: Student
8: Dependent
9: Other (Specify)
(For codes 1, 4, 5, 6, 7 & 8 put ticks (✓) in Col. 20 to 24)

Codes for column 22
Employment Status
1: Employee
2: Part employee
3: Own account worker
4: Unpaid family worker
5: Other (Specify)

Codes for column 23
Sector of Employment
1: Government
2: State owned enterprise
3: Collective enterprise (Private)
4: Foreign enterprise
5: Non profit institution
6: Household sector
7: Institutions, international institutions and foreign and development agencies
8: Other, specify

Codes for column 24
Secondary economic activity
(Enter Code from list below)
1: Agriculture
2: Manufacturing
3: Construction
4: Wholesale and retail trade
5: Transport
6: Information and communication
7: Other (Specify)

FORM B HOUSEHOLD QUESTIONNAIRE PART 3 : FERTILITY INFORMATION OF FEMALES AGED 15 AND OVER LISTED IN COLUMN 2 OF PART 2

Sl. No.	Full Name of woman	Sl. No. in col.1 of Part 2	Age of woman at the time of birth of first child	FERTILITY INFORMATION											
				Number of Children Born (Give number in two digits like 01, 02,.....,10, 11. If None, write 00)					Particulars of Birth in the last 12 months to women aged 15-49 years						
				How many Children have been born alive to the woman ?		How many of them are living ?		How many of them have died ?	Any child born alive to the woman during the last 12 months ? (Give actual number for 1, 2 under the appropriate column. If none write 0.) (If no child was born to the woman in the last 12 months, put dash (-) in Col. 9&10.)		Status who assisted her during the delivery (Enter Code from list below)		Did she get the birth of this child registered with the civil authority? Yes = 1 No = 2 (Enter code)		
(5)	(6)	(7)	(8)	(9)	(10)										
(1)	(2)	(3)	(4)	(a) Male	(b) Female	(a) Male	(b) Female	(a) Male	(b) Female	(a) Male	(b) Female	(a) Male	(b) Female	(a) Male	(b) Female
1															
2															
3															
4															
5															
6															
7															
8															
9															
0															

Codes for Column 9
 1. Doctor
 2. Nurse
 3. Midwife
 4. Traditional Birth Attendant (TBA)
 5. Other
 6. None

FORM B HOUSEHOLD QUESTIONNAIRE PART 4 : DEATH IN HOUSEHOLD
Deaths in Household in the last 12 months: Total Number of Deaths

--	--

Sl. No.	Name of Deceased	Sex 1: Male 2: Female (Enter Code)	Relationship to Head of Household (Use Code given below)	Age at Death Write the age in total years completed at the time of death 00: Less than 1 year 01: 1 year to less than 2 years 02: 2 years to less than 3 years 97: 97 years to less than 98 years 98: 98 years and over	What was the cause of death? (Enter Code from the list below)	6	How this death been registered with the civil authority? 1: Yes 2: No	For women aged 15-49 years who died	
								State where the death took place (Enter Code from the list below)	§(b)
1	2	3	4	5	6	7			
1									
2									
3									
4									
5									
6									
7									
8									
9									
0									

Codes for column 4
Relationship to Head of Household
01: Head
02: Wife / Husband
03: Son / Daughter
04: Step child
05: Adopted/ Foster child
06: Father / Mother
07: Sibling
08: Grand child
09: Niece/nephew
10: Son/Daughter-in-law
11: Brother/Sister in-law
12: Father/mother in law
13: Other Relative
14: Servant
15: Non-Relative including boarder

Codes for col. 6
Cause of Death
ILLNESS
01: Fever
02: Diarrhoea
03: Tuberculosis
04: Heart disease
05: Dengue fever
06: Malaria
07: Tetanus
08: HIV/AIDS
09: Pregnancy complication
10: Delivery complication
11: Other illness (specify.....)
ACCIDENT
12: Land mine
13: Road Accident
14: Drowning
15: Other accident (specify.....)
NOT KNOWN
16: Don't know

Codes for Col. 8(b)
Place of Death
1: Hospital
2: Health Center
3: Home
4: Other

Codes for Col. 9 (c)
1: Doctor
2: Nurse
3: Midwife
4: Traditional Birth Attendant (TBA)
5: Other (Specify)....
6: None

FORM B HOUSEHOLD QUESTIONNAIRE PART 5 : HOUSING CONDITIONS AND FACILITIES

(Enter Code in the box below)

1 On what basis does this household occupy this dwelling?	2 Main Source of light 1 : City power 2 : Generator 3 : Both city power and generator 4 : Kerosene 5 : Candle 6 : Battery 7 : Other (specify)	3 Main Cooking Fuel 1 : Firewood 2 : Charcoal 3 : Kerosene 4 : Liquefied Petroleum Gas (LPG) 5 : Electricity 6 : None 7 : Other (specify)	4 Toilet facility within premises 1 : Not available If available give one of the codes 2 to 5 2 : Connected to sewerage 3 : Septic tank 4 : Pit latrine 5 : Other type of toilet (specify)	5 Main Source of drinking water supply 1 : Piped water 2 : Tube / pipe well 3 : Protected dug well 4 : Unprotected dug well 5 : Rain 6 : Spring, river, stream, lake/pond 7 : Bought 8 : Other (specify)	6 Location of Drinking water source 1 : Within the premises 2 : Near the premises 3 : Away	7 No. of rooms occupied by household (exclude kitchen, bathroom, toilet and storeroom)	8 Availability of separate kitchen within premises 1 : Yes 2 : No
(Enter Code)	(Enter Code)	(Enter Code)	(Enter Code)	(Enter Code)	(Enter Code)	(Enter Code)	(Enter Code)

INFORMATION ON OWNERSHIP OF SOME FACILITIES BY THE HOUSEHOLD (Under each item write "00" in the square if not available, or give the actual number if available)

9 Radio/Transistor	10 Television	11 Telephone (Mobile phone)	12 Cell phone	13 Personal Computer	14 Bicycle	15 Motorcycle	16 Refrigerator	17 Washing Machine	18 Air-Conditioner	19 Fan	20 Car/Van	21 Boat
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

State whether the household accesses the Internet

23 At home	24 Outside home	25 At home and Outside home
1 : Yes 2 : No <input type="text"/>	1 : Yes 2 : No <input type="text"/>	1 : Yes 2 : No <input type="text"/>
(Enter Code)	(Enter Code)	(Enter Code)

11B008	22 (a) Big tractor	<input type="text"/>
	(b) Hand tractor (Koyam)	<input type="text"/>

