

Urbanisation and Growth of Metropolitan Centres in Malaysia⁺

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Abstract: Malaysia has undergone rapid urbanisation amidst the shift from agricultural to an industrial based economy. Urbanisation and modernisation have inevitably led to profound social and economic changes. Economic growth not only has brought about a rapid increase in the number of towns and urban centres, but has also resulted in the expansion of major towns outwards to sprawl into the peripheries. This paper highlights the growth of towns in Malaysia based on the 1980, 1991, 2000 and 2010 Population and Housing Censuses. The data reveal a surge in the number of towns from 72 in 1980 to 228 in 2010. The sharp increase in the number of urban centres and the urbanisation process is the result of spatial re-distribution through migration, partly in response to various government measures to restructure society for a more balanced development.

Key words: Government measures, growth of urban centres, spatial and demographic urbanisation

JEL classification: O18, R58

1. Introduction

Over the past five decades (1970-2010), Malaysia has undergone rapid urbanisation, concomitant with social and economic transformation. Towns which emerged during British colonial rule (1887-1956) gradually increased in size, with some evolving into cities and metropolitan centres (Hamzah Sendut 1962; Yeoh and Hirschman 1980). Urbanisation is a continuous population concentration process in the city and metropolitan areas which acts as an important economic catalyst in the development and modernisation of the surrounding peripheries (United Nations 1982). As in the case of other South-east Asian countries (Mc Gee 1975), migrants from the rural areas of Malaysia tend to be attracted to the big cities and large urban centres rather than to smaller towns. The acceleration in the tempo of urbanisation and expansion of urban areas as growth centres has been brought about by the government policies of restructuring the society, to do away with the identification of race with vocation and location, and striving towards a more balanced regional development since the adoption of the New Economic Policy in 1970.

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2. Components of Urban Growth

The urbanisation process and growth of town centres in Malaysia are influenced by natural increase and net migration. The urban expansion has been brought about by the increasing economic opportunities in the urban centres that attracted the migrants. Another component of urbanisation is the reclassification of rural localities to the urban areas, including the annexation of surrounding areas to the urban centres, as well as boundary changes of the urban centres (Khoo and Van 1996).

Like most other countries, the urban population in Malaysia has been growing at a much more rapid pace than the rural population. The growth of some urban centres has not been just seen within the gazetted boundaries but spill-over of the population into the peripheries has also taken place. The annexation of these rural settlements located near the metropolitan areas has contributed to acceleration of the urbanisation process. For example, Dengkil, a town in Sepang district where many new factories and housing development are located thrived along with the development of Kuala Lumpur. This phenomenon was also recognised by Jones and Douglass (2008) in their study of urbanisation in Asia Pacific cities such as Bangkok, Manila, Jakarta and others where the transformation of rural areas and built-up areas has seen a move towards the metropolitan boundary. They concluded that population growth was much faster at the metropolitan suburb areas (peripheries) than the metropolitan itself. The suburbanisation has led to the expansion of Kuala Lumpur metropolitan area (Katiman Rostam 2000).

In Malaysia, economic modernisation and urbanisation occurred concurrently resulting in an urban society (Norhaslina Hassan 2009). Urbanisation and urban growth are phenomena that is of increasing concern to the policy makers and planners. Development and transformation strategies implemented through the various five-year development plans witnessed the growth and expansion of urban centres. However, the unique historical development of states still has an important and inter-related influence on the urbanisation process.

The strong linkage between development patterns and economic growth has brought accelerated urbanisation, such that by 1990 over half of Malaysia's population lived in urban areas. In 1991, the central region of Peninsular Malaysia comprising Kuala Lumpur, Selangor, Malacca and Negeri Sembilan was the most urbanised. This concentration spurred the growth of industrial, commercial, financial and administration activities within the Kuala Lumpur conurbation areas (Ho 2008). The spread of urban development within as well as outside the Klang Valley helped accelerate growth of towns like Shah Alam, Bangi, Seremban and Port Dickson.

Nevertheless, levels of urbanisation vary widely by state and region, mirroring differentials in development. In its effort to speed up development across both rural and urban areas, the government has had to grapple with various challenges. The development strategies include building world class vibrant and liveable cities and expanding essential services in rural areas. In Peninsular Malaysia, the strategies, directions and priorities of physical development are outlined on the National Physical Plan (NPP), while the issues of regional development for Sabah and Sarawak are addressed in their respective state structural plans. The NPP and the National Urbanisation Policy outline a hierarchy for extended urban areas (or conurbations) where each conurbation contains a core city centre with satellite towns. Regional conurbations include Georgetown, Johor Bahru,

Kuantan, Kuching and Kota Kinabalu, each having its own unique character. The plans are aimed at creating attractive and enjoyable cities that are compact and efficient (Malaysia 2011).

3. Data and Methodology

The main data for this paper are taken from the Population and Housing Censuses conducted in 1970, 1980, 1991, 2000 and 2010 (Department of Statistics Malaysia, various issues). Urban spatial distribution analysis for the periods 1991-2010 is based on the revised definition which includes core town and built-up areas. The analysis also covers urban population by size class and metropolitan towns.

3.1 Concepts and Definitions

Since the formation of Malaysia in 1963, the Department of Statistics has conducted five rounds of the decennial national population and housing censuses beginning in 1970. Over time, some changes were made to the definition of an urban area. In the 1970 and 1980 censuses, an urban area was defined as a gazetted town area with a population of 10,000 or more for the respective year. Following an in-depth study on the most appropriate criteria for the determination of an urban area, the 1991 census re-defined an urban area to refer to:

"...gazetted areas and their adjoining built-up areas with a combined population of 10,000 persons or more (and built-up areas were defined as areas contiguous to a gazetted area), and had at least 60 per cent of their population (aged 10 years or more) engaged in non-agricultural activities and at least 30 per cent of their housing units having modern toilet facilities."

However, several exceptions were made to the above definition: urban areas include gazetted areas which cover entire administrative districts and gazetted areas lying on both sides of the main roads linking existing towns. Areas gazetted prior to the implementation of the restructuring of local authorities under the respective Local Government Act/Ordinance in Malaysia, together with their adjoining built-up areas and having a combined population of 10,000 persons or more were classified as urban areas. The same definition was used in the 2000 census.

For the 2010 census, further adjustments were made to the definition of built-up areas: the "criteria of 60 per cent of the population the aged (10 years or more) engaged in non-agricultural activities was increased to 15 years or more; and 'the modern toilet facilities criterion was dropped.'" This adjustment was made because the working age group under the Labour Force Survey was 15-64 years; the Household Income Survey showed that almost all living quarters had modern toilet facilities. The definition of urban areas also takes into account special development area (pockets areas), namely the development area which is not gazetted and can be identified and separated from the gazetted area or built-up area of more than 5 km and a population of at least 10,000 or more, with 60 per cent of the population (aged 15 years and over) involved in non-agriculture, such as Bandar Puncak Alam, Bandar Saujana Utama and Bandar Saujana Putra in Selangor.

4. Trends and Levels of Urbanisation

4.1 National Level

The level of urbanisation in Malaysia has increased from 26.8 per cent in 1970 to 70.9 per cent in 2010. Between 1970 and 2010, the urban population increased drastically by 557.5 per cent or 16.5 million. The males make up a little more than half of the urban population (51.1%). Of the urban population in 2010, Bumiputera made up 54.5 per cent, Chinese 28.9 per cent, Indians 8.5 per cent, Others 0.6 per cent, and Non-Malaysian citizens made up the remaining 7.5 per cent. In terms of education, 17 per cent of the urban population has tertiary education, compared to 6.3 per cent of the rural population.

The urban population and the growth rate between 1970 and 2010 is shown in Table 1. During the last 40 years, the share of the urban population to the total population in Malaysia tripled from 26.8 per cent in 1970 to 70.9 per cent in 2010. The sharp increase in the level of urbanisation during the 1980 -1991 period was due to migration, natural increase and boundary changes, and reclassification. Between 1991 and 2010, the migration flows tended to be directed at the peripheries of cities and built-up areas, while the proportion of population living in core urban areas had declined (Figure 1).

Variations in the tempo of urban population growth provide another dimension on the nature of the change in the level of urbanisation over time. A commonly used indicator of urban population growth is the tempo of urbanisation. Table 1 shows that the tempo of urbanisation has decelerated since 1980. The deceleration in the tempo of urbanisation is to be expected as it had exceeded 50 per cent in 1991.

4.2 State Level

In 1970, Penang was the most urbanised state (51.0 per cent), followed by Selangor (45.6 per cent). The historical and socio-economic development had resulted in higher urbanisation level in these states. Tables 2 and 3 present the level of urbanisation and the tempo of urbanisation by states since 1970. Up until 1980, only five states had an urbanisation level exceeding one third. By 1991, with the exception of Perlis and Pahang, all other states had at least a third of the population residing in urban areas. Besides the

Table 1. Urbanisation levels, urban population growth and tempo of urbanisation, Malaysia

Year	Proportion of population in urban areas (per cent)	Average annual population growth rate (per cent)	Tempo of urbanisation (per cent)
1970	26.8	:	:
1980	35.8	5.2	2.9
1991	50.7	5.1	2.5
2000	61.7	4.8	2.2
2010	70.9	3.5	1.4

Note: The tempo of urbanisation is computed as $\ln((\text{urbanisation level in year } t+10)/(\text{urbanisation level in year } t))$.

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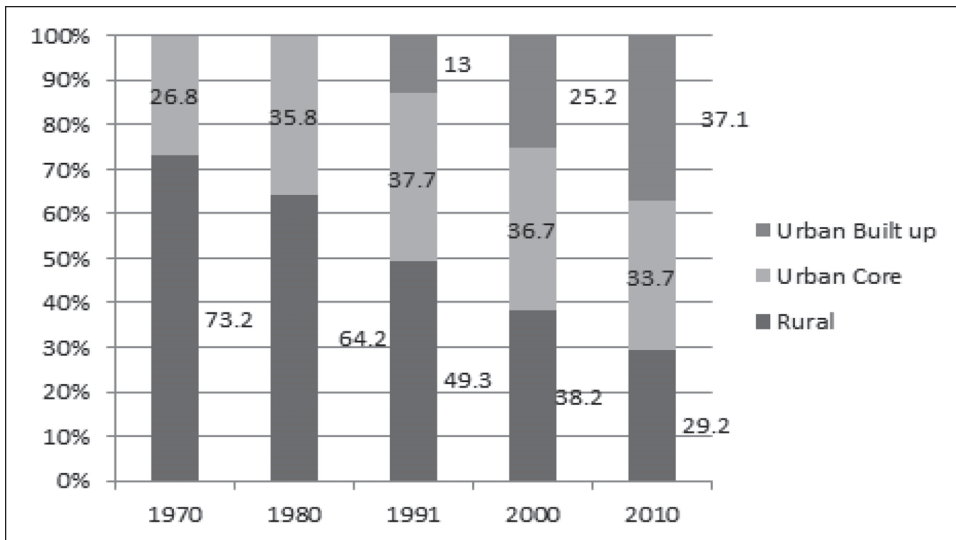


Figure 1. Distribution of population by stratum 1970, 1980, 1991, 2000 and 2010

Table 2. Level of urbanisation by state, Malaysia 1970, 1980, 1991, 2000 and 2010

State	Percentage of urban population				
	1970	1980	1991	2000	2010
Johor	26.3	35.2	47.8	63.7	72.0
Kedah	12.6	22.5	32.5	38.8	64.3
Kelantan	15.1	28.1	33.5	33.5	41.5
Melaka	25.1	23.8	38.7	67.4	86.5
Negeri Sembilan	21.6	32.6	42.0	55.0	65.9
Pahang	19.0	26.1	30.4	42.1	51.0
Perak	27.5	33.8	53.6	59.0	69.2
Perlis	0.0	8.9	26.6	33.8	51.8
Penang	51.0	47.5	75.0	79.5	90.6
Sabah	16.9	19.9	33.2	48.1	53.3
Sarawak	15.5	18.0	37.5	48.0	53.2
Selangor	45.6	40.9	75.2	88.1	91.4
Terengganu	27.0	42.9	44.5	49.4	59.1
Federal Territory of					
- Kuala Lumpur	-	100.0	100.0	100.0	100.0
- Labuan	:	46.3	48.4	72.26	81.8
- Putrajaya	:	:	:	62.8	100.0

Federal Territory of Kuala Lumpur (with 100 % living in urban areas) Selangor and Penang have been the most urbanised states since 1980 (Table 2). The pull factors in these states such as modern infrastructure and employment opportunities have led to an influx of people to the urban centres (Lo and Yue-man 1996).

Table 3. Average annual rate of growth of urban and national population, and tempo of urbanisation by state, Malaysia, 1970-2010

State	Average annual growth rates (per cent)										Tempo of urbanisation (per cent)										
	Urban population					Total population					Urban population					Total population					
	1970-1980	1980-1991	1991-2000	2000-2010	1970-1980	1980-1991	1991-2000	2000-2010	1970-1980	1980-1991	1991-2000	2000-2010	1970-1980	1980-1991	1991-2000	2000-2010	1970-1980	1980-1991	1991-2000	2000-2010	
Johor	5.1	4.7	5.7	3.4	2.1	2.5	2.6	2.2	3.0	2.2	3.1	1.2	3.0	2.2	3.1	1.2	3.0	2.2	3.1	1.2	
Kedah	7.0	4.9	4.0	7.0	1.2	1.7	2.1	1.9	5.8	3.2	1.9	5.1	5.8	3.2	1.9	5.1	5.8	3.2	1.9	5.1	
Kelantan	8.5	4.5	1.0	3.5	2.3	2.9	0.9	1.3	6.2	1.6	0.1	2.2	6.2	1.6	0.1	2.2	6.2	1.6	0.1	2.2	
Melaka	0.5	4.3	8.2	5.2	1.0	1.1	2.0	2.7	-0.5	3.2	6.1	2.5	-0.5	3.2	6.1	2.5	-0.5	3.2	6.1	2.5	
Negeri Sembilan	5.5	3.5	5.0	3.7	1.4	2.1	1.9	1.7	4.1	1.4	3.1	2.0	4.1	1.4	3.1	2.0	4.1	1.4	3.1	2.0	
Pahang	7.4	4.0	5.4	3.5	4.2	2.8	1.9	1.6	3.2	1.2	3.5	1.9	3.2	1.2	3.5	1.9	3.2	1.2	3.5	1.9	
Perak	3.1	4.2	1.6	3.2	1.1	0.7	0.4	1.5	2.0	3.5	1.2	1.7	2.0	3.5	1.2	1.7	2.0	3.5	1.2	1.7	
Perlis	0.0	12.1	3.5	5.5	1.8	2.2	0.8	1.3	:	9.9	2.7	4.2	:	9.9	2.7	4.2	:	9.9	2.7	4.2	
Penang	0.8	4.2	2.3	3.5	1.5	1.5	1.8	2.2	-0.7	2.7	0.5	1.3	-0.7	2.7	0.5	1.3	-0.7	2.7	0.5	1.3	
Sabah	5.4	8.5	8.0	3.4	3.8	5.7	4.0	2.3	1.6	2.8	4.0	1.1	1.6	2.8	4.0	1.1	1.6	2.8	4.0	1.1	
Sarawak	3.9	6.7	5.0	2.9	2.4	2.6	2.1	1.8	1.5	4.1	2.9	1.1	1.5	4.1	2.9	1.1	1.5	4.1	2.9	1.1	
Selangor	18.3	8.7	7.8	3.4	3.7	4.3	6.1	3.1	14.6	4.4	1.7	0.3	14.6	4.4	1.7	0.3	14.6	4.4	1.7	0.3	
Terengganu	7.2	3.8	2.7	3.2	2.6	3.4	1.2	1.4	4.6	0.4	1.5	1.8	4.6	0.4	1.5	1.8	4.6	0.4	1.5	1.8	
Federal Territory of																					
- Kuala Lumpur	3.5	2.0	1.5	2.0	:	2.0	1.3	2.0	:	0.0	0.2	0.0	:	0.0	0.2	0.0	:	0.0	0.2	0.0	
- Labuan	:	7.0	8.2	2.3	4.4	6.5	3.6	1.7	:	0.5	4.6	0.6	:	0.5	4.6	0.6	:	0.5	4.6	0.6	
- Putrajaya	:	:	:	17.8	:	:	:	17.8	:	:	:	0.0	:	:	:	0.0	:	:	:	:	0.0
Malaysia	5.2	5.1	4.8	3.5	2.3	2.6	2.6	2.1	2.9	2.5	2.2	1.4	2.9	2.5	2.2	1.4	2.9	2.5	2.2	1.4	

Between 1991 and 2000, the level of urbanisation for Federal Territory (FT) Labuan and Melaka increased substantially by 28.9 and 28.7 per cent respectively. The increase in urban population in these states was due to heavy in-migration, both internal and international, to the urban centres as well as to built-up areas.

In 2010, the urbanisation level had exceeded 90 per cent in Selangor and Penang. Figure 2 shows the ranking of the states in Malaysia according to the urbanisation levels in the 2000 and 2010 censuses.

During the intervals between successive population censuses, the urban population grew much more rapidly than the total population (Table 3). Between 1991 and 2000, the urban population grew at 4.8 per cent per annum compared to 2.6 per cent for the country as a whole. In the following decade, the growth rate for urban and total population decelerated to 3.5 per cent and 2.1 per cent respectively.

The state with the highest tempo of urbanisation for the period 1991-2000 was Melaka, at 6.1 per cent followed by FT Labuan, at 4.6 per cent. For the period 2000-2010 period, Kedah recorded the highest tempo of urbanisation (5.1%), followed by Perlis (4.2%). The high tempo in urbanisation for these states was partly attributed to the establishment of institutions of higher learning which attracted a large number of students.

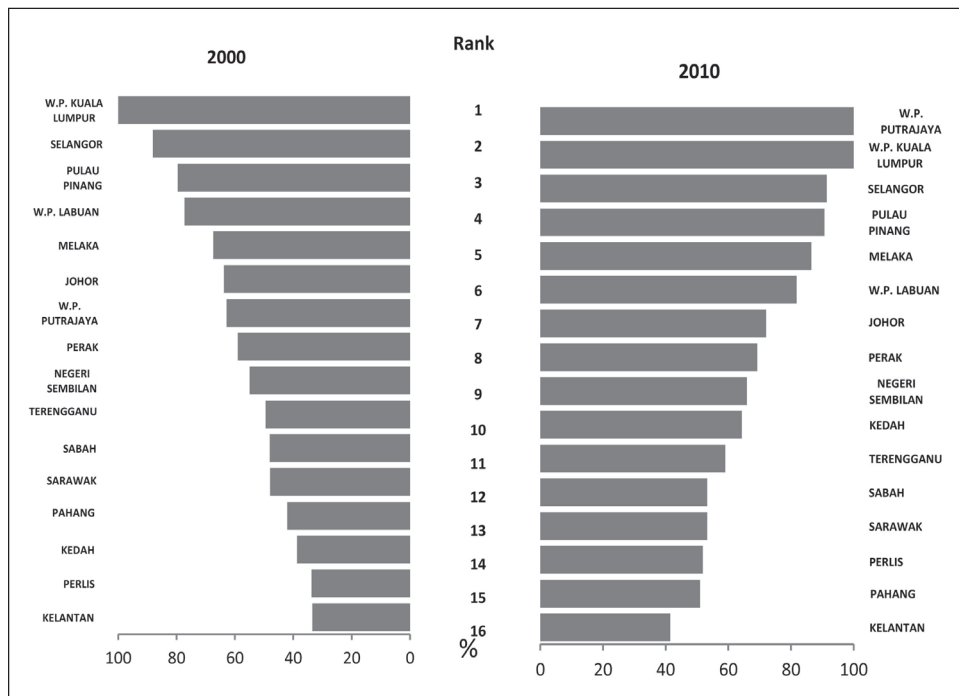


Figure 2. Ranking of urbanisation levels by state, Malaysia 2000 and 2010

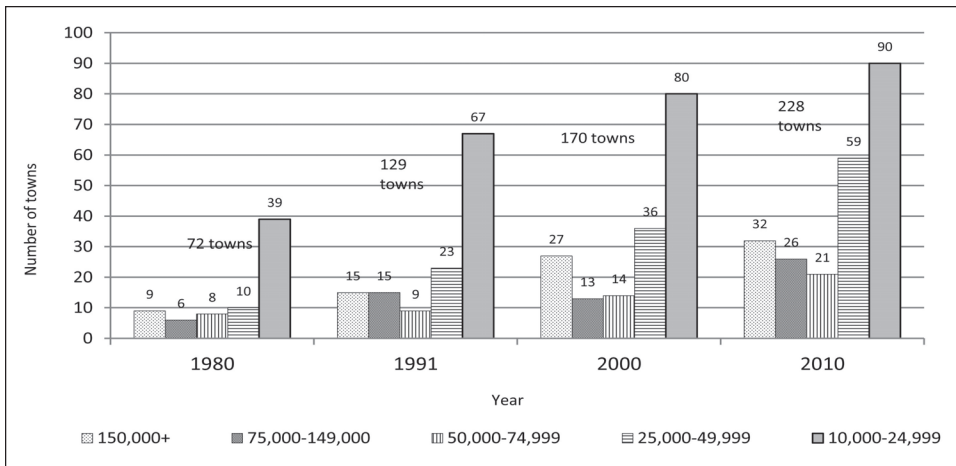


Figure 3. Number of towns by size class, 1980, 1991, 2000 and 2010

4.3 Spatial Distribution of Urban Towns by Size Class

Economic transformation and globalisation in the last few decades have had a direct impact on Malaysia’s development and its urban system. The number of towns has been increasing rapidly, especially the larger ones, as shown in Figure 3. In 1980, there were 72 urban towns and this increased to 228 by 2010.

Most of the towns have moved up the urban hierarchy, that is, they have moved higher up the population size class (Table 4). In 2000, the urban centres with a population of 150,000 and above in Peninsular Malaysia were Kuala Lumpur, Klang, Subang Jaya, Petaling Jaya, Ampang Jaya, Shah Alam, Selayang Baru, Kajang and Sungai Chua, Bt.9 Cheras/Sg.Raya/Taman Suntex in Selangor, Johor Bahru in Johor, Ipoh and Taiping in Perak, Alor Setar and Sungai Petani in Kedah, Melaka Bandaraya Bersejarah in Melaka, Seremban in Negeri Sembilan, Georgetown and Bukit Bertajam in Penang, Kuala Terengganu in Terengganu, Kota Bharu in Kelantan and Kuantan in Pahang. Most of these towns are located in the West coast of Peninsular Malaysia where historical factors had played a vital role in the growth of the economy and population. Since independence, the various government policies have become key factors of population concentration in these areas. Kuching, Miri, Sibu are the two major urban centres in Sarawak; and Kota Kinabalu, Sandakan and Tawau are the major urban centres in Sabah. Between 2000 and 2010, there was an increase of five urban centres, namely Bandar Penggaram, Pasir Gudang, and Kluang in Johor, Sungai Ara in Penang and Kulim in Kedah, bringing the number of large urban centres to 32.

The spatial distribution of growth centres shows that measures taken by the government to have a balanced regional growth have achieved positive results as the number of urban centres has increased rapidly from 170 in 2000 to 228 in 2010 (Figure 4a & 4b). The urban population in Malaysia is well distributed spatially and is not concentrated in one or two major cities. The distribution of towns by population size

Table 4. Distribution of urban centres by population size class, Malaysia, between census years

Population size class	1980			1991			2000			2010		
	No. of urban centres	Population ('000)	Per cent distribution of urban population	No. of urban centres	Population ('000)	Per cent distribution of urban population	No. of urban centres	Population ('000)	Per cent distribution of urban population	No. of urban centres	Population ('000)	Per cent distribution of urban population
150,000 & over	9	2,288.8	56	15	4,799.4	54	27	8,959.1	65	32	12,189.0	63
75,000-149,999	6	624.4	14	15	1,665.5	19	13	1,387.3	10	26	2,567.0	13
50,000-74,999	8	489.7	11	9	538.0	6	14	775.5	6	21	1,241.4	6
25,000-49,999	10	310.0	7	23	810.0	9	36	1,248.2	9	59	1,999.7	10
10,000-24,999	39	579.5	13	67	1,085.8	12	80	1,390.2	10	90	1482.1	8
Total urban towns	72	4,492.4	100	129	8,898.6	100	170	13,760.3	100	228	19,479.1	100

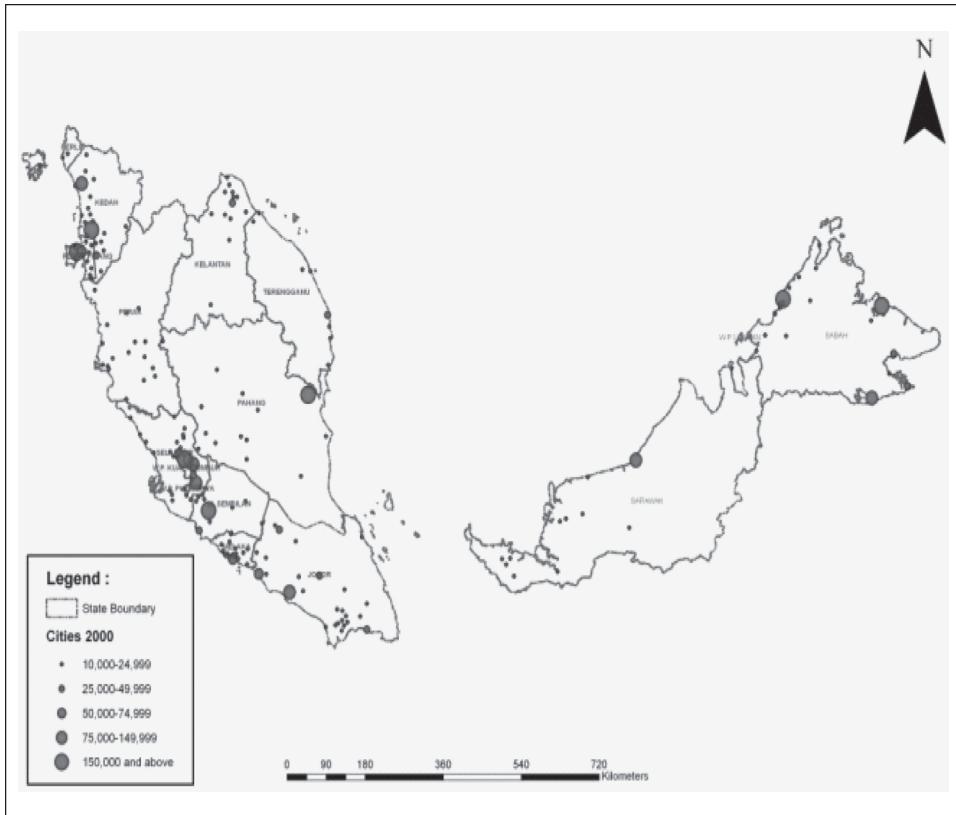


Figure 4a. Spatial distribution of towns by size class, Malaysia 2000

class at state level is shown in Table 5. In 2000 and 2010, Selangor and Johor maintained their position as the states with the highest and second highest number of urban centres. However, Kedah experienced the fastest growth of towns, from 8 centres in 2000 to 21 within a period of 10 years.

Initiatives embarked in the Ninth Malaysia Plan (Malaysia 2006) have resulted in the emergence of five growth corridors. The current Tenth Malaysia Plan (10th MP) continues to place emphasis on balanced regional growth at the national and state levels. Development efforts are geared toward making compact and efficient cities that are attractive and liveable. Several mega urban regions arising from urban conurbation have emerged in the Klang Valley (Greater KL), Georgetown-Seberang Prai (earning its status as a World Heritage City by UNESCO), Johor Bahru-Pasir Gudang urban corridor having a strategic location along major shipping lanes, with an added advantage of being in the proximity of Singapore. The other urban conurbations of Kuantan, Kuching and Kota Kinabalu all serve as cultural and economic hubs of their respective region.

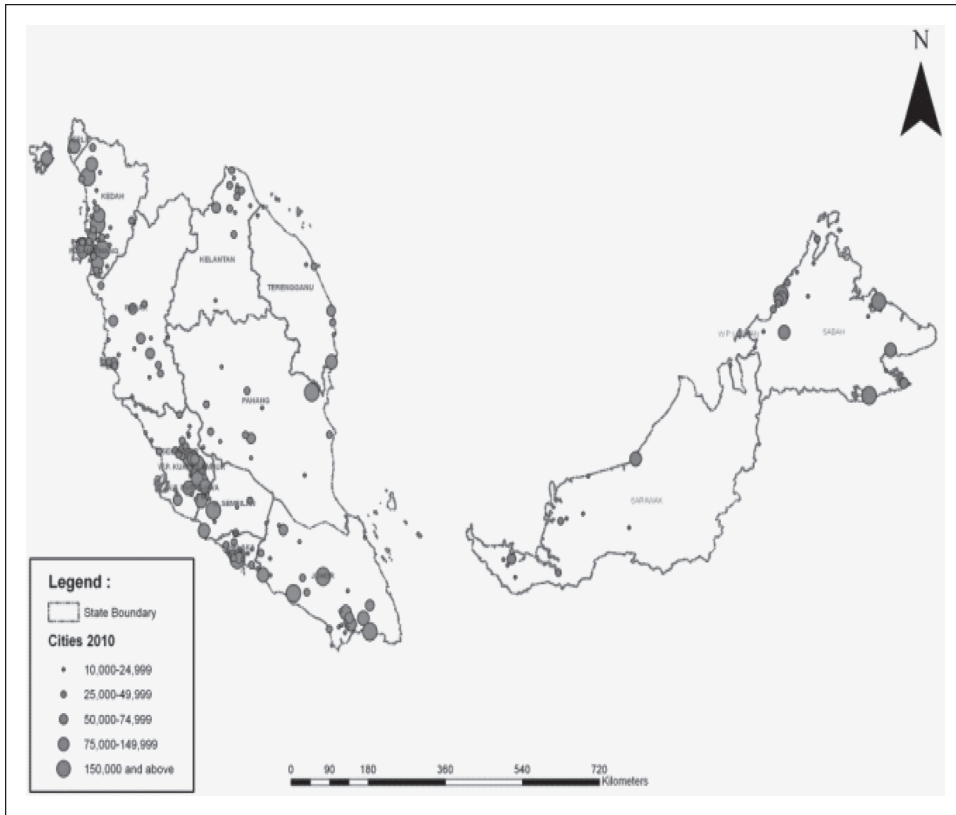


Figure 4b. Spatial distribution of towns by size class, Malaysia 2010

4.4 Metropolitan Towns

In 2010, there were 58 metropolitan towns with a population of 75,000 and more (Table 6). The number of metropolitan towns in Peninsular Malaysia increased from 33 in 2000 to 48 in 2010. In Sabah, the number of metropolitan towns remained at three between 1991 and 2000, but increased to 6 in 2010. In Sarawak, the number of metropolitan towns remained at four. In 2010, Kuala Lumpur remained the primate city with a population size almost twice that of Klang, the next largest city (Table 6).

The primacy of cities varies considerably across states. The largest towns in most of the states have grown much faster than the second and the third largest towns (data not shown). This implies that the development effort at state level tends to be focused in the largest towns, which serve as the administrative, commercial and industrial hub.

Table 7 depicts the population concentration of the largest metropolitan town in Malaysia relative to the next ten largest metropolitan towns in 2000 and 2010. Under the rank-size rule condition for the 11 largest cities, the PI would be 0.5, that is $C_1 / (C_2 + C_3 + C_4 + \dots + C_{11})$. The index for the largest city in relation to the next ten metropolitan towns was 0.30 in 2000, and 0.28 in 2010, indicating that the concentration in the primate city has

Table 5. Distribution of urban centres by population size class and state, Malaysia 2010

State	500,000 and more	150,000- 499,999	75,000- 149,999	50,000- 74,999	25,000- 49,999	10,000- 24,999	Total
Number of urban towns							
Johor	1	3	4	3	4	14	29
Kedah	-	3	3	-	6	9	21
Kelantan	-	1	-	-	7	5	13
Melaka	-	1	-	3	5	8	17
Negeri Sembilan	-	1	2	-	2	5	10
Pahang	-	1	-	1	5	7	14
Perak	1	1	1	4	8	6	21
Perlis	-	-	1	-	-	1	2
Penang	-	3	4	2	5	2	16
Sabah	-	3	3	2	5	7	20
Sarawak	1	2	1	1	2	8	15
Selangor	3	5	6	2	8	14	38
Terengganu	-	1	1	1	2	4	9
Federal Territory of							
- Kuala Lumpur	1	-	-	-	-	-	1
- Labuan	-	-	-	1	-	-	1
- Putrajaya	-	-	-	1	-	-	1

become less pronounced. The drop in the index is attributed to several factors. Firstly, the rate of population growth in Kuala Lumpur declined over the 2000-2010 inter-censal period due to net out-migration from the core areas of the cities. Secondly, the high growth rate of other towns brought about by rural-urban migration had also contributed to the decline in the primacy index between 2000 and 2010.

5. Conclusion

Data from the population censuses show that urbanisation levels and urban growth centres are increasing in numbers. The number of urban centres increased from 72 in 1980 to 228 in 2010. The urbanisation level increased correspondingly from 61.7 per cent in 2000 to 70.9 in 2010 (9.2% increase).

In terms of spatial distribution, the 2010 data reveal that Malaysia does not experience the emergence of one all-dominant megacity. The metropolitan towns are located in almost all states with the largest serving as state capitals. Mega urban regions arising from urban conurbations have emerged in the Klang Valley, Georgetown Seberang Prai and Johor Pasir Gudang urban corridor. Besides an increase in the number of metropolitan towns, the larger urban centres have expanded outwards of their gazetted boundaries to sprawl to the open spaces of adjacent areas.

Table 6. Distribution of metropolitan towns in Malaysia, 2010

Rank	Metropolitan towns	Population ('000)	Rank	Metropolitan Towns	Population ('000)
1	Kuala Lumpur	1588.8	30	Kluang	159.6
2	Klang	826.4	31	Sungai Ara	153.1
3	Johor Bahru	809.9	32	Bandar Penggaram	152.2
4	Subang Jaya	718.2	33	Gelugor	145.6
5	Ipoh	665.6	34	Kulai	136.4
6	Petaling Jaya	614.0	35	Bintulu Townland	135.1
7	Kuching	511.5	36	Ampang/Ulu Kelang	126.3
8	Shah Alam	443.2	37	Butterworth	123.9
9	Kota Kinabalu	414.4	38	Bandar Maharani	121.1
10	Kuantan	384.3	39	Lahad Datu	107.9
11	Seremban	374.4	40	Air Itam	104.8
12	Ampang	342.7	41	Sekudai	101.9
13	Sandakan	324.2	42	Balakong	101.8
14	Kuala Terengganu	315.6	43	Rawang	98.6
15	Kajang & Sg. Chua	307.2	44	Semenyih	95.7
16	Kota Bharu Bandaraya Islam	297.7	45	Kangar	95.2
17	Tawau	257.4	46	Ulu Tiram	93.6
18	Alor Setar	254.8	47	Bedong (Kedah)	88.8
19	Taiping	245.2	48	Val Dor (Penang)	88.6
20	Bukit Mertajam	236.7	49	Donggongon (Sabah)	86.2
21	Bt.9 Cheras/ Sg.Raya/Tmn.Suntex	232.1	50	Kemaman (Chukai)	86.1
22	Miri	225.9	51	Tmn.Greenwood/ Tmn.Gombak	80.2
23	Selayang Baru	205.1	52	Nilai	80.1
24	Georgetown	198.3	53	Keningau	80.0
25	Sungai Petani	195.1	54	Cyberjaya	79.2
26	Pasir Gudang	189.0	55	Port Dickson	78.3
27	Kulim	183.5	56	Teluk intan	78.1
28	Sibu	181.5	57	Kuah	77.7
29	Melaka	181.4	58	Jitra	75.9

Rapid urbanisation without strong urban governance through policies and economic incentives to decentralise will result in over-concentration in large cities with attendant problems and regional imbalances. In Malaysia, the implementation of long term perspective plans such as Outline Perspective Plans, the Five Year National Development Plans has helped to monitor and regulate development fairly successfully. Also the National Physical Plan 2005 and the Urbanisation Policy have further enhanced the urban development of Malaysia more efficiently and strategically. Urban planners and managers have to respond to transformation where there is a need to make cities compact and efficient and at the same time create attractive and liveable cities.

Table 7. The population size of major metropolitan towns, and primacy index, Malaysia 2000 and 2010

Rank	2000		2010	
	Metropolitan towns	Population ('000)	Metropolitan towns	Population ('000)
1	Kuala Lumpur	1,305.7	Kuala Lumpur	1588.8
2	Johor Bahru	642.9	Klang	826.4
3	Klang	626.6	Johor Bahru	809.9
4	Ipoh	536.8	Subang Jaya	718.2
5	Subang Jaya	437.1	Ipoh	665.6
6	Petaling	432.6	Petaling Jaya	614.0
7	Kuching	422.2	Kuching	511.5
8	Ampang Jaya	357.9	Shah Alam	443.2
9	Shah Alam	314.4	Kota Kinabalu	414.4
10	Kota Kinabalu	306.9	Kuantan	384.3
11	Seremban	290.7	Seremban	374.4
	Primacy Index =	0.30	Primacy Index =	0.28

Note: The formula for the rank-size rule is $C_k = (C_1/k)$ and the Primacy Index (PI) = (C_1/C_k) where C_1 is the population of the largest city and C_k is the population of the k^{th} largest city and $k= 2, 3, \dots, n$.

References

- Abdul Rahman bin Hasan. 2011. *Population and Housing Census of Malaysia 2010. Population Distribution by Local Authority Areas and Mukims*. Putrajaya: Department of Statistics Malaysia
- Aziz bin Othman. 2005. *General Report, Population and Housing Census Malaysia 2000*. Putrajaya: Department of Statistics Malaysia.
- Chander, R. 1977. *1970 General Report, Population Census of Malaysia, Volume 1*. Kuala Lumpur: Department of Statistics Malaysia.
- Department of Statistics Malaysia, various issues. 2006. *Population and Housing Census*. Putrajaya: Department of Statistics Malaysia.
- Department of Statistics Malaysia, various issues. 2011. *Population and Housing Census*. Putrajaya: Department of Statistics Malaysia.
- Hamzah, Sendut. 1962. Patterns of urbanization in Malaya. *Journal of Tropical Geography* **16**: 114-130.
- Ho, Chin Siong. 2008. Urban governance and rapid urbanisation in Malaysia. *Jurnal Alam Bina* **13 (4)**: 9.
- Gavin, Jones and Mike Dougals (ed.). 2008. *Mega Urban Regions in Pacific Asia: Urban Dynamics in a Global Era*. Singapore: National University of Singapore Press.
- Katiman, Rostam. 2000. *Pembangunan dalam era globalisasi: Beberapa kesan terhadap ruang ekonomis desa di pinggir metropolitan*. In *Prosiding Seminar Alam, Manusia & Pembangunan di Malaysia*, ed. Katiman Rostam, pp. 195-205. Bangi: Universiti Kebangsaan Malaysia.
- Khoo, Soo Gim and Kate Van Kit Yee. 1996. *Urbanisation and Urban Growth in Malaysia, Monograph Series Population Census 1991, No. 1*, Department of Statistics Malaysia.

- Khoo, T.H. 1986. *1980 Population and Housing Census of Malaysia, Population Report by Local Authority Areas*. Kuala Lumpur: Department of Statistics Malaysia.
- Khoo, T.H. 1992. *Population and Housing Census of Malaysia, 1991 Preliminary Count for Urban and Rural Areas*. Kuala Lumpur: Department of Statistics.
- Lo, Fu-chen and Yue-man Yeung. 1996. *Emerging World Cities in Pacific Asia*. Tokyo: United Nations University Press.
- Malaysia. 2006. *Ninth Malaysia Plan (2006-2010)*. Kuala Lumpur: Government Printers.
- Malaysia. 2011. *Tenth Malaysia Plan (2011-2015)*. Kuala Lumpur: Government Printers.
- Norhaslina Hassan. 2009. Issues and challenges of sustainable urban development in Malaysia. In *Sustainable Urban Development Issues in Malaysia*, ed. Nurhaslina Hassan, pp. 1-22. Selangor: Dewana Sdn. Bhd.
- McGee, T.G. 1975. An aspect of urbanisation in South East Asia: The process of city ward migration. In *Reading in Social Geography*, ed. E. Jones, pp. 224-239. London: Oxford University Press.
- United Nations. 1982. Migration, urbanisation and development in Malaysia. In *Comparative Study on Migration, Urbanisation and Development in the ESCAP Region*. New York: United Nations.
- Yeoh, S.P. and C. & Hirschman. 1980. Urbanisation and urban growth during colonial rule and independence in Peninsular Malaysia. *Review of Indonesia and Malaysian Affairs* 14(1): 1-22.