# Chapter 2 COMMUTING IN CAPITAL REGION

## 2.1 COMMUTERS IN PROVINCES OF PHNOM PENH AND KANDAL

### 2.1.1 General Aspect on Population Distribution as Source of Commuting

According to the final results of the 2008 Population Census, total population of the national capital, Phnom Penh recorded 1,327,615 persons occupying 9.9 percent of total population of Cambodia. While, the province of Kandal surrounding the whole area of Phnom Penh within its territory counted 1,265,280 persons accounting 9.5 percent of total population. In total, 19.4 percent of Cambodian population reside in 2.2 percent of total land area of the kingdom. As a result, population density indicated 672 persons per km2 (4,516 persons/km$^2$ for Phnom Penh and 355 persons/km$^2$ for Kandal). This is extremely higher than national average of 75 persons per km$^2$.

**Table 2.1 Population, Land Area and Density: Kandal and Phnom Penh, 1998 and 2008**

| | Population | | % of total | | Annual growth rate (%) | Land area (km2) | Persons per km$^2$ |
|---|---|---|---|---|---|---|---|
| | 2008 | 1998 | 2008 | 1998 | | | |
| Cambodia | 13,395,682 | 11,437,656 | 100.0 | 100.0 | 1.6 | 178,035 | 75 |
| Kandal (1) | 1,265,280 | 1,075,125 | 9.4 | 9.4 | 1.6 | 3,564 | 355 |
| Phnom Penh (2) | 1,327,615 | 999,804 | 9.9 | 8.7 | 2.9 | 294 | 4,516 |
| (1)+(2) | 2,592,895 | 2,074,929 | 19.4 | 18.1 | 2.3 | 3,858 | 672 |

On the other hand, the proportion of urban population in terms of new definition to total population is 19.5 percent for Cambodia, while it is 93.6 percent for Province Phnom Penh and 15.5 percent for Province Kandal as of 2008. Of the total urban population 47.6 percent were occupied by Province Phnom Penh, and 7.5 percent by Province Kandal. Accordingly, 55.1 percent, or more than half of the nation's urban population are occupied by this two provinces constituting a capital region, or a metropolitan area . In 1998, this proportion was 52.4 percent. It can be said that population concentration or urbanization was promoted in this region during the decade.

### 2.1.2 Commuting Flows in Province Kandal

Annex Table 1.A.a. presents the number of in-commuters aged 10 and over, classified

into the employed persons and the persons attending school by sex, to each of eleven districts within Province Kandal from each districts of neighboring provinces, or Kampong Cham, Kampong Chhnang, Kampong Speu, Phnom Penh and from other districts within Province Kandal. Also, Annex Table 1.B.a. presents the number of out-commuters aged 10 and over, classified into the employed persons and the persons attending school by sex, from each of eleven districts within Province Kandal to each districts of neighboring provinces, or Kampong Cham, Kampong Chhnang, Kampong Speu, Phnom Penh and to other districts within Province Kandal. Based on the both tables, commuting flows between the each districts, focusing on those locating within Kandal can be observed.

**Table 2.2 Number of Commuters: Kandal and Phnom Penh**

| District | Total commuters | | |
|---|---|---|---|
| | Inflow | Outflow | Net flow |
| **Kandal and Phnom Penh** | 198,492 | 172,731 | 25,761 |
| 0801.Kandal Stueng | 1,172 | 10,474 | -9302 |
| 0802.Kien Svay | 1,054 | 12,050 | -10996 |
| 0803.Khsach Kandal | 378 | 2,303 | -1925 |
| 0804.Kaoh Thum | 779 | 887 | -108 |
| 0805.Leuk Daek | 299 | 242 | 57 |
| 0806.Lvea Aem | 134 | 1,496 | -1362 |
| 0807.Mukh Kampul | 643 | 1,649 | -1006 |
| 0808.Angk Snuol | 6,908 | 2,621 | 4287 |
| 0809.Popnhea Lueu | 1,482 | 3,678 | -2196 |
| 0810.S'ang | 1,471 | 3,548 | -2077 |
| 0811.Ta Khmau | 7940 | 6,901 | 1039 |
| 1201.Chamkar Mon | 35,999 | 20,806 | 15193 |
| 1202.Doun Penh | 52,983 | 9,334 | 43649 |
| 1203.Prampir Meakkakra | 19,161 | 18,032 | 1129 |
| 1204.Tuol Kouk | 19,447 | 26,158 | -6711 |
| 1205.Dangkao | 23,014 | 4,956 | 18058 |
| 1206.Mean Chey | 15,525 | 25,319 | -9794 |
| 1207.Ruessei Kaev | 10,103 | 22,277 | -12174 |

(Note) The data for 1208 Saensokh established by subdecree are included in the data of 1207 Ruessei Kaev.

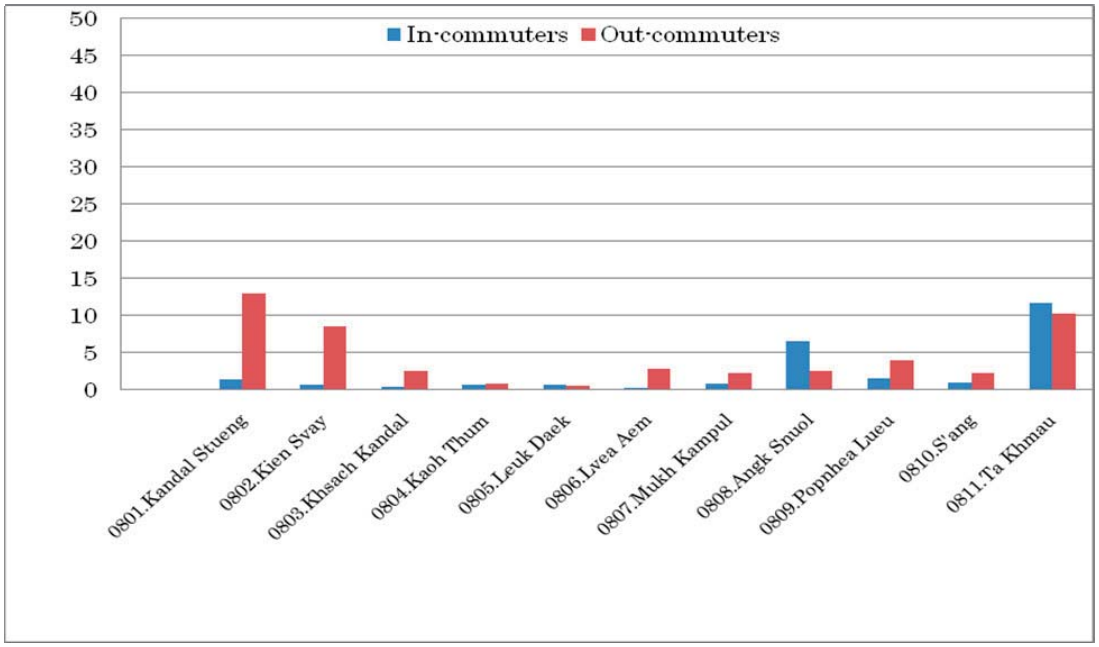
**Table 2.3 Commuting Rates : Districts of Kandal and Phnom Penh**

| Districts | Population aged 10 & over | per 100 persons aged 10 and over | | |
|---|---|---|---|---|
| | | In-commuters | Out-commuters | Net commuters |
| **08 Kandal** | **1,019,073** | **2.2** | **4.5** | **-2.3** |
| 0801.Kandal Stueng | 80,389 | 1.5 | 13.0 | -11.6 |
| 0802.Kien Svay | 140,947 | 0.7 | 8.5 | -7.8 |
| 0803.Khsach Kandal | 92,294 | 0.4 | 2.5 | -2.1 |
| 0804.Kaoh Thum | 115,385 | 0.7 | 0.8 | -0.1 |
| 0805.Leuk Daek | 43,346 | 0.7 | 0.6 | 0.1 |
| 0806.Lvea Aem | 52,312 | 0.3 | 2.9 | -2.6 |
| 0807.Mukh Kampul | 72,125 | 0.9 | 2.3 | -1.4 |
| 0808.Angk Snuol | 104,505 | 6.6 | 2.5 | 4.1 |
| 0809.Popnhea Lueu | 91,741 | 1.6 | 4.0 | -2.4 |
| 0810.S'ang | 158,377 | 0.9 | 2.2 | -1.3 |
| 0811.Ta Khmau | 67,652 | 11.7 | 10.2 | 1.5 |
| **12 Phnom Penh** | **1,142,817** | **15.4** | **11.1** | **4.3** |
| 1201.Chamkar Mon | 160,599 | 22.4 | 13.0 | 9.5 |
| 1202.Doun Penh | 110,611 | 47.9 | 8.4 | 39.5 |
| 1203.Prampir Meakkakra | 81,361 | 23.6 | 22.2 | 1.4 |
| 1204.Tuol Kouk | 149,942 | 13.0 | 17.4 | -4.5 |
| 1205.Dangkao | 162,199 | 14.2 | 3.1 | 11.1 |
| 1206.Mean Chey | 228,195 | 6.8 | 11.1 | -4.3 |
| 1207.Ruessei Kaev | 249,910 | 4.0 | 8.9 | -4.9 |

(Note) The data for 1208 Saensokh established by subdecree are included in the data of 1207 Ruessei Kaev.

In Province Kandal, it is found for the each districts that not only in-commuters but also out-commuters are more for males than for females with the exception of in-commuters to 0808 Angk Snuol. In this district it is observed that in-commuters from the districts of Kampong Speu are more for females than for males. Also, it is observed that numbers of in-commuters and out-commuters are remarkably larger to and from the each districts of Phnom Penh than to and from those of other provinces. Furthermore, numbers of not only in-commuters but also out-commuters are considerably larger than for employed persons than for the persons attending school in the each districts.

**Figure 1. Commuting Rates (%): Kandal**




Observing Table 2.2 or Annex Table 4 which shows number of commuters between districts in Province Kandal, it is found for most of districts that number of out-commuters is larger than that of in-commuters. Only for the districts of 0805 Leuk Daek and 0808 Angk Snuol number of out-commuters is smaller than that of in-commuters.

Comparing intensities of commuting flows between the districts of Kandal in Table 2.3 and Figure 1, the commuting rate of in-flows aged 10 and over indicates the highest (11.7%) for 0811 Ta Khmau and the second highest (6.6%) for 0808 Angk Snuol It presents the lowest (0.3%) for 0806 Lvea Aem. On the other hand, the commuting rate of out-flows aged 10 and over indicates the highest (13.0%) for 0801 Kandal Stueng and the second highest (10.2%) for 0811 Ta Khmau, while the lowest (0.6%) for 0805 Leuk Daek.

### 2.1.3 Commuting Flows in Municipality Phnom Penh

Annex Table 1.A.b. presents the number of in-commuters aged 10 and over, classified into the employed persons and the persons attending school by sex, from each of seven districts within Municipality Phnom Penh to each districts of neighboring provinces, or

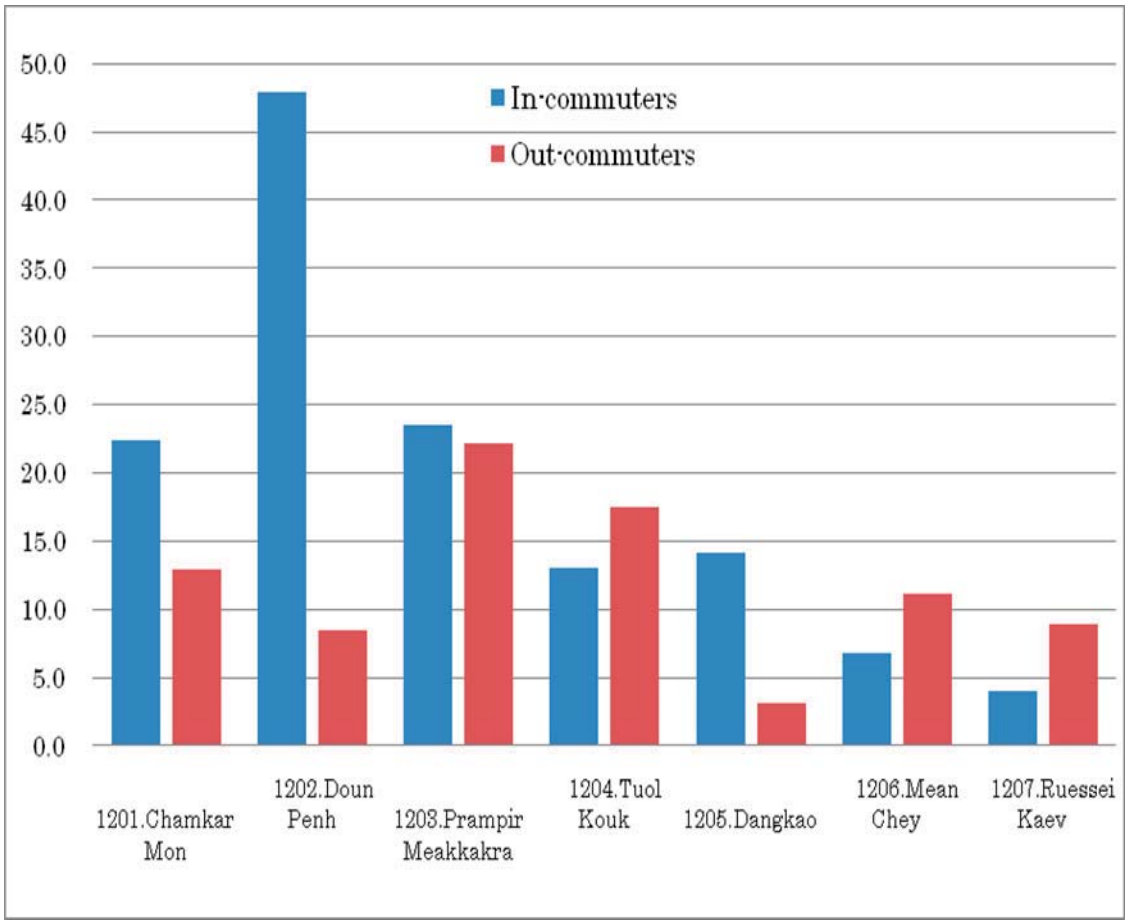
Kampong Cham, Kampong Chhnang, Kampong Speu, Kandal and to other districts within Municipality Phnom Penh. Also, Annex Table 1.B.b. presents the number of out-commuters aged 10 and over, classified into the employed persons and the persons attending school by sex, from each of seven districts within Municipality Phnom Penh to each districts of neighboring provinces, or Kampong Cham, Kampong Chhnang, Kampong Speu, Kandal and to other districts within Phnom Penh. Based on the both tables, commuting flows between the each districts, focusing on those locating within Phnom Penh can be observed.

In Municipality Phnom Penh, it is found for the each districts that out-commuters are more for males than for females without exception. On the other hand, in-commuters are more for males than for females to 1201 Chamkar Mon, 1202 Doun Penh, 1203 Prampir Meakkakra, and 1204 Tuol Kouk, while they are more for females than for males to 1205 Dangkao, 1206 Mean Chey and 1207 Ruessei Kaev. Also, it is observed that numbers of in-commuters and out-commuters are remarkably larger to and from the each districts of Phnom Penh and Kandal than to and from those of other provinces. Furthermore, numbers of not only in-commuters but also out-commuters are considerably larger than for employed persons than for the persons attending school in each districts (Annex Tables 1A. and 1B).

Observing Table 2.2 or Annex Table 4 which shows number of commuters between districts in Municipality Phnom Penh, it is disclosed for the districts locating at the central part, 1202 Doun Penh, 1201 Chamkar Mon, 1205 Dangkao, and1203 Prampir Meakkakra, that number of in-commuters is larger than that of out-commuters. On the other hand, for the districts locating outside those districts described above, or 1204 Tuol Kouk, 1206 Mean Chey and 1207 Ruessei Kaev, it is observed that the number of in-commuters is smaller than the number of out-commuters.

Comparing intensities of commuting flows between the districts of Phnom Penh in Table 2.3 and Figure 2, the commuting rate of in-flows aged 10 and over indicates the highest (47.9%) for 1202 Doun Penh and the second highest (23.6%) for 1203 Prampir Meakkakra. It presents the lowest (4.0%) for 1207 Ruessei Kaev. On the other hand, the commuting rate of out-flows aged 10 and over indicates the highest (22.2%) for 1203 Prampir Meakkakra and the second highest (17.4%) for 1204 Tuol Kouk, while the lowest (3.1%) for1205 Dangkao.

**Figure 2. Commuting Rates (%): Phnom Penh**




Summarizing those findings described above including the findings for the districts in Kandal, it is suggested that four districts, or 1202 Doun Penh, 1203 Prampir Meakkakra, 1201 Chamkar Mon and 1204 Tuol Kouk constituting central part of Phnom Penh, forms the core of commuting within the Capital Region.

Table 2.4 shows the name of district of destination and its number of the most in-commuters and of the most out-commuters for each district in Municipality Phnom Penh and Province Kandal. According to the table, the most in-commuters from 10 districts among 18 districts direct to 1202 Doun Penh and those from 3 districts direct to 1207.Ruessei Kaev, while the most out-commuters direct to the adjacent district.

From the above findings, it can be said that for in-commuters centripetal movement dircting to the city core of Phnom Penh while for out-commuters centrifugal

movement dispersing to adjacent districts are recignized in Capital Region.

**Table 2.4 Origin of the Most In-commuters and Destinaion of the Most Out-commuters for Each District in Capital Region**

| District | Destination of the most In-commuters from each district described in table stub | | Destination of the most out-commuters from each district described in table stub | |
|---|---|---|---|---|
| | District | persons | District | persons |
| 0801.Kandal Stueng | 1205.Dangkao | 4,769 | 0811.Ta Khmau | 114 |
| 0802.Kien Svay | 1206.Mean Chey | 3,480 | 1206.Mean Chey | 163 |
| 0803.Khsach Kandal | 1202.Doun Penh | 825 | 0806.Lvea Aem | 123 |
| 0804.Kaoh Thum | 0811.Ta Khmau | 264 | 0810.S'ang | 395 |
| 0805.Leuk Daek | 1202.Doun Penh | 62 | 0802.Kien Svay | 168 |
| 0806.Lvea Aem | 1202.Doun Penh | 467 | 0802.Kien Svay | 26 |
| 0807.Mukh Kampul | 1207.Ruessei Kaev | 649 | 0803.Khsach Kandal | 79 |
| 0808.Angk Snuol | 1207.Ruessei Kaev | 1,338 | 0801.Kandal Stueng | 1,117 |
| 0809.Popnhea Lueu | 1207.Ruessei Kaev | 1,160 | 1207.Ruessei Kaev | 133 |
| 0810.S'ang | 1202.Doun Penh | 1,262 | 0802.Kien Svay | 475 |
| 0811.Ta Khmau | 1202.Doun Penh | 2,403 | 0801.Kandal Stueng | 2,785 |
| 1201.Chamkar Mon | 1202.Doun Penh | 8,850 | 1206.Mean Chey | 11,116 |
| 1202.Doun Penh | 1201.Chamkar Mon | 2,973 | 1201.Chamkar Mon | 8,850 |
| 1203.Prampir Meakkakra | 1202.Doun Penh | 8,205 | 1204.Tuol Kouk | 5,532 |
| 1204.Tuol Kouk | 1203.Doun Penh | 8,706 | 1207.Ruessei Kaev | 5,482 |
| 1205.Dangkao | 1203.Doun Penh | 1,461 | 1204.Tuol Kouk | 1,647 |
| 1206.Mean Chey | 1203.Prampir Meakkakra | 11,116 | 0802.Kien Svay | 3,480 |
| 1207.Ruessei Kaev | 1202.Doun Penh | 8,306 | 1204.Tuol Kouk | 1,838 |

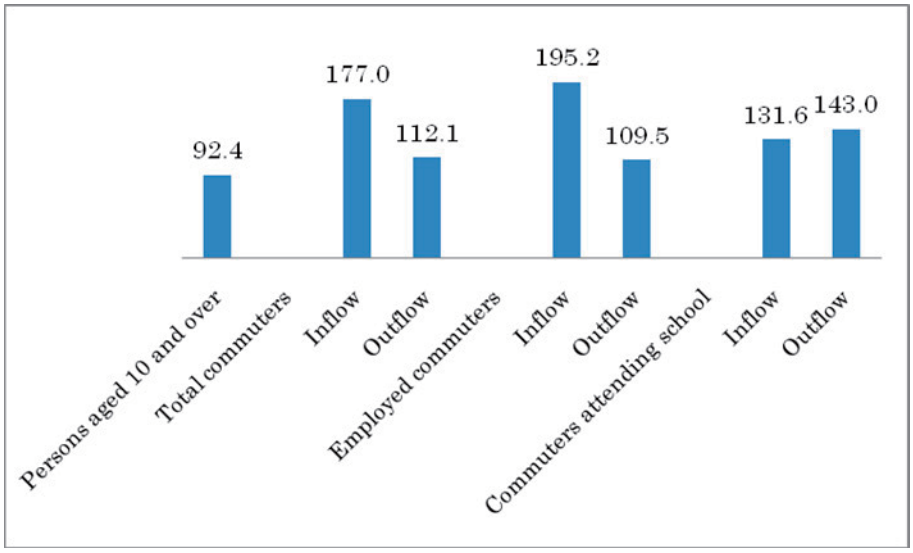
## 2.2. COMMUTING FLOWS DIRECTING TO AND DISPERSING FROM CITY CORE OF PHNOM PENH

Based on the above analysis, commuting flows directing to and from the city core of Phnom Penh, by integrating the data of the four districts, are examined. Annex Tables 7 and 8 are the results. Total population of the city core, or four districts of Phnom Penh consisting of 1201 Chamkar Mon. 1202 Doun Penh, 1203 Prampir Meakkakra and1204 Tuol Kouk amounts to 571,649 persons. According to the both tables, in a day, the city core received 68,984 persons of commuters from its surrounding districts, while it sends 23,645 persons. The balance of 45,180 persons

constitutes “net commuters” (Table 2.5). Among 46 districts constituting the commuting hinterland of the city core, only 7 districts indicated minus net balance. Other 39 districts indicated plus net balance between in-commuters and out-commuters (Annex Table 9).

Also, among 46 districts surrounding the city core, 30 districts sent more than 100 in-commuters respectively to the core, while 12 districts received more than 100 out-commuters respectively from the core. This means that the area where in-commuters reside, or in-commuters’ zone is remarkably wider than the area to where the city core residents direct, or out-commuters’ zone (Map 1).

Figure 3. Sex Ratios of Commuters to and from City Core




Classifying the commuting flows by type, employed in-commuters occupy 76.0 percent of total in-commuters, while in-commuters attending school occupy 24.0 percent for both sexes. On the other hand, employed out-commuters occupy 90.9 percent of total out-commuters, while out-commuters attending school occupy only 9.1 percent for both sexes. Observing by sex, employed in-commuters shows 78.7percen for males and 71.3 percent for females. While, out-commuters attending school present 10.1percent for males and 7.9 percent for females.

Sex ratios of commuters directing to and dispersing from the city core are very high compared with the persons aged 10 and over residing in the city core. Particularly, employed in-commuters presents 195 males per 100 females (Figure 3).

As the population aged 10 and over in the city core counted 502, 513 persons, the in -commuting

rate showed 13.7 percent, while the out-commuting rate presented 4.7 %. Comparing the commuting rates between males and females, not only in-commuting rate but also out-commuting rate are higher for males than for females. Also, out-commuting rate as well as in-commuting rate are considerably higher for the employed commuters than for the persons attending school (Table 2.5).

**Table 2.5 Inflow and Outflow of Commuters to and from City Core of Phnom Penh by Type**

| | Both sexes | Males | Females | Both sexes | Males | Females |
|---|---|---|---|---|---|---|
| Persons aged 10 and over | 502,513 | 241,338 | 261,175 | 100.0 | 100.0 | 100.0 |
| Total commuters | | | | | | |
| Inflow | 68,984 | 44,079 | 24,905 | 13.7 | 18.3 | 9.5 |
| Outflow | 23,645 | 12,499 | 11,146 | 4.7 | 5.2 | 4.3 |
| Net flow | 45,339 | 31,580 | 13,759 | 9.0 | 13.1 | 5.3 |
| Employed commuters | | | | | | |
| Inflow | 52,431 | 34,672 | 17,759 | 10.4 | 14.4 | 6.8 |
| Outflow | 21,497 | 11,235 | 10,262 | 4.3 | 4.7 | 3.9 |
| Net flow | 30,934 | 23,437 | 7,497 | 6.2 | 9.7 | 2.9 |
| Commuters attending school | | | | | | |
| Inflow | 16,553 | 9,407 | 7,146 | 3.3 | 3.9 | 2.7 |
| Outflow | 2,148 | 1,264 | 884 | 0.4 | 0.5 | 0.3 |
| Net flow | 14,405 | 8,143 | 6,262 | 2.9 | 3.4 | 2.4 |

From the above findings, it is can be concluded that the centripetal movement to the city core is remarkably stronger than the centrifugal movement from the city core and both movements are constituted of mostly male employed commuters.

# Map 1. Number of Commuters Between Districts in Provinces Kandal and Phnom Penh