

Spatial Distribution of Senior Citizen in Peninsular Malaysia 1991 and 2000

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I. Introduction

Senior citizen or ageing population refers to population aged 60 years and above. Ageing is also based on the increase of median age and dependency ratio. It is an interesting topic and discussion on this problem has begun since the early 1990s especially in the developed countries. This was due to a faster population ageing process in the developed countries as compared to the developing countries. Nevertheless, currently, the problems of ageing population have existed in some Asian countries. Therefore, many aspects of ageing population were discussed since a decade ago. In Singapore, the life of senior citizen and housing¹⁾ and in Brunei, issues of trends and economic impact, economic consequences of rapid development of pension scheme and establishment of a medical insurance system and social problems²⁾ were discussed. In Japan, there were discussions on care and cultural change problems³⁾, health services, government role as well as public and private policies for senior citizen⁴⁾⁻⁶⁾.

The purpose of this article is to study the distribution of aged population or senior citizen by districts in Peninsular Malaysia for 1991 and

2000. Analysis on the distribution was based on the application of Geographic Information System (GIS). Two methods were used; the first one used real total population data and the second used proportion or the percentage of aged population in each district.

II. Ageing Population: A Literature Review

There are many studies on ageing population in Malaysia. Among them there were studies regarding nutrition⁷⁾, family role in the formation of policies and senior citizen care⁸⁾⁻¹⁰⁾ and social security, issues and phenomenon^{11),12)}. In Vietnam aspects of education, marriage, economic activities and ageing population life order were debated¹³⁾. The focus in Asia was on framework factor influencing status and trend^{14),15)}. Hateley and Tan¹⁶⁾ discussed the causes and consequences of accelerated ageing in Asia. Liu¹⁷⁾ focused on housing planning for senior citizen in China that has over 60 million ageing senior citizen. Gore¹⁸⁾ used sociological, psychological and social approaches in the study of problems of ageing. The rapid growth of senior citizen will have an impact on socio-economic,

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development, politics, culture and environment and vice versa.

Based on the facts above, aspects of care and management of senior citizen must be given priority in the planning of communal facility for them. It involves all parties including the ruler, private, community and family that must come together to enable the senior citizen to lead a comfortable life. Rapid ageing process was caused by decreasing fertility, death and increasing quality of healthcare, prosperity and better nutrition which in turn will increase life expectancy¹⁶⁾. In Japan for example, in 2000, 16.3 percent of its population of 131.2 million people were senior citizen aged 65 years and above. In the same time, Japan also has the lowest crude birth rate in the world which is about 10.0 per 1,000 population^{19),20)}. In 2010 it is estimated that the total young people or children in the age group of 0–14 years will be lower which is 18.7 percent compared to 20.0 percent population in the age group of 65 years and above¹⁹⁾.

The United Nation and Malaysia have declared 1st October of each year as the World Senior Citizen Day. For Malaysia this is an appropriate step to increase awareness in the community and cultivate caring attitude towards senior citizen¹⁸⁾. Hopefully this effort will enhance moral and material support for the senior citizen who has contributed to the nation's development. Senior citizens are an important asset because their experience and knowledge are valuable and should be encouraged to continue contributing to the country's development.

Since 1957, the change in age structure in Malaysia involve three age groups namely 0–14

years, 15–64 year and 65 years and above. Based on census statistics, total young population in age group 0–14 years decreased from 43.8 percent to 37.1 percent in 1991 and 33.3 percent in 2000¹⁰⁾. Consequently, the number of senior citizen aged 65 years and above increased from 2.7 percent in 1957 to 3.8 percent in 1991 and 3.9 percent in 2000. It is expected that in 2025, it will increase to 9.2 percent. In real total population, it will increase from 667,079 to 2.85 million people for the same year. This expected increase gives a clear message on the increase of senior citizen size in the future. A big number of them are expected to be women with small number of children or unmarried women. This raises the question on who is supposed to look after their everyday life.

The number of senior citizen in Malaysia is expected to increase and according to the 2000 census, from 23,274,690 people, 3.9 percent were 65 years and above or 6.2 percent were 60 years and above. If senior citizen were considered at 60 years and above, 1.45 million people fall into this group which must be given the best attention and management.

Geographic Information System (GIS) refers to computer hardware and software designed to collect, store and analyse object and phenomenon where spatial location is an essential or critical characteristic for analysis^{21)–23)}. For Star and Estes²⁴⁾, Aronoff²⁵⁾ and Dangermond²⁶⁾ GIS refers to a combination of operation that is capable to collect, acquire, store, manage as well as analyse data to produce information that can be used in decision making process.

In Malaysia, GIS application or the use of mapping method in population study has been

conducted and produced studies on race segregation spatial pattern change in Pulau Pinang 1980–1990²⁷⁾, population spatial concentration pattern change in Sabah and Sarawak 1980–2000²⁸⁾ and population spatial concentration change in Peninsular Malaysia²⁹⁾.

III. Data and Study Area

This study was based from the 1991 and 2000 census published by the Department of Statistic Malaysia^{30)–32)}. The study area includes all districts in Peninsular Malaysia (Fig. 1). There were two levels of data used and analysed. The first was senior citizen data at state level and the second at district level.

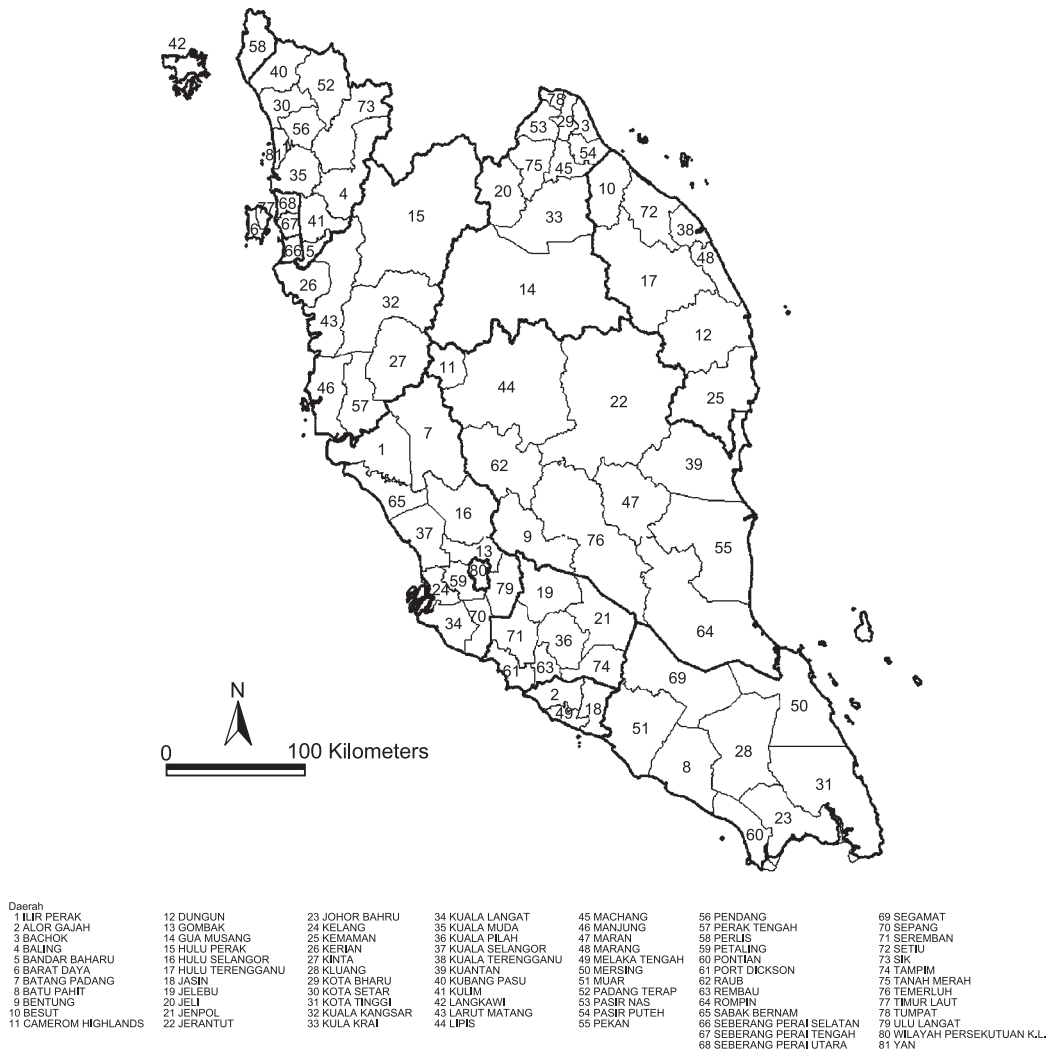


Figure 1. Study Area – Peninsular Malaysia

IV. Senior Citizen Spatial Pattern in Peninsular Malaysia

Based on the number and senior citizen spatial distribution, there exist some interesting patterns by location and space. In the state of Pahang for example, there is no difference in total senior citizen number between the districts in 1991 where each district has between 551 and 12,307 senior citizen (Fig. 2), nevertheless, in 2000 a slight increase was found in Kuantan District with 14,481 senior citizens (Fig. 3). For Johor, a clear variation existed

between 1991 census and 2000 census in the number of senior citizen. In 1991, there were four districts with 551 to 12,307 people, one district with 12,308 to 24,064 people and two districts with 24,065 to 35,821 senior citizens. In 2000 there were five districts showing senior citizen increase namely the District of Segamat, Kluang and Potian with 12,308 to 24,064 people, the Batu Pahat District with 24,065 to 35,821 people while the Johor Bahru District with 35,822 to 47,578 senior citizen.

Perak showed the most senior citizen spatial variation in 1991 and 2000 census (Fig. 2 · 3).

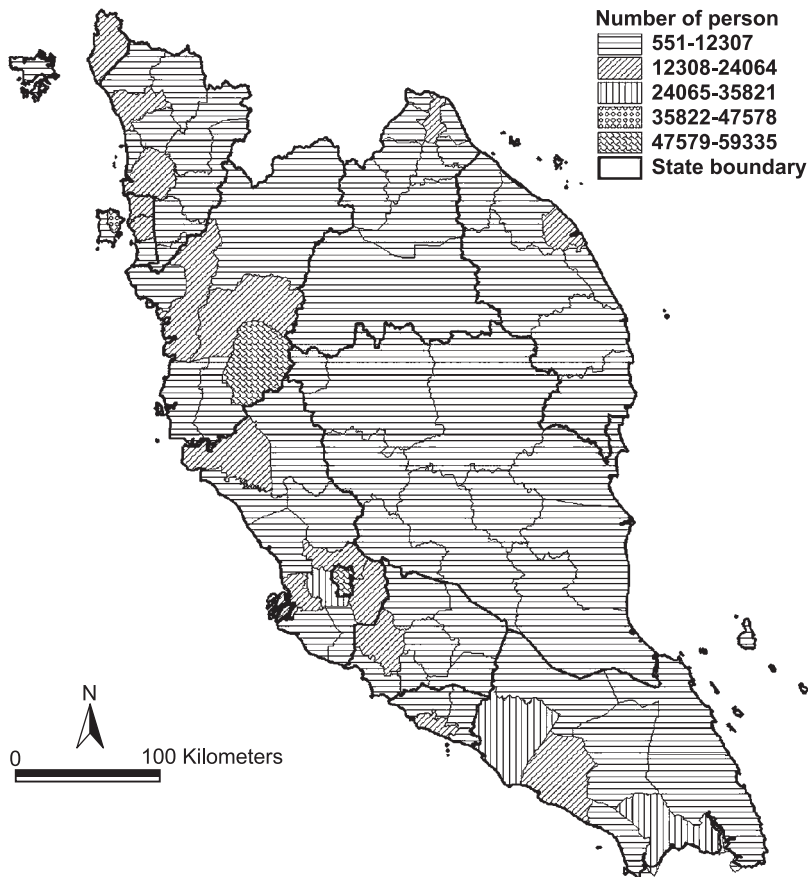


Figure 2. Number of Senior Citizen's Population in 1991

In 1991 census there were four districts namely Kerian, Manjung and Perak Tengah with 551 to 12,307 senior citizens, Larut Matang District with 12,308 to 24,064 people and Kinta District with 47,579 to 59,335 senior citizen. Whereas in 2000 census, two out of seven districts in Perak has 551 to 12,307 senior citizen, three districts with 12,308 to 24,064 senior citizen, one district with 24,065 to 35,821 senior citizen and lastly, Kinta with 59,336 to 71,092 senior citizen.

For Selangor in 1991 census, five out of 9 districts namely Hulu Selangor, Sabak Bernam, Kuala Selangor, Kuala Langat and Sepang

showed the number of senior citizen in the range of 551 to 12,307 people. While four districts were in the range of 12,308 to 24,064 people and Petaling with 24,065 to 35,821 people (Fig. 2). For the 2000 census, six districts retained the number of senior citizen in the range of 551 and 12,307 people, three districts with 12,308 to 24,064 people and the remaining two districts with 24,065 to 35,821 people.

From Figure 2 and 3, Wilayah Persekutuan Kuala Lumpur recorded total senior citizen in the group of 47,579 to 59,335 people in 1991 and the number increased to 59,336 to 71,092

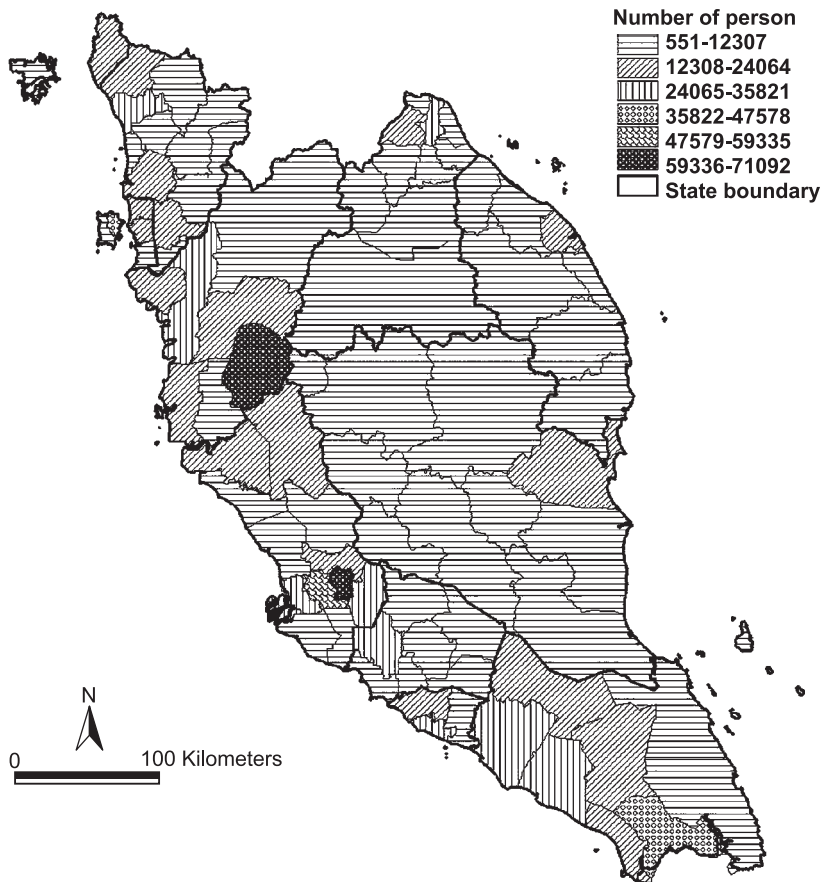


Figure 3. Number of Senior Citizen's Population in 2000

people in 2000 census. For Negeri Sembilan, Melaka, Kelantan and Kedah, there were not much difference in the pattern and total number of senior citizen for both years census. Table 1 shows the changes in number of district according to senior citizen rate for census year 1991 and 2000.

In percentage, the result of aged population distribution data analysis by districts in Peninsular Malaysia for the year 1991 and 2000 showed an unbalanced distribution. 1991 data analysis showed Kuala Pilah District and Perak Tengah District have the highest ageing population of 9.5 percent and above. One of the main factors that cause both districts to have the highest number of senior citizen was migration to both districts. The second factor was maybe due to low fertility rate. It was found that the crude birth rate in Perak Tengah District and Kuala Pilah District in 1990 was 19.5 and 21.7 per 1,000 populations³⁰⁾. In the

long-run, the low birth rate will accelerate population ageing process as what is happening in the developed countries.

Based on Figure 4 also, there were more districts with senior citizen of 7.28 to 9.5 percent. They were situated in the west coast. In Johor, three of their districts situated in the west coast with many senior citizens were Muar, Batu Pahat and Pontian followed by Jasin and Alor Gajah in the state of Melaka and Temerloh in Pahang and Jelebu in Negeri Sembilan. In the east coast, the concentrations of aged population were in the district of Bachok, Pasir Puteh, Macang and Pasir Mas. This showed that the districts in east coast especially in Terengganu, Pahang and Johor have the lowest number of aged population. The high birth rate was an important factor in the formation of young population characteristics in the particular districts. The crude birth rate in Kelantan was 34.6 per 1,000 people in

Table 1. Number of district by senior citizen's rate for 1991 and 2000 census

| Number of senior citizen | 551-12,307 | | 12,308-24,064 | | 24,065-35,821 | | 35,822-47,578 | | 47,579-59,335 | | 59,336-71,092 | |
|--------------------------|------------|------|---------------|------|---------------|------|---------------|------|---------------|------|---------------|------|
| | 1991 | 2000 | 1991 | 2000 | 1991 | 2000 | 1991 | 2000 | 1991 | 2000 | 1991 | 2000 |
| Johor | 4 | 2 | 1 | 3 | 2 | 2 | — | 1 | — | — | — | — |
| Kedah | 10 | 5 | 2 | 3 | — | 1 | — | — | — | — | — | — |
| Kelantan | 9 | 8 | 1 | 1 | — | 1 | — | — | — | — | — | — |
| Melaka | 2 | 1 | 1 | 1 | — | 1 | — | — | — | — | — | — |
| N. Sembilan | 6 | 6 | 1 | — | — | 1 | — | — | — | — | — | — |
| Pahang | 10 | 9 | — | 1 | — | — | — | — | — | — | — | — |
| Perak | 4 | 2 | 2 | 3 | — | 1 | — | — | 1 | — | — | 1 |
| Perlis | — | — | 1 | 1 | — | — | — | — | — | — | — | — |
| Pulau Pinang | 2 | 1 | 2 | 2 | — | — | 1 | 1 | — | — | — | — |
| Selangor | 6 | 6 | 4 | 3 | — | 2 | — | — | — | 1 | — | — |
| Terengganu | 5 | 6 | 1 | 1 | — | — | — | — | — | — | — | — |
| W.P. Kuala Lumpur | — | — | — | — | — | — | — | — | 1 | — | — | 1 |

1990³⁰). With high fertility rate it will delay the population ageing process and on the other hand will speed the population growth rate.

Up north, the State of Kedah, four of its districts with the highest density of senior citizen were Kubang Pasu, Kota Setar, Pendang and Baling. While, the second highest density districts were Padang Terap, Sik, Kuala Muda and Kulim. As a whole Kedah was considered as the state with the most number of aged population where the average senior citizen in each district was 5.8 percent and above. Perak too has the same number of senior citizen

proportion as Kedah. Kedah has a moderate high crude birth rate which was about 25.0 per 1,000 populations in 1990³⁰). Furthermore, the number of aged population in the mentioned districts will also increase by inward migration.

Other than Kedah and Perak, Selangor also has districts with high number of aged population excluding Ulu Langat, Gombak and Petaling with 2.05 to 4.36 percent. Wilayah Persekutuan Kuala Lumpur has the highest number of inward migration of young population, therefore the percentage of aged population were less. Here it can be concluded that the concentration of

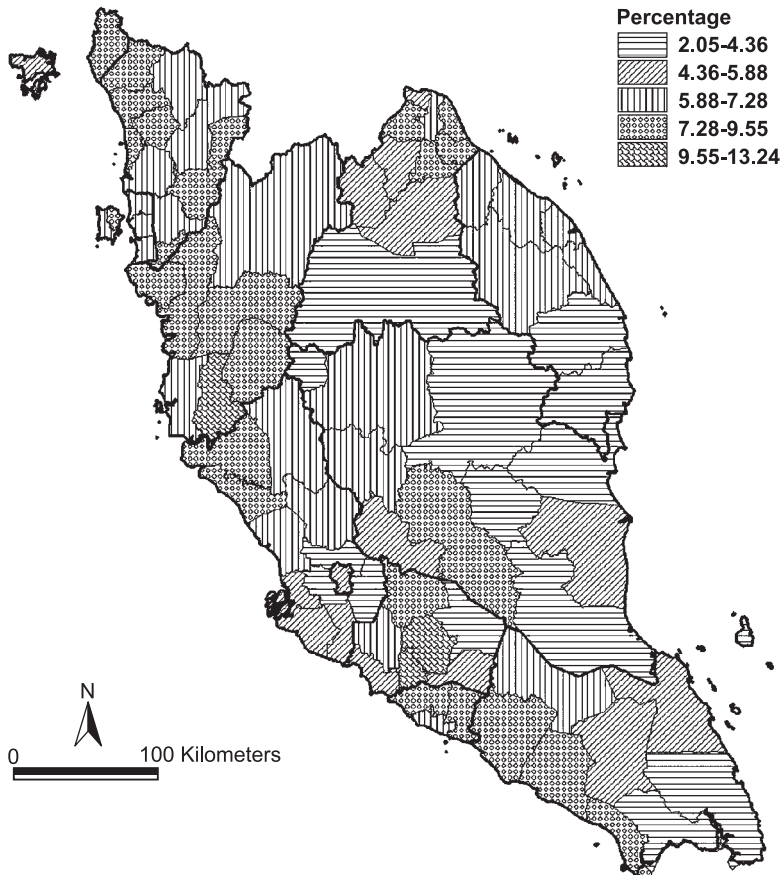


Figure 4. Percentage of Senior Citizen from Total Population by District in Peninsular Malaysia 1991

aged population distribution in 1991 was in the districts in Kedah, Perak and Selangor. In other words, districts in the west coast are capable in accommodating a larger number of aged populations. Added with low birth rate and availability of all needed facilities and strategic location, they have the capability to attract more aged population to live in the mentioned districts either in the urban or rural area.

The findings of this study showed similarity with migration pattern of pensioners in Great Britain which converged to coastal area and rural area with attractive sceneries³³). From

the aspect of spatial value, these locations are valuable for housing development and socio-economic activity. Thus, in the future, coastal area on the west coast will become area of attraction and concentration area for senior citizen or pensioners with higher education and living standard background.

Figure 5 showed the distribution of aged population by districts for the 2000 census. As a whole, the distribution pattern was almost similar to the 1991 census. In Kedah, all districts have the highest number of aged population except for Pendang. Pulau Pinang

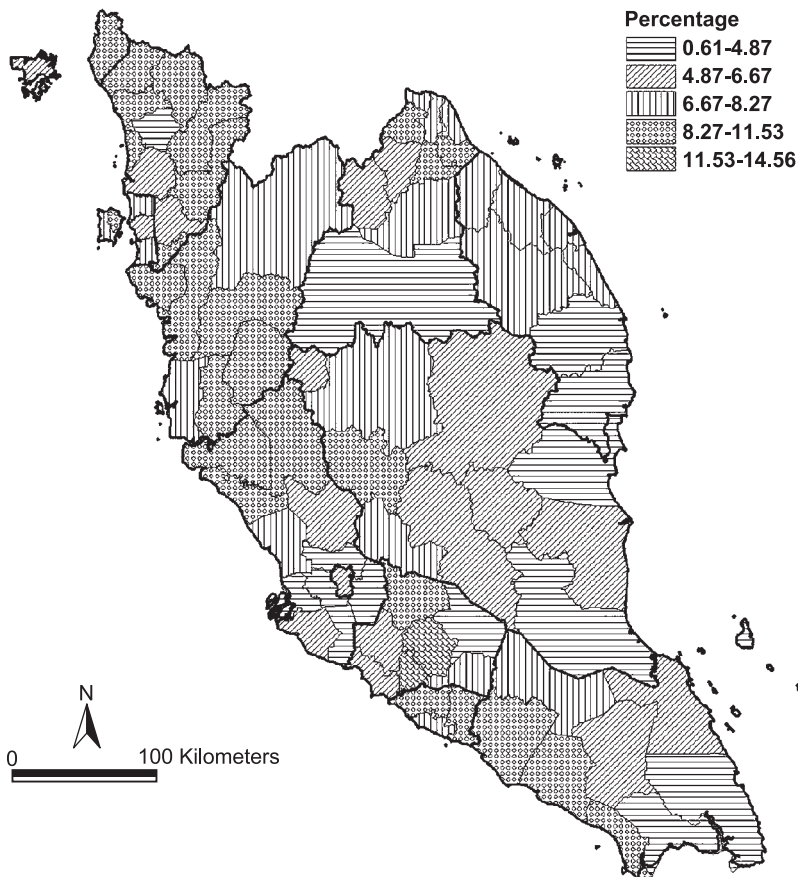


Figure 5. Percentage of Senior Citizen Compared to Total Population by District in Peninsular Malaysia 2000

also has high percentage of aged population. In the Timur Laut District the rate was more than 7.28 percent and Barat Daya District with 6.67 percent. Analysis of crude birth rate showed Barat Daya rate was 26.8 per 1,000 and Timur Laut was 16.5 per 1,000 population of 1997³¹). Pulau Pinang has the lowest crude birth rate in Malaysia which was 22.3 per 1,000 population of 1997. Therefore, Pulau Pinang is expected to experience rapid aged population increase, especially in the Chinese community in the future⁹).

Meanwhile, the percentage of aged population in Wilayah Persekutuan Kuala Lumpur did not show any change from around 4.87 to 6.67 percent. In conclusion, the old population trend in the future will converge to the northern and southern part of Peninsular Malaysia. Possibly, the public and private pensioner are not interested to continue living in Kuala Lumpur and other large cities anymore and instead migrated to other districts that they considered to be the best residence areas, from the aspects of physical environment, economic landscape and culture that are in existence.

V. Conclusion

Analysis on senior citizen distribution showed that the GIS application was successful in producing clear distribution of senior citizen mapping by districts in Peninsular Malaysia. Based on the above discussions, it was found that currently the distribution of senior citizen is unbalanced and this pattern will continue to expand in the future. Concentrations are towards the districts on the west coast of

Kedah, Perlis, Perak, Melaka and Johor. If the estimation of aged population number in 2025 is achieved then the districts with aged population of 6.67 percent and above will be pressured in preparing the proper public amenities for them. The ageing population process will continue to increase and it cannot be stopped. This can only be delayed if the birth rate did not drop drastically. We can take Japan as an example, who has to deal with senior citizen problems due to the reduction of birth rate that is too low. In Malaysia we are lucky because the Malays still have high fertility rate and this can delay the ageing population process in a controlled manner and not too burdensome. It is hoped that the 70 million population policy and other policies created by the government all this while will be able to sustain the process of ageing population in Malaysia.

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1991 年および 2000 年の 半島部マレーシアにおける高齢者の空間的分布

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本稿は、福祉地理学の観点から、半島部マレーシアにおける 65 歳以上の高齢者の州別・郡別の分布状況とその変化について、1991 年および 2000 年のセンサス・データにもとづき、GIS 分析により検討を加えたものである。本研究の目的は、高齢者の居住地選択の動向をふまえ、高齢者の顕在的潜在的ニーズに対応した施設やサービスの供給の空間的適正配置について、その将来予測を行うための指針を与えるところにある。

これまで高齢者は、都市地域、とりわけクアラルンプル直轄領などに偏在する傾向があったが、今後、高齢者の集住傾向が予測されるプルリス、ケダ、ペラ、マラッカおよびジョホールといった西海岸諸州の当該地区では、高齢者に対する公共アメニティの適正な配置が求められる。

半島部マレーシアの人口の高齢化はさらに進むものと考えられるが、今後とも出生率が急速に減退しないかぎり、日本が経験してきたような深刻な少子高齢化社会の到来に直面しないだろう。このことは、マレーシア政府によりこれまで標榜されてきた「人口 7000 万人」構想が、人口の高齢化問題に抵触するものではないことを示唆している。

キーワード：高齢者の空間的分布、半島部マレーシア