

Chapter 2

Spatial Distribution and Density of Population

2.1 The Concept of Spatial Distribution

One of the major results of a population census is the insight it provides into the patterns of population settlement across the country. This chapter examines the spatial distribution of the population of Cambodia as revealed by the 2008 Census of Cambodia.

Data on distribution of population among the administrative areas are useful for several purposes. They generally form the basis for determining the electoral constituencies. They are useful in connection with social economic and administrative planning and provide basic data for making population projections. The concepts of population distribution and density are so closely related to each other that it would be appropriate to discuss them in the same chapter. However the two concepts are different, as distribution is based on location while density is a ratio. Population distribution denotes the spatial pattern due to dispersal of population, formation of agglomeration, linear spread etc. Population density is the ratio of people to physical space. It shows the relationship between a population and the size of the area in which it lives.

Of the several methods of describing the spatial distribution of population the simplest way is percentage distribution of population over the 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.

The density of population is usually computed as population per square kilometer (Km^2) of land area excluding area occupied by water. Different scholars have devised different types of densities for utilization in different situations with the aim to arrive at a better indicator for the population –resource relationship. 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.

In most countries of the world the geographic distribution of the population is not even with varying degrees of concentration of population giving rise to varying densities in the different parts of the world. According to the 2007 Demographic Year Book of the United Nations there were 49 persons per km^2 in the surface area of the world. Among the continents Asia with a density of 126 persons per km^2 was the most densely populated continent followed by Europe (32), Africa (32), Latin America (28), Northern America (16) and Oceania (4). Even within a country striking contrasts are noted in the population distribution at both the national and sub-national levels.

2.2 Factors Affecting Population Distribution

The main factors determining population distribution are : climate, landforms, topography, soil, energy and mineral resources, accessibility like distance from sea coast, natural harbours, navigable rivers or canals, cultural factors, political boundaries, controls on migration and trade, government policies, types of economic activities, technology including type of farming and transportation facilities, social organization and but not the least, demographic factors like changes in natural increase and migration.

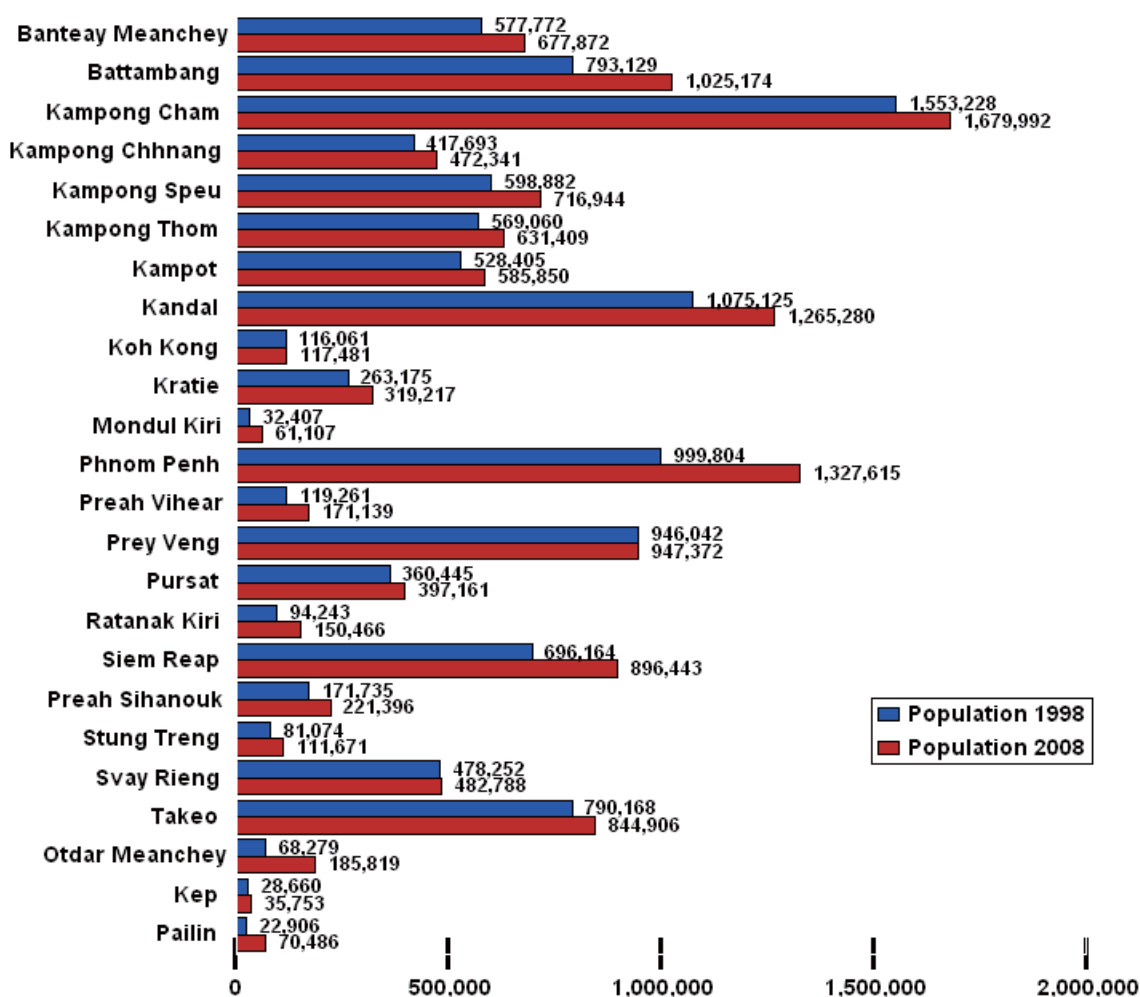
Adverse physical conditions and lack of sufficient opportunities for means of livelihood have been mainly responsible for discouraging inhabitation in certain areas. Climatic conditions are perhaps the most important of all the geographic influences on population distribution. Apart from physical factors several social, demographic, economic, political and historical factors affect population distribution.

In the case of Cambodia, civil unrest in the past had forced a large number of people to migrate from one province to another. Though a majority of the population is engaged in agriculture and rarely shift their residence in normal times, there have been movements of population mainly for economic reasons. There is a clear pattern in the distribution of human settlements in Cambodia. For instance the majority of the inhabitants of the country are settled in fairly permanent villages near the major water courses in the Tonle Sap Basin-Mekong Lowlands region. The highland tribes in Cambodia are found mostly in the northeastern provinces of Ratanak Kiri, Stung Treng, Mondul Kiri and Kratie. They mainly live in scattered temporary villages that are abandoned when the cultivated land in the vicinity is exhausted. These villages have only a few hundred inhabitants. Cham people who are Muslims engaged mostly in fishing and in growing vegetables usually occupy an entire village. These villages are mostly located on or near the banks of a river or channel.

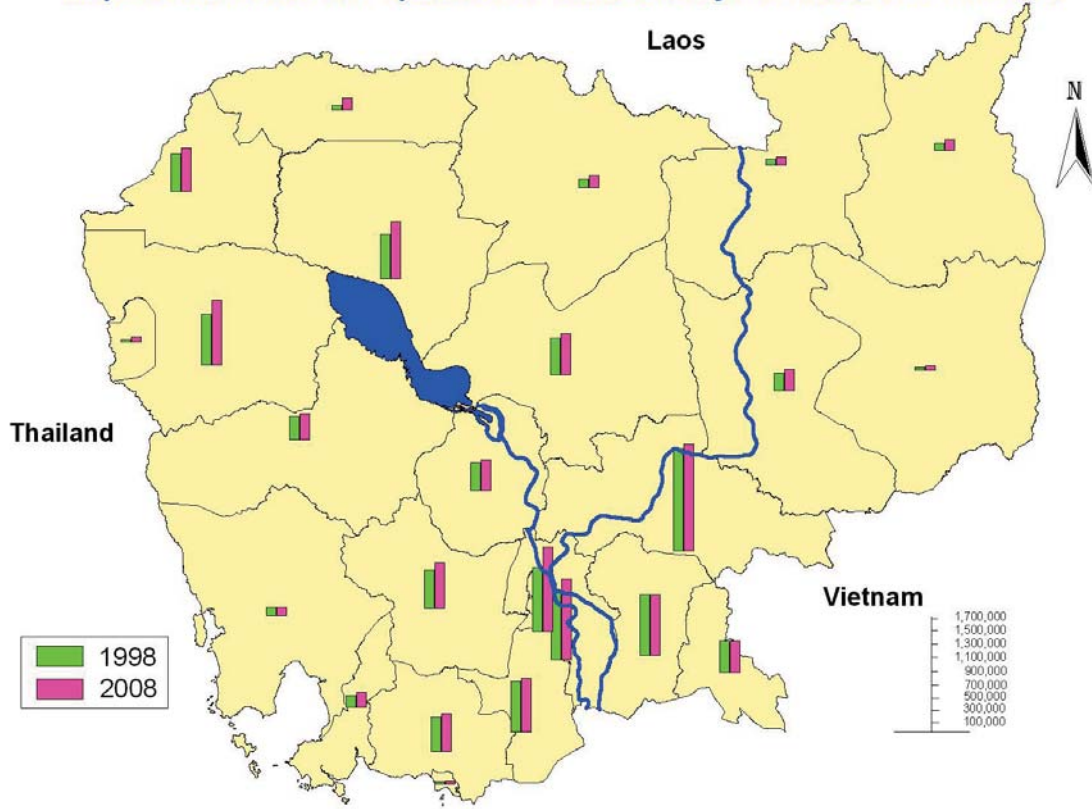
2.3 Physical Features and Administrative Divisions

Situated in the southwestern part of the East Asia peninsula, Cambodia has an area of 181,035 km² of which about 3,000 km² is occupied by the Tonle Sap Lake. About one fifth of the land area is used for agriculture. The country is bounded on the west by Thailand, on the north by Lao People's Democratic Republic, on the east and south by Viet Nam (See Map 1). The Gulf of Thailand serves as the southwest boundary. The country has a coastline of about 440 km and contains extensive forests. Monsoon dominates the climatic condition of Cambodia. Throughout the country, temperatures are fairly uniform, varying slightly from an average annual temperature of around 28 degree centigrade in a typical year. The maximum and minimum temperatures are 33 degree centigrade and about 24 degree centigrade respectively.

Figure 2.1 Provinces by Population Size, Cambodia 1998 and 2008



Map 2. Distribution of Population of Cambodia by Province, 1998 and 2008



The centrally located Tonle Sap (Great Lake), and the Bassac River and the Mekong River systems which run from the north to the south constitute the dominant feature of the Cambodian landscape. The Central Plains which accounts for most of the land area are surrounded by dense forests and highlands. Cambodia is divided into the following four natural regions: Plain, Tonle Sap, Coastal, and Plateau and mountain.

The administrative divisions of Cambodia which has 23 provinces and one municipality (Phnom Penh) are as described under the sub-paragraph on Royal Sub-Decree in Chapter 1. The provinces comprised in each Natural Region are shown in Table 2.5.

2.4 Population Distribution

Table 2.1 shows the distribution of population of Cambodia by sex and province in 1998 and 2008.

Table 2.1 Population of Cambodia by Province, 1998 and 2008

Code	Cambodia / Province / Municipality	1998			2008		
		Both Sexes	Males	Females	Both Sexes	Males	Females
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Cambodia	11,437,656	5,511,408	5,926,248	13,395,682	6,516,054	6,879,628
01	Banteay Meanchey	577,772	283,358	294,414	677,872	331,715	346,157
02	Battambang	793,129	388,599	404,530	1,025,174	506,351	518,823
03	Kampong Cham	1,608,914	775,796	833,118	1,679,992	818,662	861,330
04	Kampong Chhnang	417,693	197,691	220,002	472,341	227,007	245,334
05	Kampong Speu	598,882	287,392	311,490	716,944	348,512	368,432
06	Kampong Thom	569,060	272,844	296,216	631,409	307,724	323,685
07	Kampot	528,405	253,085	275,320	585,850	284,123	301,727
08	Kandal	1,075,125	515,996	559,129	1,265,280	612,692	652,588
09	Koh Kong	116,061	59,523	56,538	117,481	59,327	58,154
10	Kratie	263,175	130,254	132,921	319,217	159,146	160,071
11	Mondul Kiri	32,407	16,380	16,027	61,107	31,372	29,735
12	Phnom Penh	999,804	481,911	517,893	1,327,615	625,540	702,075
13	Preah Vihear	119,261	59,333	59,928	171,139	85,319	85,820
14	Prey Veng	946,042	445,140	500,902	947,372	453,082	494,290
15	Pursat	360,445	172,890	187,555	397,161	192,954	204,207
16	Ratanak Kiri	94,243	46,396	47,847	150,466	76,115	74,351
17	Siem Reap	696,164	336,685	359,479	896,443	439,982	456,461
18	Preah Sihanouk	170,655	84,576	86,079	221,396	110,777	110,619
19	Stung Treng	81,074	40,124	40,950	111,671	55,634	56,037
20	Svay Rieng	478,252	225,105	253,147	482,788	231,578	251,210
21	Takeo	790,168	376,911	413,257	844,906	410,782	434,124
22	Otdar Meanchey	68,279	34,472	33,807	185,819	93,646	92,173
23	Kep	28,660	14,014	14,646	35,753	17,674	18,079
24	Pailin	22,906	12,392	10,514	70,486	36,340	34,146

The population distribution in Cambodia in 1998 and 2008 is also represented in Map 2. Since 80.5 percent of the population of Cambodia resides in the rural areas mainly depending on the agriculture sector, the pattern of population distribution in the country mostly corresponds to the factors governing agricultural practices. The population distribution in the country has been traditionally determined by the availability of land for cultivation, quality of soil, availability of water resources, favourable climatic conditions, topography and availability of transportation facilities.

The main concentration of the population occurs in the plain region consisting of the Tonle Sap Basin-Mekong Lowlands. On a geographic area of about 14 percent of the country, the plain region accounts for nearly 49 percent of the population. The concentration becomes more conspicuous as one moves

from Kampong Cham towards the capital city of Phnom Penh and then to Kandal and Takeo. The Tonle Sap and the coastal regions also account for population concentration though to a much lower extent. However, by contrast, the plateau and mountain region is characterized by sparse population. The highlands comprise the Elephant Mountains and Cardamom Mountains of the southwest and western regions; the Dangrek Mountain of the north adjacent to the Korat Plateau of Thailand; and the Ratanak Kiri Plateau and Chlong Highlands on the east. The upland plateaus have rugged topography, poor soils, unfavourable climatic conditions and shortage of water for any large scale agricultural operations which give rise to overall sparse population.

The general patterns of population distribution had also undergone changes during the decades of war and Khmer Rouge occupation. Moreover there has been a considerable amount redistribution of population since the mid 1990s due to internal peace, development of free market economy, promotion of tourism, gradual clearance of land mines, growth of the garment industry, urbanization, advent of new centers of administration and commerce, development of communication networks, construction of roads and bridges connecting the provinces, expansion of irrigation facilities and mining of gems and other precious metals in the north and northwest. Table 2.2 gives the ranking of provinces by population both in 1998 and 2008

Table 2.2 Ranking of Provinces by Population Size: 1998 and 2008

Rank in 2008	Province/ Municipality	Percent to total population of Cambodia		Rank in 1998
		1998	2008	
(1)	(2)	(3)	(4)	(5)
1	Kampong Cham	14.07	12.54	1
2	Phnom Penh	8.74	9.91	3
3	Kandal	9.4	9.45	2
4	Battambang	6.93	7.65	5
5	Prey Veng	8.27	7.07	4
6	Siem Reap	6.09	6.69	7
7	Takeo	6.91	6.31	6
8	Kampong Speu	5.24	5.35	8
9	Banteay Meanchey	5.05	5.06	9
10	Kampong Thom	4.98	4.71	10
11	Kampot	4.62	4.37	11
12	Svay Rieng	4.18	3.6	12
13	Kampong Chhnang	3.65	3.53	13
14	Pursat	3.15	2.96	14
15	Kratie	2.3	2.38	15
16	Preah Sihanouk	1.5	1.65	16
17	Otdar Meanchey	0.6	1.39	21
18	Preah Vihear	1.04	1.28	17
19	Ratanak Kiri	0.82	1.12	19
20	Koh Kong	1.01	0.88	18
21	Stung Treng	0.71	0.83	20
22	Pailin	0.2	0.53	24
23	Mondul Kiri	0.28	0.46	22
24	Kep	0.25	0.27	23

Note: 1998 and 2008 populations of Koh Kong and Preah Sihanouk provinces are for areas according to the new frame. Ranks are based on these populations.

The changes in the population distribution among the provinces in the last decade have given rise to changes in the ranks of some of them. Kampong Cham continues to be the biggest province in terms of population although it contains a lesser proportion of the country's population in 2008. There are shifts in ranks in respect of 13 provinces while there is no change in ranks in the remaining 11 provinces. Notably, Phnom Penh moved up to the second position with Kandal coming down to the third position. Otdar Meanchey which has registered a very high growth rate during the last decade has moved to the 17th position from the 21st position. On the other hand Koh Kong has gone to the 20th position (2008) from the 18th position (1998).

2.5 Distribution of Population by Districts/ Khans/ Cities/

Table 2.3 shows the number of Districts/ Khans/ Cities in each size class of population. The word city generally refers to a big town of a population size of 100,000 and more. But in the Royal Sub-Decree, Krongs are referred to as cities. Hence the term city used in this report refers to towns of all size classes.

There are 159 Districts, 8 Khans and 26 Krongs or Cities which may be considered as one group of administrative units for the purpose of the present analysis. Out of these 193 administrative units, the highest number is in the population size class 40,000 to 59,999 (21percent). However the 15 Districts/ Khans/ Cities which are distributed over the four size classes of population 140,000 and more account for nearly 20 percent of the population of Cambodia.

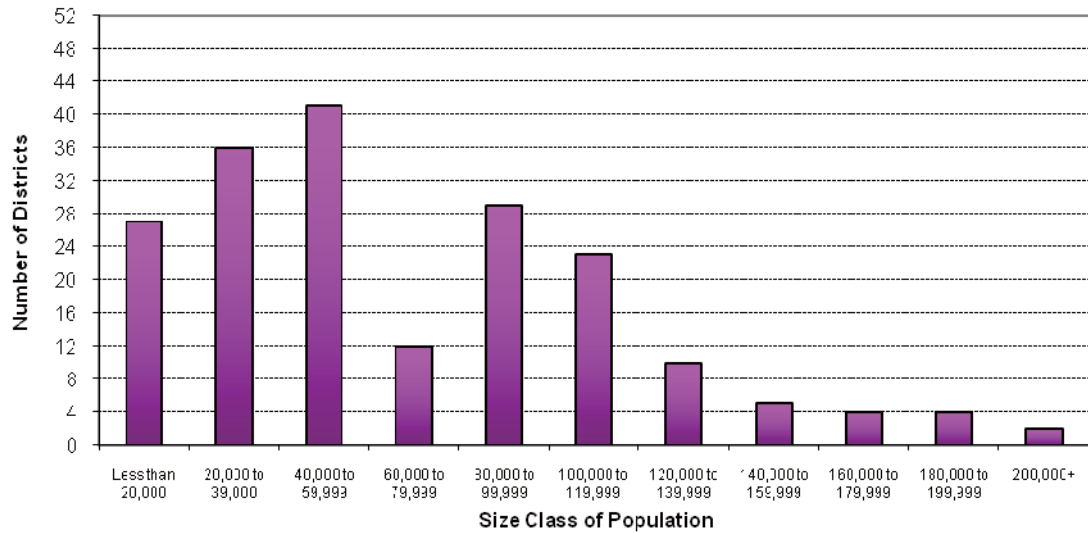
Table 2.3 Districts/Khans/Cities distributed by Population Size, Cambodia, 2008

Population Size Class	Number of Districts/Khans/Cities
Total	193
Less than 20,000	27
20,000 to 39,999	36
40,000 to 59,999	41
60,000 to 79,999	12
80,000 to 99,999	29
100,000 to 119,000	23
120,000 to 139,000	10
140,000 to 159,000	5
160,000 to 179,999	4
180,000 to 199,999	4
200,000 +	2

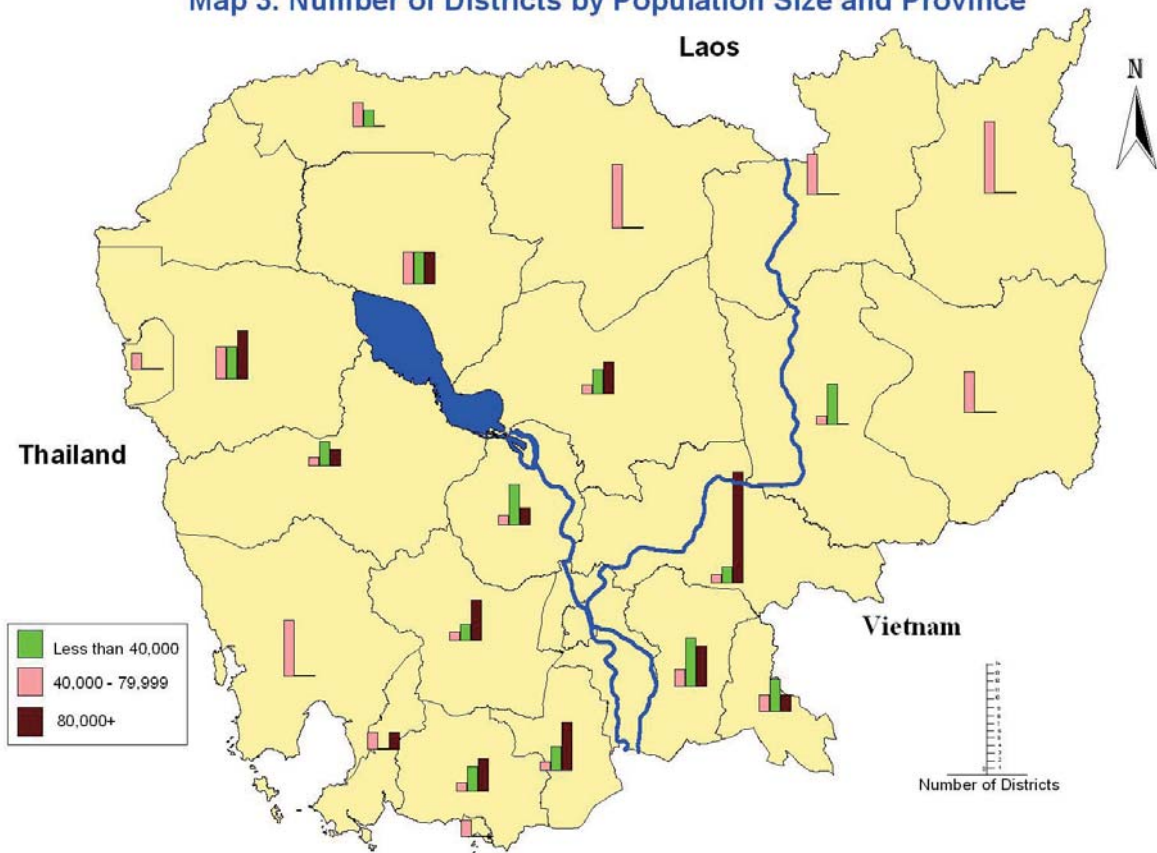
Meanchey Khan of Phnom Penh Municipality and Ou Reang district of Mondul Kiri Province account for the highest (266,865) and the lowest (3,948) populations among Districts/ Khans/ Cities in Cambodia. The average size of these administrative units is 69,408. As many as 104 out of 193 units (54 percent) are having each a population less than 60,000. About 25 percent of these units are each of population size 100,000 and more. Hence it is evident that there is unevenness in the distribution of population over these units.

The variation in the number of districts by population size at the national level is depicted by bar diagrams in Figure 2.2. Map 3 shows in respect of each province the number of districts falling in each of the broad population size classes of less than 40,000, 40,000 to 79,999 and 80,000+.

Figure 2. 2 Number of Districts by Population Size, Cambodia 2008



Map 3. Number of Districts by Population Size and Province

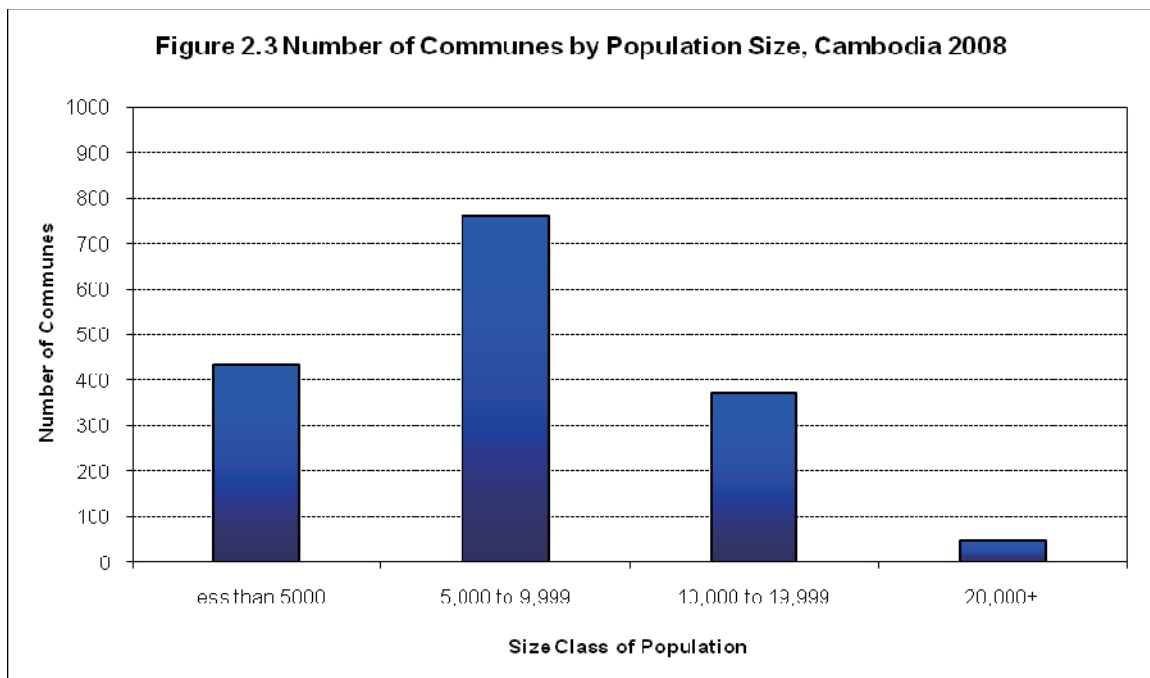


2.6 Distribution of Population by Communes/ Sangkats

There are 1,417 Communes (administrative unit below a district) within 159 Districts and 204 Sangkats (administrative unit below Khan/ Krong) within Phnom Penh Municipality and 26 Krongs. Thus there are 1,621 Communes/ Sangkats in Cambodia. The average population size of a Commune/Sangkat works out to 8,264. These units are distributed according to their population sizes in Table 2.4 (See also Figure 2.3).

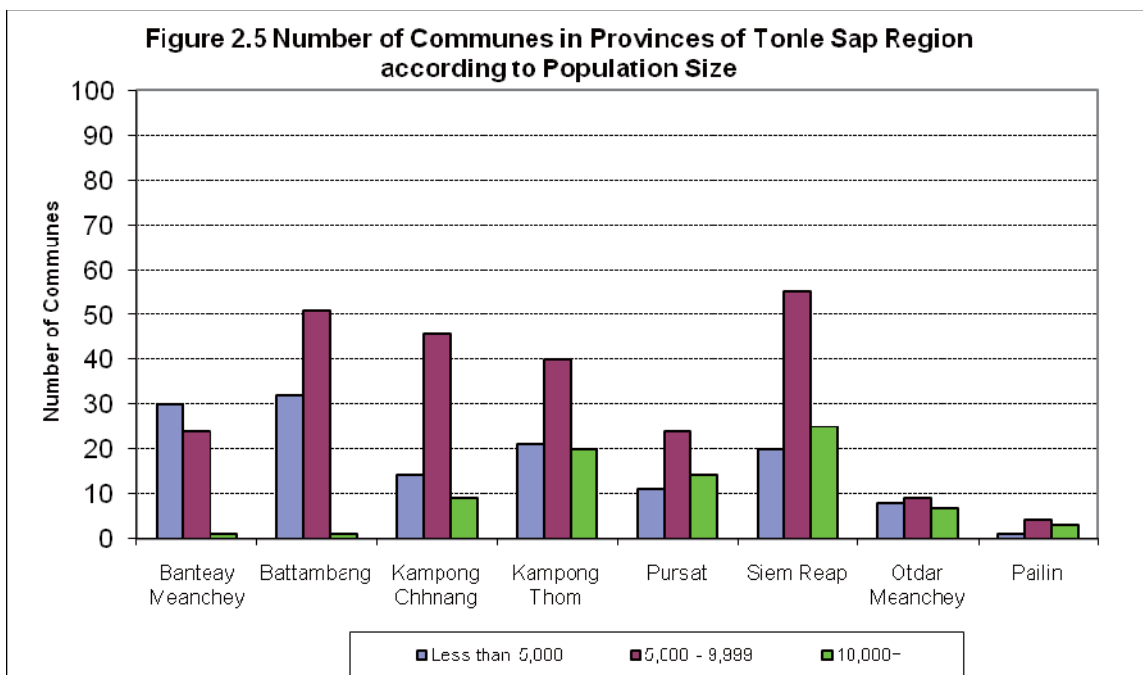
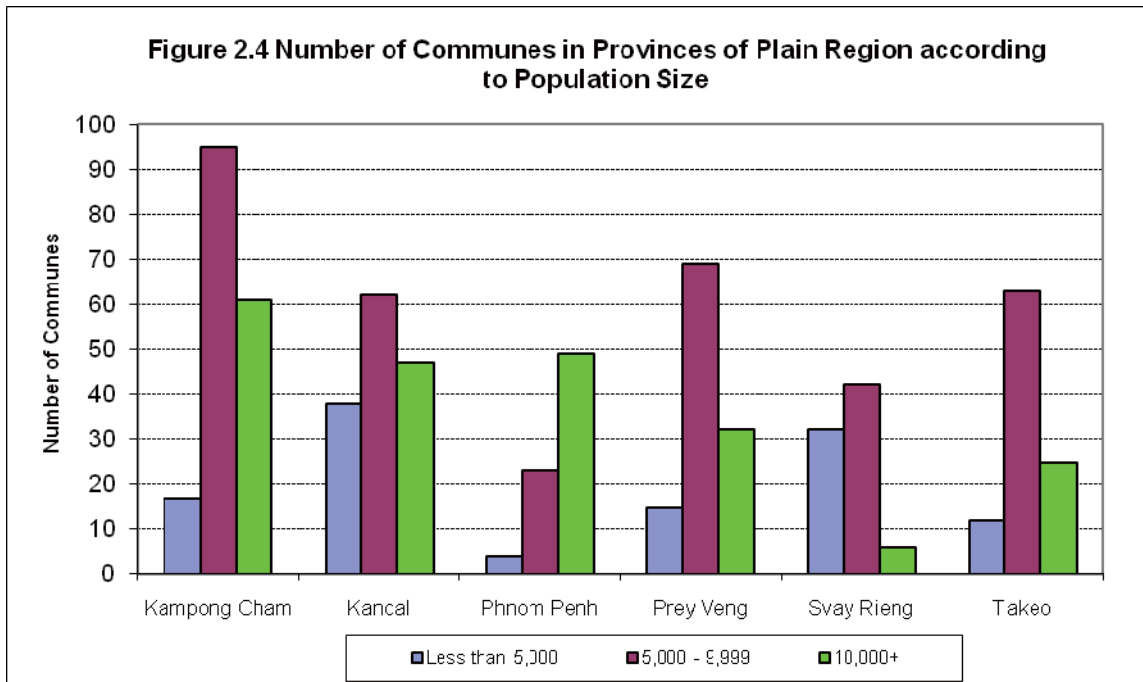
Table 2.4 Distribution of Communes/ Sangkats by Population Size Class, Cambodia 2008

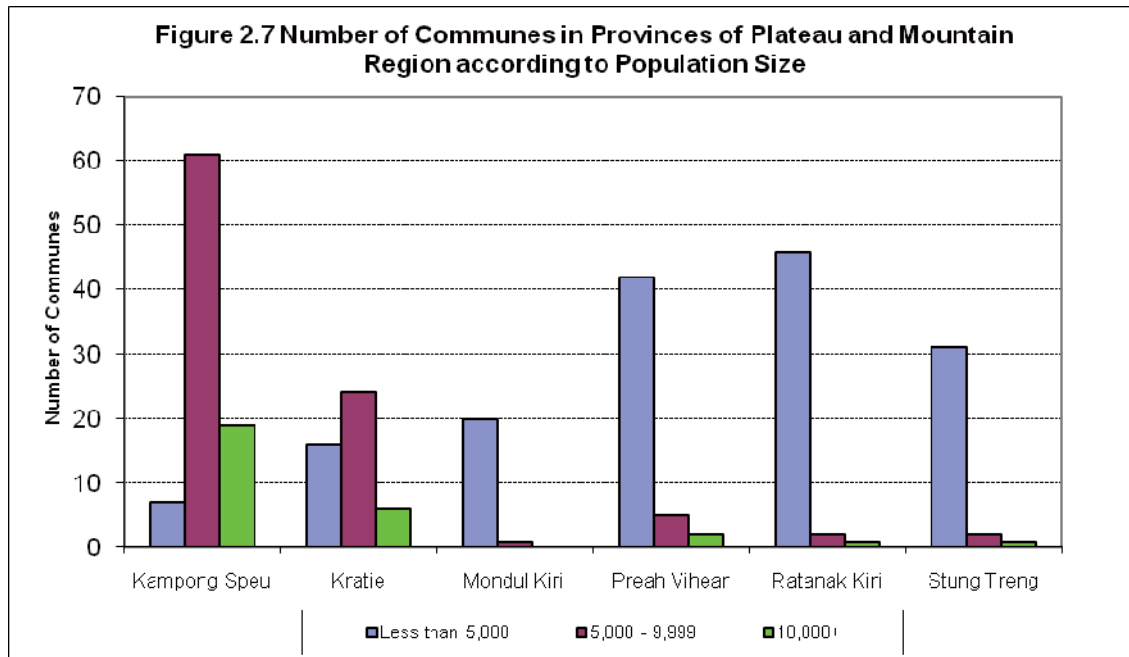
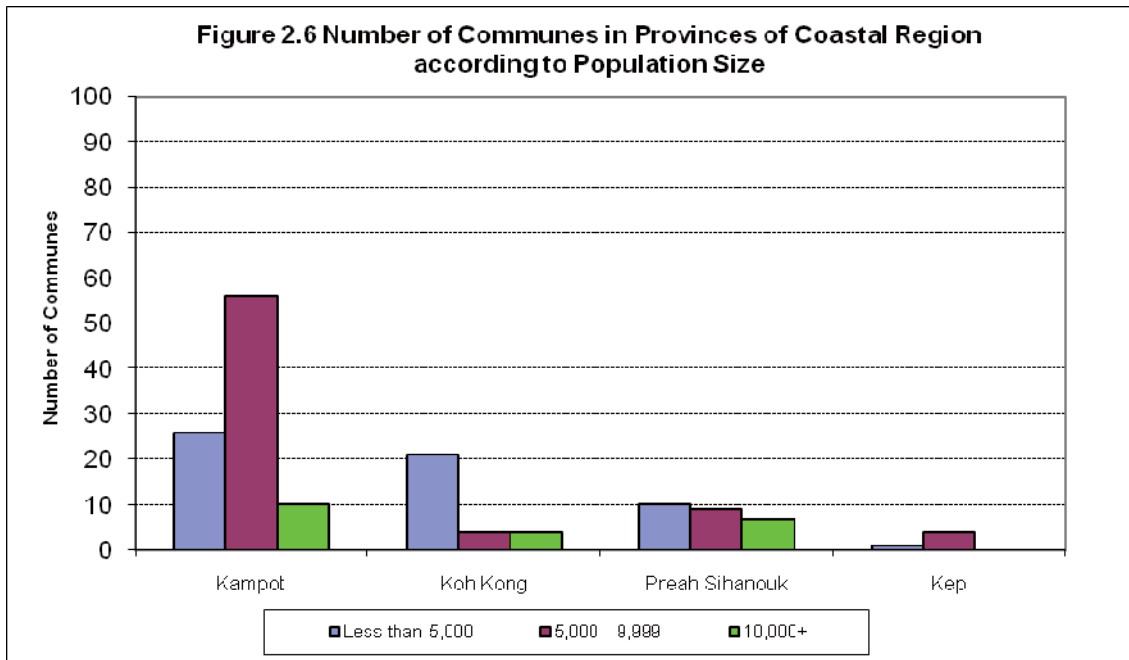
Population Size Class	Number of Communes	Percentage of Communes
(1)	(2)	(3)
Total number of Communes	1621	100
Less than 2,000	71	4.38
2,000-4,999	365	22.52
5,000-9,999	762	47.01
10,000-19,999	373	23.01
20,000-29,999	34	2.10
30,000-39,999	8	0.49
40,000-49,999	2	0.12
50,000+	6	0.37



About 97 percent of the Communes/ Sangkats have each a population less than 20,000. The biggest among Communes/ Sangkats in terms of population is Paoy Paet Sangkat (89,549) of Krong Paoy Paet

in Banteay Meanchey province. Chumnob Commune of Thma Bang district of Koh Kong province has the lowest population (298) among Communes/ Sangkats. Figures 2.4 to 2.7 show the number of Communes in each broad size class of population by province and Natural Region.





Analytical Table AT01 given in Annex 1 shows the distribution of Cambodia's population by District/ Khan/ Krong as well as Commune/ Sangkat for 2008 and comparable areas in 1998.

2.7 Population Density

If the population of a country or region increases over a period with area remaining constant, its density increases proportionately. That is what is noted in Cambodia during the decade 1998-2008. The average density of population of Cambodia as per the 2008 Census is 75 as against 64 according to the 1998 Census. Barring Prey Veng and Koh Kong the population density has increased in all the provinces during the ten years 1998-2008 (Table 2.5).

Table 2.5 Population Density by Natural Region and Province, 2008 and 1998

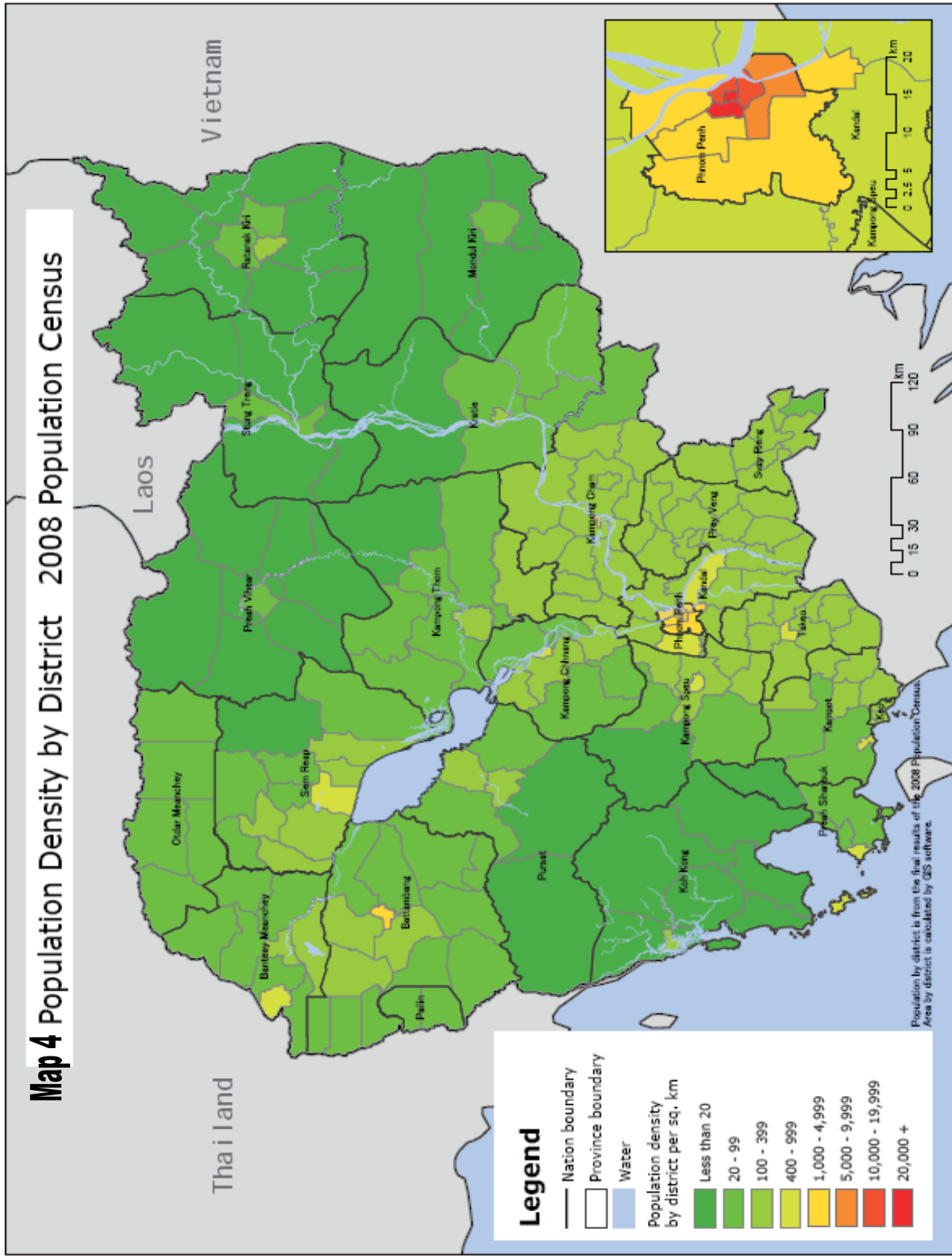
Cambodia / Province / Municipality	Area* (Km ²)	Population in 2008	Population Density (Persons/Km ²)	
			1998	2008
(1)	(2)	(3)	(4)	(5)
Cambodia	181,035	13,395,682	64	75
Plain Region	25,069	6,547,953	235	261
Kampong Cham	9,799	1,679,992	164	171
Kandal	3,564	1,265,280	302	355
Phnom Penh	294	1,327,615	3,401	4,516
Prey Veng	4,883	947,372	194	194
Svay Rieng	2,966	482,788	161	163
Takeo	3,563	844,906	222	237
Tonle Sap Region	67,668	4,356,705	52	64
Banteay Meanchey	6,679	677,872	87	101
Battambang	11,702	1,025,174	68	88
Kampong Chhnang	5,521	472,341	76	86
Kampong Thom	13,814	631,409	41	46
Pursat	12,692	397,161	28	31
Siem Reap	10,299	896,443	68	87
Otdar Meanchey	6,158	185,819	11	30
Pailin	803	70,486	29	88
Coastal Region	17,237	960,480	49	56
Kampot	4,873	585,850	108	120
Koh Kong	10,090	117,481	12	12
Preah Sihanouk	1,938	221,396	89	114
Kep	336	35,753	85	106
Plateau and Montain Region	68,061	1,530,544	17	22
Kampong Speu	7,017	716,944	85	102
Kratie	11,094	319,217	24	29
Mondul Kiri	14,288	61,107	2	4
Preah Vihear	13,788	171,139	9	12
Ratanak Kiri	10,782	150,466	9	14
Stung Treng	11,092	111,671	7	10

Note: 1. *Includes area of Tonle Sap Lake (3,000Km²). 2. Source for area figures: Ministry of Interior

3. Areas of Phnom Penh Municipality Kandal, Koh Kong and Preah Sihanouk provinces were 290; 3,568; 11,160; and 868 Km² respectively in 1998. Their areas have changed in 2008 as shown in the Table.

4. Population density calculated excluding area of Tonle Sap Lake.

Map 4 Population Density by District 2008 Population Census



Among the provinces, Phnom Penh Municipality has the highest density in the country. With an area as low as 0.17 percent of the country's land area, it accounts for nearly one tenth of Cambodia's population. With 4,516 persons per Km² Phnom Penh may well be one of the densely populated capital cities in Southeast Asia. Other provinces which have a higher density than the nation's average are: Kampong Cham, Kandal, Prey Veng, Svay Rieng, Takeo , in the Plain region; Banteay Meanchey, Battambang, Kampong Chhang, Siem Reap and Pailin in the Tonley Sap region; Kampot, Preah Sihanouk and Kep in the coastal region; and Kampong Speu in the Plateau and Mountain region. The population density levels in all the provinces of the Plain region are significantly higher than the country average density of 75. Apart from these provinces the population density is more than 100 only in the provinces of Banteay Meanchey, Kampot, Preah Sihanouk, Kep and Kampong Speu.

A considerably wider regional variation in the pattern of population density may be observed in Map 4 which depicts the population density at the district level.

2.8 Measure of Population Concentration in Provinces

It would be useful to study the extent of concentration of population by means of Lorenz curve. This graphical 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 area (y_i) of each province.

Table 2.6 shows the cumulative percentages of population (X_i) and area (Y_i) in columns 9 and 10 and Figure 2.7 shows the Lorenz curve. The concentration index CI is algebraically given by $\frac{1}{2} \sum |x_i - y_i| = 42.30$ percent for $i=1, 2, 3, 24$ provinces (see column 8). It is equal to the maximum of $|X_i - Y_i|$ with the corresponding value of X_i as 83.98. Geometrically CI is as shown in Figure 2.7. 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=42.30) is that 42.3 percent of the Cambodia's population would have to be redistributed in different provinces to produce an exact correspondence between population size and land area.

Table 2.6 Computation of Index of Concentration and Gini Concentration Ratio for Provinces of Cambodia

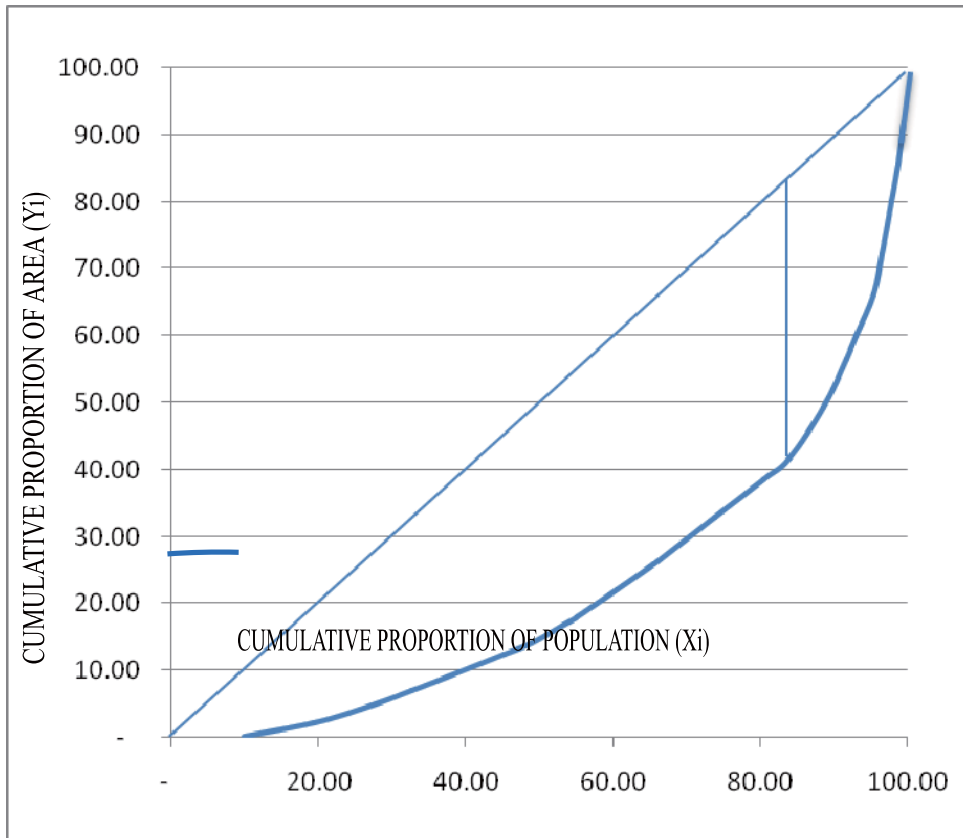
Sl. No.	Cambodia / Province/ Municipality	Population in 2008	Area (Km ²)	Density	Proportion		x _i -y _i	Cumulative Proportion		X _i -Y _i	(X _i +1)Y _i	X _i (Y _i +1)
					x _i	y _i		X _i	Y _i			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
	Cambodia	13,395,682	178,035	75	100	100	84.59				74,179.74	79,862.07
1	Mondul Kiri	61,107	14,288	4	0.46	8.03	7.57	100	100	0	9,197	9,954
2	Stung Treng	111,671	11,092	10	0.83	6.23	5.4	99.54	91.97	7.57	8,534.56	9,078.36
3	Koh Kong	117,481	10,090	12	0.88	5.67	4.79	98.71	85.74	12.97	7,904.70	8,387.94
4	Preah Vihear	171,139	13,788	12	1.28	7.74	6.47	97.83	80.08	17.76	7,076.04	7,732.52
5	Ratanak Kiri	150,466	10,782	14	1.12	6.06	4.93	96.56	72.33	24.22	6,400.00	6,902.45
6	Kratie	319,217	11,094	29	2.38	6.23	3.85	95.43	66.28	29.16	5,729.62	6,167.35
7	Otdar Meanchey	185,819	6,158	30	1.39	3.46	2.07	93.05	60.04	33.00	5,265.70	5,503.27
8	Pursat	397,161	12,692	31	2.96	7.13	4.16	91.66	56.59	35.08	4,533.50	5,019.53
9	Kampong Thom	631,409	13,814	46	4.71	7.76	3.05	88.70	49.46	39.24	3,698.79	4,153.65
10	Kampong Chhnang	472,341	5,521	86	3.53	3.10	0.42	83.98	41.70	42.29	3,241.63	3,355.18
11	Siem Reap	896,443	10,299	87	6.69	5.78	0.91	80.46	38.60	41.86	2,639.89	2,847.52
12	Battambang	1,025,174	11,702	88	7.65	6.57	1.08	73.77	32.81	40.95	1,935.72	2,169.07
13	Pailin	70,486	803	88	0.53	0.45	0.08	66.11	26.24	39.87	1,704.98	1,721.08
14	Banteay Meanchey	677,872	6,679	101	5.06	3.75	1.31	65.59	25.79	39.80	1,445.60	1,561.07
15	Kampong Speu	716,944	7,017	102	5.35	3.94	1.41	60.53	22.04	38.49	1,095.59	1,215.95
16	Kep	35,753	336	106	0.27	0.19	0.08	55.17	18.10	37.08	988.09	993.87
17	Preah Sihanouk	221,396	1,938	114	1.65	1.09	0.56	54.91	17.91	37.00	923.59	953.71
18	Kampot	585,850	4,873	120	4.37	2.74	1.64	53.25	16.82	36.44	749.76	822.16
19	Svay Rieng	482,788	2,966	163	3.60	1.67	1.94	48.88	14.08	34.80	606.60	637.54
20	Kampong Cham	1,679,992	9,799	171	12.54	5.50	7.04	45.28	12.41	32.86	312.88	406.30
21	Prey Veng	947,372	4,883	194	7.07	2.74	4.33	32.74	6.91	25.82	136.53	177.31
22	Takeo	844,906	3,563	237	6.31	2.00	4.31	25.66	4.17	21.50	55.68	80.73
23	Kandal	1,265,280	3,564	355	9.45	2.00	7.44	19.36	2.17	17.19	3.29	21.51
24	Phnom Penh	1,327,615	294	4,516	9.91	0.17	9.75	9.91	0.17	9.75	-	-

Note: 1. Provinces are listed according to density 2. Area of the country excludes Tonle Sap Lake (3000 Km²)

Results: $\sum |x_i - y_i| = 84.59$; $1/2 \sum |x_i - y_i| = 42.30$; Index of concentration = 42.30 percent

$\sum X_i Y_{i+1} = 79862.07$; $\sum X_{i+1} Y_i = 74179.74$; The Gini Concentration Ratio = 0.57

Figure 2.7 Lorenz Curve for Population Concentration in Cambodia, 2008



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's concentration ratio and is expressed as $G = 1 / (100 \times 100) \{ \sum_{i=1}^{24} X_i Y_{i+1} - \sum_{i=1}^{24} X_{i+1} Y_i \}$. The Gini's concentration ratio works out to $7.99 - 7.42 = 0.57$. It indicates that 57 percent of the area under the diagonal line is above the Lorenz curve and denotes a fairly high degree of segregation or unequal distribution of population, as the Gini index varies between zero and 1. For more details regarding the Lorenz Curve and the Gini Concentration Ratio, the book "The Methods and Materials of Demography" by Henry S. Shryock, Jacob S. Siegal and Associates may be referred to.

The unevenness in population distribution is also illustrated by the fact that nearly two-thirds of Cambodia's population is concentrated in a little over a quarter of its area (Table 2.7). Likewise about 58 percent of the country accounts only for only 16 percent of its population. 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 2.7 Distribution of Population and Area by density levels in Cambodia

Density Level	Number of provinces	Percentage share		Average Density
		Population	Area	
(1)	(2)	(3)	(4)	(5)
Total	24	100	100	75
Above 400	1	9.91	0.17	4,516
200-399	2	15.75	4.00	296
150-199	3	23.21	9.91	176
100-149	5	16.71	11.71	107
50-99	4	18.4	15.91	87
20-49	4	11.45	24.58	35
Below 20	5	4.57	33.72	11

Chapter 3

Distribution of Population by Urban and Rural Areas

3.1 The Urban concept

The census is the main source of one of the basic characteristics of population, namely its distribution by urban – rural residence. It is essential to differentiate between rural and urban population as the two differ much in terms of their economy, type of living, social outlook etc. An urban settlement is distinguished by distinct demographic characteristics as well as availability of infrastructural facilities.

Urban population the world over has been growing more rapidly than the rural population. Urban centres once established, tend to influence the socio-economic conditions of the region and ultimately become the centers of attraction of population. The degree of urbanization of a country is a fair index of its socio-economic development.

The definition of an urban area differs from country to country on the basis of local conditions. In Cambodia the definition of urban adopted for the 2008 Census was different from that used for the 1998 Census. The new definition of urban area was adopted based on the Study in 2004. (See Chapter 1 for details). Table 3.1 shows the population in the urban and rural areas of Cambodia and its provinces according to the 1998 and 2008 censuses. The urban population of 1998 has been adjusted based on the revised definition of urban areas.

3.2 Urban and Rural Population

The urban population of Cambodia has increased from 2.1 million in 1998 to 2.6 million in 2008 (Table 3.1). Correspondingly the rural population of the country has risen from about 9.3 million to 10.8 million. The percentage of urban population to total population which is the measure of urbanization has increased from 18.3 in 1998 to 19.5 in 2008. The urbanization level in Cambodia is, however, much less than that for Southeast Asia as a whole (46 percent).

It has to be mentioned here that the percentage of urban population in Cambodia was 15.7 percent according to old definition of urban areas. This figure stands revised to 18.3 percent due to changes as a result of the adoption of the new definition evolved for the revised classification of urban areas in 2004.

It may be mentioned here 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 centers in provinces were treated as urban and the rest of the country was considered rural.

Figure 3.1 Urbanisation Level in Cambodia, 2008

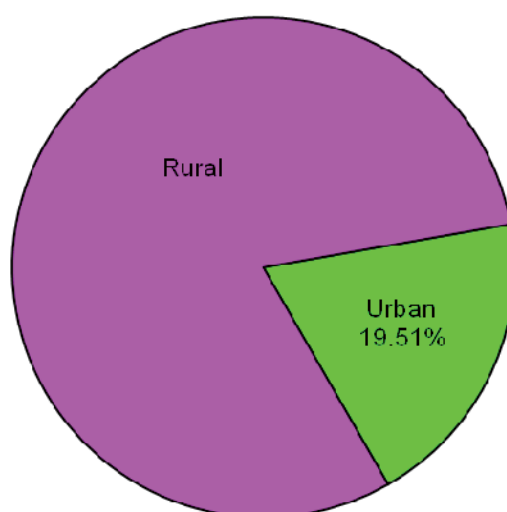


Table 3.1 Urban and Rural Population by Province, Cambodia 2008

Cambodia/ Province/ Municipality	Population				Percentage of Urban		Difference
	1998		2008		1998	2008	
	Urban	Rural	Urban	Rural			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Cambodia	2,095,074	9,342,582	2,614,027	10,781,655	18.32	19.51	1.20
Banteay Meanchey	135,415	442,357	181,396	496,476	23.44	26.76	3.32
Battambang	177,018	616,111	180,853	844,321	22.32	17.64	-4.68
Kampong Cham	117,563	1,491,351	118,242	1,561,750	7.31	7.04	-0.27
Kampong Chhnang	41,703	375,990	43,130	429,211	9.98	9.13	-0.85
Kampong Speu	48,034	550,848	54,505	662,439	8.02	7.60	-0.42
Kampong Thom	31,382	537,678	31,871	599,538	5.51	5.05	-0.47
Kampot	45,250	483,155	48,274	537,576	8.56	8.24	-0.32
Kandal	146,047	929,078	195,898	1,069,382	13.58	15.48	1.90
Koh Kong	41,808	74,253	36,053	81,428	36.02	30.69	-5.33
Kratie	36,354	226,821	35,964	283,253	13.81	11.27	-2.55
Mondul Kiri	2,730	29,677	4,859	56,248	8.42	7.95	-0.47
Phnom Penh	950,373	49,431	1,242,992	84,623	95.06	93.63	-1.43
Preah Vihear	7,827	111,434	10,679	160,460	6.56	6.24	-0.32
Prey Veng	35,304	910,738	33,079	914,293	3.73	3.49	-0.24
Pursat	27,180	333,265	25,650	371,511	7.54	6.46	-1.08
Ratanak Kiri	11,256	82,987	19,317	131,149	11.94	12.84	0.89
Siem Reap	102,708	593,456	174,265	722,178	14.75	19.44	4.69
Preah Sihanouk	66,723	105,012	89,447	131,949	38.85	40.40	1.55
Stung Treng	15,141	65,933	17,022	94,649	18.68	15.24	-3.43
Svay Rieng	16,991	461,261	17,029	465,759	3.55	3.53	-0.03
Takeo	13,659	776,509	14,456	830,450	1.73	1.71	-0.02
Otdar Meanchey	12,081	56,198	18,694	167,125	17.69	10.06	-7.63
Kep	4,017	24,643	4,678	31,075	14.02	13.08	-0.93
Pailin	8,510	14,396	15,674	54,812	37.15	22.24	-14.91

**Table 3.2 Number of Districts/ Khans/ Krong
by Percentage of Urban Population**

Percentage Urban	No. of Districts/ Khans/ Krong
(1)	(2)
Total	193
Nil	141
1.00-4.99	6
5.00-9.99	8
10.00-14.99	11
15.00-19.99	4
20.00-24.99	3
25+	20

As much as 73 percent of Districts/ Khans/ Krong have not been urbanized at all. They are entirely rural. The urban percentage classes 20.00-24.99 and 25+ have a total of 23 districts. The urbanization level in each of these districts is higher than the national average of 19.51 percent.

The numbers and percentages of urban and rural population in respect of each district are given in Table AT02 at the end of this report (Annex 2).

3.4 Distribution of Urban Population

As may be seen from Table 3.3, there is a high degree of unevenness in the distribution of urban population in the country. Almost half the national urban population is concentrated in Phnom Penh which has been the pole of attraction especially from the early nineties when the political situation in Cambodia gradually returned to normalcy and peace was restored in the entire country after decades of war. Apart from returnees a large number of migrants from other provinces had settled in the capital. The growth of garment industry in and around Phnom Penh accounted for a large number of young women workers from far and near. Among the other provinces of the Plain region, Kandal and Kampong Cham have each considerable proportion of the total urban population (7.49 percent and 4.52 percent respectively). Prey Veng province accounts for about 1.3 percent of the total urban population of the country.

The following provinces have each a very low share (less than one percent) of the urban population of the country: Mondul Kiri, Preah Vihear, Ratanak Kiri, Stung Treng, Svay Rieng, Takeo, Otdar Meanchey, Kep and Pailin. Barring Kratie and Kampong Speu the provinces of the hilly and mountain region share a very small proportion of urban population due to poor development of urban areas in the absence of infrastructural facilities. Kampong Speu and Kratie provinces have comparatively a higher share of the urban population due to their proximity to Phnom Penh and Kampong Cham cities respectively.

Out of four provinces in the coastal region two (Kampot and Koh Kong) account for 1 to 2 percent each. Preah Sihanouk province which has the port town of Krong Preah Sihanouk accounts for 3.4 percent of the country's urban population. The fourth province (Kep), though fairly urbanized accounts for only about 0.2 percent of the total urban population as it has comparatively a very small area.

The provinces in the Tonle Sap region form into three categories: provinces which have got each about seven percent of the country's urban population (Banteay Meanchey, Battambang, and Siem Reap), provinces with 1 to 2 percent each of the total urban population (Kampong Chhnang, Kampong Thom

and Pursat) and provinces which account for a small proportion of urban population (Otdar Meanchey and Pailin).

Table 3.3 Distribution of Urban Population of Cambodia by Province, 1998 and 2008

Cambodia/ Province/ Municipality	Percentage of urban population to total urban population of Cambodia	
	1998	2008
(1)	(2)	(3)
Cambodia- Total	100	100
Banteay Meanchey	6.46	6.94
Battambang	8.45	6.92
Kampong Cham	5.61	4.52
Kampong Chhnang	1.99	1.65
Kampong Speu	2.29	2.09
Kampong Thom	1.50	1.22
Kampot	2.16	1.85
Kandal	6.97	7.49
Koh Kong	2.00	1.38
Kratie	1.74	1.38
Mondul Kiri	0.13	0.19
Phnom Penh	45.36	47.55
Preah Vihear	0.37	0.41
Prey Veng	1.69	1.27
Pursat	1.30	0.98
Ratanak Kiri	0.54	0.74
Siem Reap	4.90	6.67
Preah Sihanouk	3.18	3.42
Stung Treng	0.72	0.65
Svay Rieng	0.81	0.65
Takeo	0.65	0.55
Otdar Meanchey	0.58	0.72
Kep	0.19	0.18
Pailin	0.41	0.60

Figures 3.2 and 3.3 depict the percentage distribution of urban population by province in 1998 and 2008 respectively.

Figure 3.2 Distribution of Urban Population by Province, Cambodia 1998

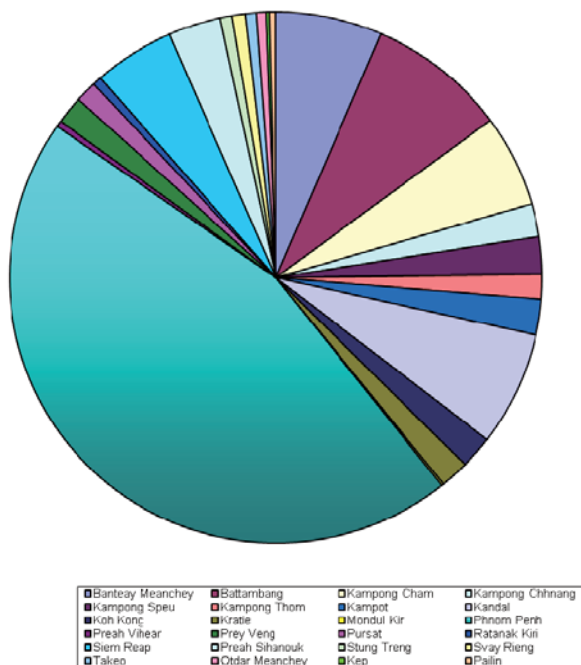
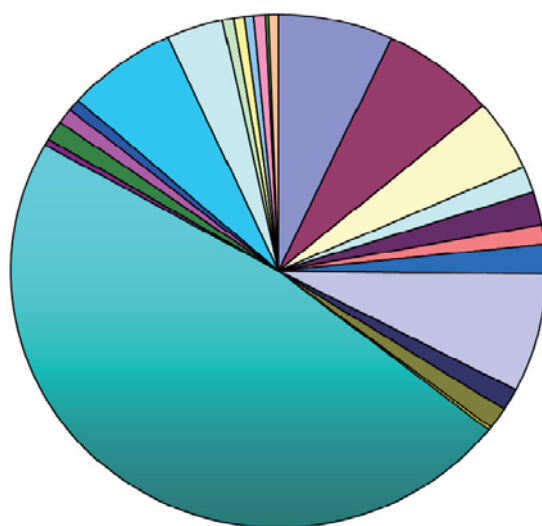


Figure 3.3 Distribution of Urban Population by Province, Cambodia 2008



Population densities and proportions of urban population to the total urban population of Cambodia are compared in respect of each natural region in Table 3.4. It is seen that in general percentage share of urban population varies according to density levels both in 1998 and 2008. In the Tonle Sap region the percentage of urban population to the country's urban population is much more than what one could expect going by the density level in the plain region. This is due to the location in this region of big cities (Krong) like Siem Reap city (population 230,714) of Siem Reap province, Battambang city (144,323) of Battambang province and Srei Sophoan city (90,279) of Banteay Meanchey province. In the coastal region the opposite trend is noticed since except Preah Sihanouk there is no major city in this region. The share of urban population by the mountain and plateau region seems to be in keeping with its density level.

Table 3.4 Population Density and Distribution of Urban Population

Name of Natural region	Population Density		Percentage of urban population to National urban population	
	1998	2008	1998	2008
Cambodia	64	75	100	100
Plain Region	235	261	61.09	62.04
Tonle Sap Region	52	64	25.59	25.69
Coastal Region	49	56	7.53	6.83
Plateau and Mountain Region	17	22	5.79	5.44

It has also been observed that there is a positive correlation between density and urbanization (percentage of urban population) in the provinces of Cambodia.

3.5 Further revision of Urban List

The Sub-Decree promulgated in January 2009 has declared that the reconstituted provincial capitals (23 barring Phnom Penh) and three more new units (Poi Pait City in Banteay Meanchey province, Soung City in Kampong Cham province and Bavet City in Svay Rieng province) are to be treated as Krong or cities. In other words, these areas are statutorily declared urban areas.

The present definition of urban in Cambodia is based on the demographic characteristics of a commune as per the urban definition. Hence the statutory urban areas may contain Communes (or Sangkats as they are called) which are not in the existing urban list as they did not qualify to become urban area at the time of 2004 revision. Consequently the statutory urban areas have a mix of both urban and rural Communes or Sangkats. In several countries statutory urban areas are treated as wholly urban. It is therefore proposed to work out the further revised urban population of Cambodia as a result of the Sub-Decree proposals/changes. This is only an academic exercise at present and the urban figures already published in respect of Cambodia and its provinces remain valid as of now.

For the present exercise, in addition to the existing Communes/ Sangkats contained in the urban list, the Sangkats located within all the Krong of the 23 provinces and the Sangkats in all the Khans of Phnom

Penh Municipality which are now rural, are treated as urban. The results are shown in Table 3.5 (given as Annex 3 at the end of this report) and Table 3.6 given below.

Table 3.6 Comparative Statement showing percentage of Urban Population according to 2008 Census and the further revised Urban List

Code	Cambodia/ Province	2008 Census	Revised percentage on the basis of Sub-decree Changes
(1)	(2)	(3)	(4)
	Cambodia	19.51	23.28
1	Banteay Meanchey	26.76	33.71
2	Battambang	17.64	20.19
3	Kampong Cham	7.04	7.8
4	Kampong Chhnang	9.13	9.13
5	Kampong Speu	7.6	7.6
6	Kampong Thom	5.05	8.56
7	Kampot	8.24	9.29
8	Kandal	15.48	15.48
9	Koh Kong	30.69	32.88
10	Kratie	11.27	11.74
11	Mondul Kiri	7.95	20.19
12	Phnom Penh	93.63	100
13	Preah Vihear	6.24	12.38
14	Prey Veng	3.49	4.48
15	Pursat	6.46	16.02
16	Ratanak Kiri	12.84	19.26
17	Siem Reap	19.44	26.36
18	Sihanoukville	40.4	41.23
19	Stung Treng	15.24	27.72
20	Svay Rieng	3.53	16.09
21	Takeo	1.71	4.9
22	Otdar Meanchey	10.06	27.67
23	Kep	13.08	35.54
24	Pailin	22.24	51.58

It may be seen that if the revision referred to is made, the level of urbanization in Cambodia increases from 19.1 percent to 23.28 percent which will still be about half that of Southeast Asia. The percentage of urban population to total population increases in all the provinces except Kampong Chhnang, Kampong Speu and Kandal. Phnom Penh Municipality becomes fully urbanized. In the following provinces percentage of urban population increases by 10 or more percentage points in the revised scheme: Mondul Kiri, Pursat, Stung Treng, Svay Rieng, Otdar Meanchey, Kep and Pailin.

Chapter 4

Growth of Population

Population change or growth refers to the change in the number of persons residing in a territory during a specified period of time. The change may be positive or negative. The analysis of population growth in a country enables understanding of its demographic structure. Moreover the phenomenon of population growth serves as one of the indices of a region's development in relation to its resources.

4.1 Scenario of world population growth

While it took many thousands of years for the world population to reach the one billion mark in 1830, the next billion was added in just about hundred years. With further increase in the rate of growth of population the duration involved became increasingly lesser. The third billion was added in only 30 years, fourth in 15 years and the fifth in 12 years. World population crossed the 6 billion mark in 1999 to reach 6.7 billion in 2007.

The world population growth has however been uneven, with the less developed regions contributing a very high proportion of the net increase in world population. Population growth rates of the major areas of the world range from no growth in Europe to 2.2 percent per annum in Africa as may be seen from the following Table extracted from the UN Demographic Year Book of 2007:

Table 4.1 Population, Rate of increase and Density of the World and Major Areas

Major Areas	Population	Annual rate of increase	Density
	(Millions)	(percent)	
(1)	(2)	(3)	(4)
World	6,671	1.2	49
Africa	965	2.2	32
Latin America and Caribbean	570	1.2	28
Northern America	342	1.0	16
Asia	4029	1.1	126
Europe	731	0.0	32
Oceania	34.5	1.2	4

Even within Asia the annual population growth rate varies from 0.5 percent in Eastern Asia to 1.8 percent in Western Asia. The populations of Southeast Asia and South-central Asia are growing at 1.2 and 1.5 percent respectively.

4.2 Demographic Transition in Cambodia

The three factors affecting population change are fertility, mortality and migration. While the natural growth rate of population is the difference between birth and death rates, the overall or actual growth rate of population takes into account all the three factors. Both actual and natural growth rates of population portray the demographic dynamism of a region. The demographic transition theory which is based on trends in fertility and mortality and the resultant natural increase in population size envisages a transition from a stage of high birth and high death rates to eventually a stage marked by low birth and low death rates.

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 as well as the surveys like the Cambodia Demographic Health Survey (CDHS) 2000 and 2005 and the Cambodia Intercensal Population Survey conducted in 2004 (2004 CIPS). The total fertility rate in Cambodia has declined from more than 6 children per woman in the early 1980s to 4.0 children in 1998, 3.4 children in 2004 and around 3 in 2008. After a period of erratic variations with a high level range, infant and child mortality have also experienced substantial decline. According to the 2004 CIPS, infant mortality declined from a rate of 93 deaths per 1,000 births in 1998 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. 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 stage (birth and death rates below 30 and 15 respectively) of demographic transition.

4.3 Population Growth

Cambodia's population has increased by 1.96 million during the decade 1998-2008. If the estimated population of 45,000 in the areas not covered by the 1998 census due to unrest in those areas is added to the 1998 Census population of Cambodia, the decadal growth rate works out to 16.66 percent. The corresponding average annual exponential growth rate is 1.54 percent. The annual growth rate is higher than that of Southeast Asia as a whole (1.2 percent). Cambodia's population has increased at a rate very much higher than that of Thailand and, marginally higher than the growth rate of Viet Nam and marginally lower than the growth rate of Laos.

Table 4.2 gives the average annual exponential growth rates of population during 1998-2008 for different provinces by Total, Urban and Rural. Map 6 depicts the growth rate by province. The following provinces have registered an annual growth rate in population higher than the average annual growth for the country as a whole (1.54 percent): Banteay Meanchey (1.56), Battambang (2.28), Kampong Speu (1.79), Kandal (1.62), Kratie (1.93), Mondul Kiri (6.34), Phnom Penh (2.83), Preah Vihear (3.61), Ratanak Kiri (4.67), Siem Reap (2.52), Preah Sihanouk (2.54), Stung Treng (3.20), Otdar Meanchey (8.64), Kep (2.21), Pailin (11.24). The remaining nine provinces have each registered a growth rate less than the country's average annual growth rate. The growth rates in the provinces are mostly governed by inter-province migration though there are a few exceptions. Table 4.3 presents for each province the number of net migrants from other provinces. This Table has been prepared on the basis of Priority Table D2 of the 2008 Census entitled "Migrants from other Provinces classified by Province of Enumeration, Province of Previous Residence, Duration of Stay and Sex" (not given here). The total number of migrants from other provinces according to this Table is 1,633,673 (807,409 males

and 826,264 females). In other words these numbers represent those who had migrated from one province to another within Cambodia irrespective of duration of stay in the places of enumeration.

Pailin’s high growth rate is mainly due to in-migration especially during the last five years, from provinces like Battambang, Kampong Cham and Takeo provinces. More than two thirds of the population of this province (67 percent) is from other provinces according to Priority Table D2. This large scale inflow of population may be adduced to increased de-mining activities as well as availability of land for cultivation in this province which was formerly a stronghold of Khmer Rouge.

Otdar Meanchey has also been an in-migrating province mostly from Siem Reap and Kampong Cham. This province had attracted many male workers in connection with large scale de-mining activities. The district of Anlong Vaeng in this province, which was not accessible in 1998 due to the Khmer Rouge occupation, has been showing signs of development with more people coming in from Siem Reap and Kampong Cham provinces for setting up trade or work in construction of major roads like road number 67 which connects Anlong Veang with Siem Reap. Out of 65,325 migrants from other provinces, 35,201 or about 54 percent have moved in during the five years 2003 to 2008 according to Priority Table D2. It has to be mentioned here that the 1998 population of this province includes an estimate of the 1998 population of Anlong Vieng district where the 1998 Census could not be conducted due to war (See Chapter 1 Introduction). Consequently the 1998-2008 growth rate of this province is based on estimated 1998 population.

Map 6. Annual Growth Rate of Population during 1998-2008 by Province

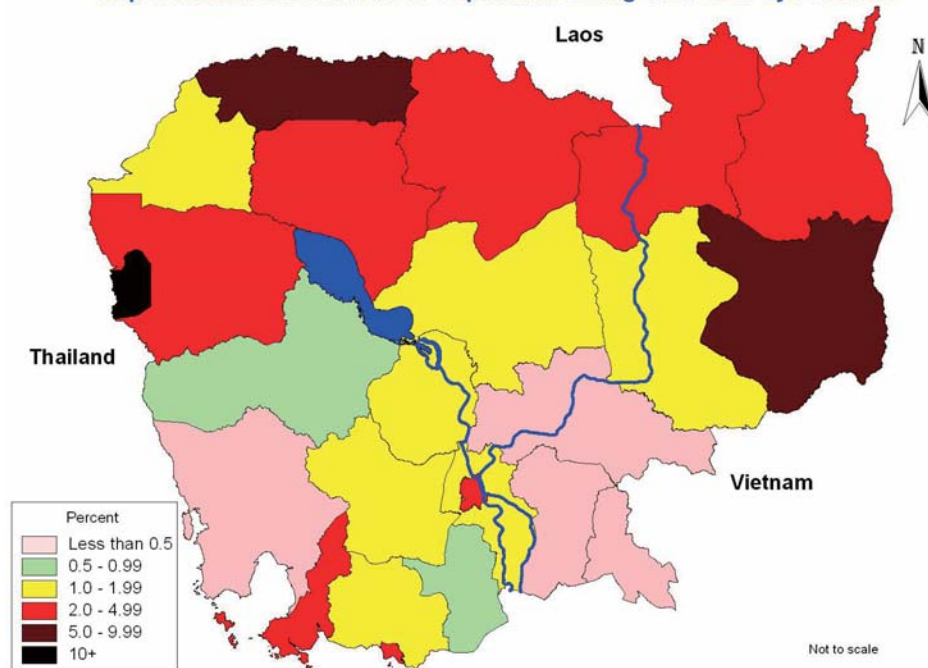


Table 4.2 Population Growth Rate by Province and Residence, 1998-2008

Cambodia/ Province/ Municipality	Annual Growth Rate of Population (percent)		
	Total	Urban	Rural
Cambodia	1.54	2.21	1.38
Banteay Meanchey	1.56	2.92	1.10
Battambang	2.28	0.21	2.78
Kampong Cham	0.43	0.05	0.46
Kampong Chhnang	1.22	0.33	1.32
Kampong Speu	1.79	1.26	1.84
Kampong Thom	1.03	0.15	1.08
Kampot	1.03	0.64	1.06
Kandal	1.62	2.93	1.40
Koh Kong	0.12	-1.48	0.92
Kratie	1.93	-0.10	2.22
Mondul Kiri	6.34	5.76	6.39
Phnom Penh	2.83	2.68	5.37
Preah Vihear	3.61	3.10	3.64
Prey Veng	0.01	-0.65	0.03
Pursat	0.69	-0.57	0.79
Ratanak Kiri	4.67	5.40	4.57
Siem Reap	2.52	5.28	1.96
Preah Sihanouk	2.54	2.93	2.28
Stung Treng	3.20	1.17	3.61
Svay Rieng	0.09	0.02	0.09
Takeo	0.66	0.56	0.67
Otdar Meanchey	8.64	4.36	9.26
Kep	2.21	1.52	2.31
Pailin	11.24	6.10	13.36

Note: The annual exponential growth rate is worked out after adding to 1998 rural population, the estimated population in areas where the 1998 census could not be conducted due to conflict. See text for details.

Stung Treng province had attracted in the last decade many persons to work in agro-industry plantations (cashew nut, rubber and a special kind of timber called “mayasak”) and construction of a road with bridges connecting neighbouring Laos. The in-migrants who constitute nearly 12 percent of the total population of Stung Treng had come mostly from Kampong Cham, Kratie and Preah Vihear provinces.

The high growth rates of Mondul Kiri, Ratanak Kiri and Preah Vihear might be added to high fertility (as revealed by CDHS, 2005) and sizable in-migration. In Mondul Kiri people who had moved in from other provinces constitute about 29 percent of its total population. Mostly they were from Kampong Cham province.

Table 4.3 Number of Net-migrants of all Durations of stay in each Province from other Provinces, Cambodia 2008

Province / Municipality	Number of in-migrants from other Provinces	Number of out-migrants to other Provinces	Number of Net Migrants		Percentags of Net-migrants to Ppulation of the Province	
			In migrants	Out migrants	In-migrants	Out- migrants
			(4)	(5)	(6)	(7)
Total	1,633,673	1,633,673	802,297	802,297	-	-
Banteay Meanchey	107,504	51,528	55,976	-	8.25	-
Battam bang	163,288	116,060	47,228	-	4.61	-
Kampong Cham	59,003	265,030	-	206,027	-	12.26
Kampong Chhang	22,907	41,926	-	19,019	-	4.03
Kampong Speu	36,478	70,550	-	34,072	-	4.75
Kampong Thom	23,143	75,971	-	52,828	-	8.36
Kampot	24,007	103,898	-	79,891	-	13.63
Kandal	122,060	197,814	-	75,754	-	5.99
Koh Kong	45,895	12,520	33,375	-	28.41	-
Kratie	33,949	33,646	303	-	0.09	-
Mondul Kiri	17,876	1,218	16,658	-	27.26	-
Phnom Phen	515,492	83,365	432,127	-	32.55	-
Preah Vihear	17,967	6,383	11,584	-	6.77	-
Prey Veng	18,121	172,896	-	154,775	-	16.34
Pursat	33,151	68,715	-	35,564	-	8.95
Rattanak Kiri	22,593	2,597	19,996	-	13.29	-
Siem Reap	69,576	49,986	19,590	-	4.06	-
Preah Sihanouk	69,187	18,663	50,524	-	22.82	-
Stung Treng	13,080	3,910	9,170	-	8.21	-
Svay Rieng	73,433	75,523	-	2,090	-	0.43
Takeo	24,389	166,494	-	142,105	-	16.82
Otdar Meanchey	65,325	7,892	57,433	-	30.91	-
Kep	7,848	2,011	5,837	-	16.34	-

Pailin	47,401	4,905	42,496	-	60.29	-
Not reported	-	172	-	172	-	-

There had been considerable movement of population from Kampong Cham and Takeo provinces to Rattanak Kiri which has about 15 percent of its population belonging to other provinces. Rubber plantations and gold mining activities in Ratanak Kiri had drawn labourers from other provinces. The last decade had witnessed movement of many people into Preah Vihear province. Most of them had their previous residence in provinces like Kampong Cham and Kampong Thom and had mainly moved in to work as labourers in road construction. Gold mining activities in Preah Vihear also provide job opportunities.

Battambang had also been a mainly in-migrating province during the last decade due to, in-migrants coming mostly from Takeo, Pursat, Banteay Meanchey, Kampong Cham and Kampot provinces. Battambang's fertile lands had been a major attraction for people to settle down there.

Kampong Cham, Prey Veng, and Takeo provinces with a very low growth rate each in the 1998-2008 decade were mainly out-migrating provinces that had sent economically active populations to other provinces, especially those that had registered high decadal growth. In Kratie and Svay Rieng provinces the numbers of in and out migrants do not differ much. In the case of Svay Rieng, however, the outmigration on a large scale has taken place in the period of less than five years before the census without corresponding inflow of migrants into the province. The numbers of out-migrants and in-migrants in respect of Svay Rieng province during this period were 34,406 and 6,179 respectively (from Table D2). The destination of about 58 percent of these out-migrants was Phnom Penh. This could be one of the reasons for the low annual growth rate of population of Svay Rieng province.

Koh Kong province stands on a different footing as it has most of the migrant labourers, including those from Thailand, who are involved in fishing and logging. They often return to their places of origin. In a *de facto* census people are enumerated where they are found on the census night. Temporary out-movers might therefore have been enumerated at the places where they had gone to earn a living, provided those places were within Cambodia. If they had moved out of the country at the time of the 2008 Census they would not have been counted. It may be seen from Table AT01 given in Annex 1 that in Koh Kong province several communes especially the urban ones have registered a decline in population during the decade 1998-2008.

Kratie's high growth rate could be due to high fertility whereas in the provinces of Preah Sihanouk and Kep in-migration from other provinces accounts for increased growth rate of population. If these two provinces are considered together, persons with last residence as Kampot form nearly 38 percent of the total in-migrants from other provinces on the basis of computation from Priority Table D2. Siem Reap's high growth rate is due to its attraction of people from other provinces with lot of improvements made in the recent past. Many workers in construction and hotel business have moved into this province from Kampong Cham and other provinces. About 57 percent of the in-migrants have moved into this province in the period 2003-2008. Fertility level in this province is also on the high side.

The population of Phnom Penh Municipality, the capital city, has well crossed the one million mark in 2008. It has been a major centre of attraction for job seekers. The garment factories in the city had

provided jobs for a large number of younger women from different provinces. In the five years preceding the census date about one fifth of the urban population of Phnom Penh was migrant population from other provinces like Kampong Cham, Kandal, Prey Veng and Takeo. Among these migrants women constituted about 55 percent (as computed from the Priority Table D2).

It has to be mentioned here that unfortunately, due to the global economic crisis, many garment factories had closed down in early 2009 and many garment factory workers had been laid off giving rise to reverse migration of these workers homeward from Phnom Penh.

**Table 4.4 Number of Districts/Khans/ Kongs
classified by Annual Population Growth Rate Levels**

Growth Rate (Percent)	Number of Districts
(1)	(2)
Total No. of Districts	193
Less than 0	24
0.0 - 0.49	36
0.5 - 0.99	21
1.0 - 1.49	23
1.50 - 1.99	16
2.00 - 2.49	12
2.50 - 2.99	10
3.00 - 3.49	8
3.50- 3.99	3
4.00 - 4.49	7
4.50 - 4.99	3
5.00+	30

**Table 4.5 Number of Communes/ Sangkats
classified by Annual Population Growth Rate Levels**

Growth Rate (Percent)	Number of Communes
(1)	(2)
Total	1,621
Less than 0	373
0.0 - 0.49	240
0.5 - 0.99	208
1.0 - 1.49	166
1.50 - 1.99	126
2.00 - 2.49	83
2.50 - 2.99	87
3.00 - 3.49	71
3.50- 3.99	48
4.00 - 4.49	26
4.50 - 4.99	20
5.00+	173

Twenty four Districts/ Khans/ Krongs and 373 Communes/ Sangkats have experienced population decrease during 1998-2008 (Tables 4.4 and 4.5). One hundred Districts/ Khans/ Krongs (58 percent) have each registered an annual growth rate of population of one percent and more during the decade. The populations in 30 Districts/ Khans/ Krongs have grown at the rate of 5 percent and more per annum each.

The number of Communes/ Sangkats that have registered an annual growth rate of one percent and more each, works out to 800 (49.40 percent). Among 173 Communes/ Sangkats the population has increased at an annual growth rate of 5 percent and more each.

Growth Rates of population by each District/ Khan/ Krong as well as each Commune/ Sangkat district in Cambodia are given in Table AT01 at the end of this report (Annex 1).

Chapter 5

Summary and Conclusions

5.1 Data Collection in the 2008 Census

The 2008 General Population Census of Cambodia was conducted on a *de facto* basis with reference to 3 March, 2008, exactly ten years after the previous census was held. This census marked the second census since Cambodia became a democratic country and the first of the twenty first century.

There were two main census questionnaires: - (i) the house list (Form A) and (ii) the household questionnaire (Form B). A few census forms were also prescribed to be filled-in by enumerators. Buildings with households were first listed in Form A. This was done three days ahead of the main enumeration along with updating the Enumeration Area (EA) map (29 February to 2 March 2008). Form B which is the main census questionnaire was filled-in by enumerators after interviewing members of each household during March 3 to March 13.

The 2008 census covered approximately 2.8 million households spread over 24 provinces of the country. Most of them were enumerated during the eleven-day census enumeration period. In addition to households living in dwellings, those staying in institutions like hotels, hostels, pagodas, hospitals, prisons etc. were also enumerated. Special arrangements were made to enumerate the homeless population, transient population and those found in boats on the night of 2 March 2008.

With the promulgation of the Royal Sub-Decree Number 18 ANKR BK of 12 January 2008 and earlier Sub-Decrees, many administrative area changes were introduced by the Royal Government after the 2008 census was taken like re-naming certain provinces and districts, shifting of communes from one district to another within a province, formation of new districts and cities within a province by regrouping communes, shifting of a few communes (wholly and partly) from Koh Kong province to Preah Sihanouk province, and converting province headquarter districts into Krongs. For the purpose of urbanization, only communes declared as urban based on demographic criteria according to the 2004 Special Study are treated as urban.

The computerized census data have been used to generate 70 basic priority tables according to an approved Tabulation Plan. If the different levels of production of these tables like province, district, commune etc are taken into account, the total number of priority tables works out to 73,151. The census results are analyzed by the NIS as per an agreed Analysis Plan. The present report relates to spatial distribution and growth of population in Cambodia and its districts and communes. The 1998 population is adjusted for the jurisdictional changes based on the Royal Sub-decree and revised urban definition. The analysis is based mainly on the priority tables and a few special tables generated for the purpose of the present analysis.

5.2 Spatial Distribution

A population census enables study of population settlements across the country. Data on distribution of population among the administrative areas are useful for several purposes. They generally form the basis for determining the electoral constituencies. They are also useful in connection with social economic and administrative planning and in making population projections.

The concepts of population distribution and density are so closely related to each other that it would be appropriate to discuss them together though the two concepts are different. Population distribution is based on location while density is a ratio. Population distribution denotes the spatial pattern due to dispersal of population, formation of agglomeration, linear spread etc. Population density is the ratio of people to physical space. It shows the relationship between a population and the size of the area in which it lives.

Of the several methods of describing the spatial distribution of population the simplest way is percentage distribution of population over the 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 trends and changes in population trends over time.

The density of population is usually computed as population per square kilometer of land area excluding area occupied by water. In most countries of the world the geographic distribution of the population is not even with varying degrees of concentration of population giving rise to varying densities in the different parts of the world. Even within a country striking contrasts are noted in the population distribution at both the national and sub-national levels.

The main factors determining population distribution are : climate, landforms, topography, soils, energy and mineral resources, place accessibility like distance from sea coast, natural harbours, navigable rivers or canals, cultural factors, political boundaries, controls on migration and trade, government policies, types of economic activities, technology including type of farming and transportation facilities, social organization and but not the least, demographic factors like changes in natural increase and in net-migration.

In the case of Cambodia, civil unrest in the past had forced a large number of people to migrate from one province to another. Though a majority of the population is engaged in agriculture and rarely shift their residence in normal times, there have been movements of population mainly for economic reasons. There is a clear pattern in the distribution of human settlements in Cambodia. For instance the majority of the inhabitants of the country are settled in fairly permanent villages near the major water courses in the Tonle Sap Basin-Mekong Lowlands region. The highland tribes in Cambodia are found mostly in the northeastern provinces of Ratanak Kiri, Stung Treng, Mondul Kiri and Kratie. They mainly live in scattered temporary villages that are abandoned when the cultivated land in the vicinity is exhausted. These villages have only a few hundred inhabitants. Cham people who are Muslims engaged mostly in fishing and in growing vegetables usually occupy an entire village. These villages are mostly located on or near the banks of a river or channel.

Since 80.5 percent of the population of Cambodia resides in the rural areas mainly depending on the agriculture sector, the pattern of population distribution in the country mostly corresponds to the factors governing agricultural practices. The population distribution in the country has been mainly determined by the availability of land for cultivation, quality of soil, availability of water resources, favourable climatic conditions, topography and, availability of transportation facilities.

The main concentration of the population occurs in the plain region consisting of the Tonle Sap Basin-Mekong Lowlands. On a geographic area of about 14 percent of the country, the plain region accounts for nearly 49 percent of the population. The concentration becomes more conspicuous as one moves from Kampong Cham towards the capital city of Phnom Penh and then to Kandal and Takeo. The Tonle Sap and the coastal regions also account for population concentration though to a much lower extent. However, by contrast, the plateau and mountain region is characterized by sparse population.

The general patterns of population distribution had also undergone changes during the decades of war and Khmer Rouge occupation. Moreover there has been a considerable amount redistribution of population since the mid 1990s due to internal peace, development of market economy, tourism, gradual removal of land mines, growth of the garment industry, urbanization, advent of new centers of administration and commerce, development of communication networks, construction of roads and bridges connecting the provinces, expansion of irrigation facilities and mining of gems and gold.

In the last decade due to changes in the population distribution there are changes in the ranks of some provinces based on population strength. Kampong Cham continues to be the biggest province in terms of population although it contains a lesser proportion of the country's population in 2008. There are shifts in ranks in respect of 13 provinces while there is no change in ranks in the remaining 11 provinces. Notably, Phnom Penh moved up to the second position with Kandal coming down to the third position. Otdar Meanchey which has registered a very high growth rate during the last decade has moved to the 17th position from the 21st position. On the other hand Koh Kong has gone to the 20th position (2008) from the 18th position (1998).

There are 159 Districts, 8 Khans and 26 Krongs or Cities. Out of these 193 administrative units, the highest number is in the population size class 40,000 to 59,999 (21percent). However the 15 Districts/ Khans/ Cities which are distributed over the four size classes of population 140,000 and more account for nearly 20 percent of the population of Cambodia.

Khan Meanchey of Phnom Penh Municipality and Ou Reang district of Mondul Kiri Province account for the highest (266,865) and the lowest (3,948) populations among Districts/Khans/Cities in Cambodia. The average size of these administrative units is 69,408. As many as 104 out of 193 units (53 percent) are having each a population less than 60,000. About 25 percent of these units are each of population size 100,000 and more. Hence it is evident that there is unevenness in the distribution of population over these units.

There are 1,417 Communes (administrative unit below a district) within 159 Districts and 204 Sangkats (administrative unit below Khan/ Krong) within Phnom Penh Municipality and 26 Krongs. Thus there are 1,621 Communes/ Sangkats in Cambodia. The average population size of a Commune/Sangkat is 8,264. About 97 percent of the Communes/ Sangkats have each a population less than 20,000. The biggest among the Communes/ Sangkats in terms of population is Paoy Paet, Sangkat (89,549) of Krong Paoy Paet in Banteay Meanchey province. Chumnob Commune of Thma Bang district of Koh Kong province has the lowest [population (298) among Communes/ Sangkats. Table AT01 given in Annex1 shows the distribution of Cambodia's population by District/ Khan/ Krong as well as Commune/ Sangkat for 2008 and comparable areas in 1998.

The average density of population in Cambodia has increased from 64 in 1998 to 75 in 2008. Phnom Penh Municipality has the highest density in the country. With an area accounting for as low as 0.17 percent of the country's land area, Phnom Penh Municipality accounts for nearly one tenth of the country's population. With 4,516 persons per Km² Phnom Penh may well be one of the densely populated capital cities. Other provinces which have a higher density than the nation's average are: Kampong Cham, Kandal, Prey Veng, Svay Rieng, Takeo , in the Plain region; Banteay Meanchey, Battambang, Kampong Chhang, Siem Reap and Pailin in the Tonley Sap region; Kampot, Preah Sihanouk and Kep in the coastal region; and Kampong Speu in the Plateau and Mountain region. The population density levels in the provinces of the Plains region are significantly higher than the country average Density of 75. Apart from these provinces the population density is more than 100 only in the provinces of Banteay Meanchey, Kampot, Preah Sihanouk, Kep and Kampong Speu.

The extent of concentration of population is studied by means of Lorenz curve. The concentration index is worked out as 42.30 percent. The Gini's concentration ratio is calculated as 0.57. The unevenness in population distribution is also illustrated by the fact that nearly two-thirds of Cambodia's population is concentrated in a little over a quarter of its area. 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

5.3 Urban-Rural Distributions

The new definition of urban area was adopted for the 2008 Census based on the Study in 2004. The urban population of 1998 has been adjusted based on the revised definition of urban areas. The urban population of Cambodia has increased from 2.1 million in 1998 to 2.6 million in 2008. Correspondingly the rural population of the country has risen from about 9.3 million to 10.8 million. The percentage of urban population to total population which is the measure of urbanization has increased from 18.3 in 1998 to 19.5 in 2008. The urbanization level in Cambodia is, however, much less than that for Southeast Asia as a whole (46 percent). The report discusses the differentials in urban population distribution. Phnom Penh is the prime city in Cambodia in which urbanization is the highest with about 94 percent. Among the provinces the least urbanized is Takeo province (1.71 percent). The number of districts according to urbanization level are presented and analyzed. As much as 73 percent of Districts/ Khans/ Krong are not urbanized at all. The numbers and percentages of urban and rural population in respect of each district are given in Table AT02 at the end of this report (Annex 2).

There is a high degree of unevenness in the distribution of urban population in the country. Almost half the national urban population is concentrated in Phnom Penh which has been the pole of attraction especially from the early nineties when the political situation in Cambodia gradually returned to normalcy and peace was restored in the entire country after decades of war. There is also a fairly high degree of positive correlation between density and urbanization in the provinces of Cambodia.

As an academic exercise, in addition to the existing Communes/ Sangkats contained in the urban list, the Sangkats located within all the Krong of the 23 provinces and the Sangkats in all the Khans of Phnom Penh Municipality which are now rural, are treated as urban. It is observed that if the revision referred to is made, the percentage of urban population to total population increases in all provinces except three. At the national level it increases from 19.1 percent to 23.28 percent. Still the level of urbanization in Cambodia will be only half that of Southeast Asia.

5.4 Population Growth

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 as well as the surveys like the Cambodia Demographic Health Survey (CDHS) 2000 and 2005 and the Cambodia Inter-censal Population Survey conducted in 2004 (2004 CIPS). The total fertility rate in Cambodia has declined from more than 6 children per woman in the early 1980s to 4.0 children in 1998, 3.4 children in 2004 and around 3 in 2008. After a period of erratic variations with a high level range, infant and child mortality have also experienced substantial decline. According to the 2004 CIPS, infant mortality declined from a rate of 93 deaths per 1,000 births in 1998 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. 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 stage (birth and death rates below 30 and 15 respectively) of demographic transition.

Cambodia's population has increased by 1.96 million during the decade 1998-2008. If the estimated population of 45,000 in the areas not covered by the 1998 census due to unrest in those areas is added to the 1998 Census population of Cambodia, the decadal growth rate works out to 16.66 percent. The corresponding average annual exponential growth rate is 1.54 percent. The annual growth rate is higher than that of Southeast Asia as a whole (1.2 percent). Cambodia's population has increased at a rate very much higher than that of Thailand and, marginally higher than the growth rate of Viet Nam and marginally lower than the growth rate of Laos. The population growth rates at province and district levels are discussed in Chapter 4.

Twenty four Districts/ Khans/ Krong and 373 Communes/ Sangkats have experienced population decrease during 1998-2008. One hundred Districts/ Khans/ Krong (58 percent) have each registered an annual growth rate of population of one percent and more during the decade. The populations in 30 Districts/ Khans/ Krong have grown at the rate of 5 percent and more per annum each.

The number of Communes/ Sangkats that have registered an annual growth rate of one percent and more each, works out to 800 (49.40 percent). Among 173 Communes/ Sangkats the population has increased at an annual growth rate of 5 percent and more each.

Growth Rates of population by each District/ Khan/ Krong as well as each Commune/ Sangkat district in Cambodia are given in Table AT01 (Annex 1).