

POLICIES AND ISSUES CONCERNING URBAN SPRAWL AND COMPACT DEVELOPMENT PARADIGM ADOPTION IN GREATER KUALA LUMPUR, MALAYSIA

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Abstract

The Greater Kuala Lumpur region is facing the daunting challenge of urban sprawl. Sprawl puts immense pressure on urban land in the city, but also on agricultural land in the periphery, as well as on other natural resources. Urban sprawl contributes to high energy consumption for commuting, longer time spent commuting, and increased pollution due to vehicular carbon emissions. New city forms such as compact development have been suggested as a response to this unsustainable urban development. Based on a review of relevant urban development policy documents and in-depth interviews with government officials, academics and think-tanks, this study identifies the factors responsible for urban sprawl, such as (1) the availability of cheap land on the periphery of the city (2) an absence of a growth limit boundary/greenbelt to contain sprawl, and (3) the concentration of investment in the Greater Kuala Lumpur region by the government to gain city competitiveness. The paper illustrates the commendable initiatives taken by the planning agencies to achieve more compact development in Kuala Lumpur. It also identifies some gaps in those policies and planning practices, and suggests strategies for overcoming those gaps to achieve the goal of making cities compact, attractive, and livable.

Introduction

Malaysia, a federation of 13 states and three federal territories, became an independent country in 1957, and in recent years has emerged as one of the most vibrant economies in Southeast Asia. Nearly 73 percent of its total population live in the cities, making it one of the most urbanized countries in the region. Kuala Lumpur (KL), the capital and most populous city of Malaysia, has a population of 1.67 million [1]. The Greater Kuala Lumpur region, which includes the city and nine surrounding municipalities, is significantly larger, as shown in Figure 1.

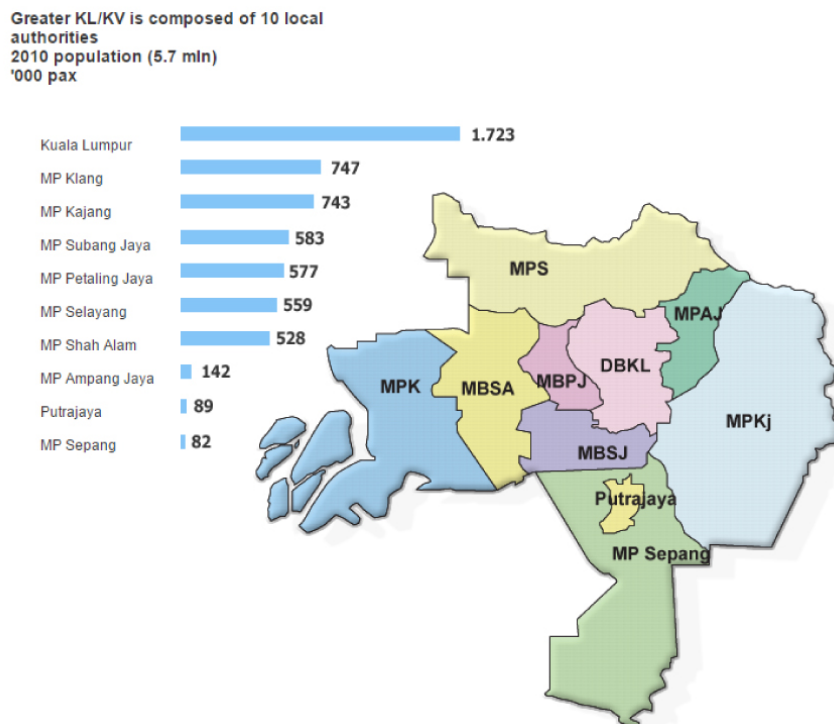


Figure 1. Composition of Greater KL¹

The population of Greater Kuala Lumpur increased from approximately 3.1 million in 1990 to 5.96 million in 2009, while its area increased from 621 square km (1990) to 1,555 square km (2009)[2]. In other words, the average annual rate of geographic expansion (4.9 percent) exceeded the average annual increase in population (3.6 percent). The phenomenon of sprawled development encroaches into the area of Selangor State cities surrounding the KL city, and it is going on unabated [3, 4]. This pattern of growth has therefore prompted references to it as a “mini-Los Angeles” [5].

Sprawl in Greater Kuala Lumpur has led to a depletion of agricultural land on the urban periphery. It also contributes to higher

energy consumption for commuting, lengthier commutes, and increased pollution due to vehicular gas emissions [6]. Limiting urban sprawl is therefore an important aspect of greenhouse gas (GHG) reduction, and in making cities environmentally sustainable [2]. Key factors contributing to sprawl include high land prices in the city core, availability of comparatively cheap land on the outskirts of KL city, the high quality of the natural environment, affordable housing prices, and lower cost of living [7]. Increase in car ownership—as well as improvements in the road network and public rail transit—also have contributed to urban sprawl [4].

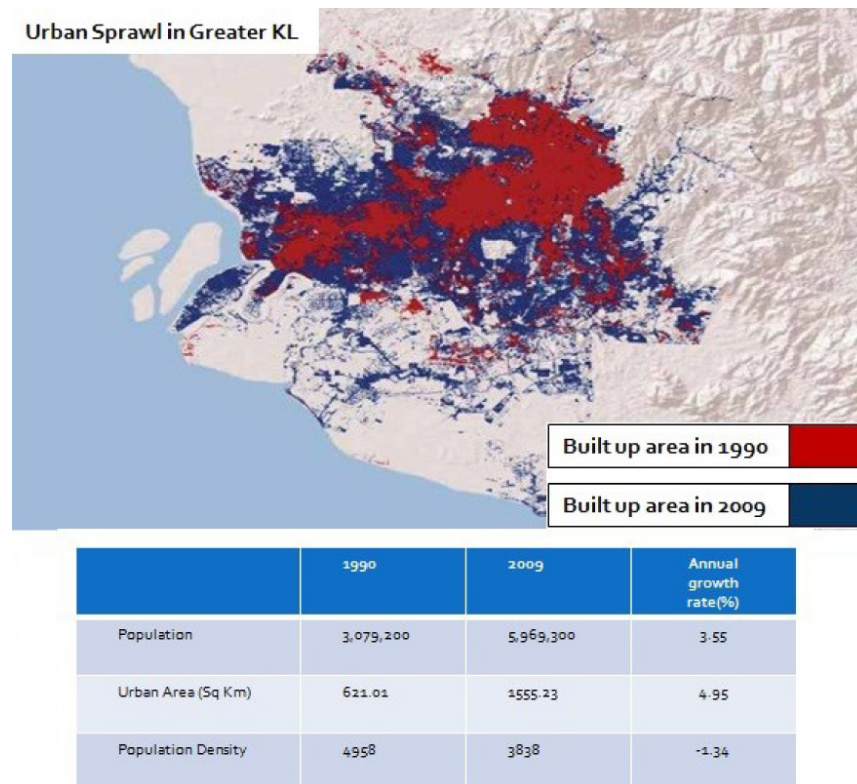


Figure 2. Urban sprawl in Greater KLⁱⁱ

The costs of urban sprawl also include high energy costs, environmental costs, inflated costs of infrastructure/services, loss of open spaces, and downtown decay [8]. Kuala Lumpur today faces challenges that pose a threat to the Malaysian government’s vision of making Kuala Lumpur a world-class city by the year 2020. New urban forms (i.e. “new urbanism”) and compact development have been suggested as ways to limit urban sprawl [9, 10]. Regulatory policies can play a vital role in achieving the goal of compact and sustainable cities [11].

This paper considers the following questions:

1. What contributes to urban sprawl in greater KL?

2. What existing land use policies and practices could lead to more compact city development?
3. What are the potential barriers to implementing policies for achieving the goal of a compact city development?

Literature review

Urban sprawl and its impacts

The phenomenon of urban sprawl started in the second half of the twentieth century. It is characterized by a number of indicators, including low density of housing and commercial buildings, excessive use of privately owned automobiles, lack of public transport, congestion, environmental degradation, and lack of a sense of community among local residents [12,13, 14,15]. A number of theories—such as the so-called “natural evolution” of cities, the mono-centric city model [16], and the “flight from blight” [17]—have attempted to explain the phenomenon and causes of urban sprawl.

Urban growth can occur either by expanding outwards (i.e. sprawl) or by increasing the density of existing area (i.e. densification). Factors that contribute to sprawl include increases in economic activity at the periphery, availability of low-cost land, cultural values that attach greater preference to living in low-density areas, and construction of transport infrastructure aimed at reducing the cost of commuting. A review of the form of 20th-century cities, especially in the United States and Australia, indicates that urban growth in such cities has been dominated by the factors that cause sprawled development [18].

In the case of the United States, the key contributors to urban sprawl include high rates of car ownership, suburban housing subsidies, and federal investments in an elaborate interstate highway system [9]. Most Asian cities have followed the development patterns of American cities, often to their detriment. For example, China was known as the “kingdom of bicycles,” until the government started encouraging people in 1994 to buy locally made cars to boost the national car industry [19]. Malaysia has also experienced increasing car ownership. Metropolitan Kuala Lumpur sees the registration of 1,000 new vehicles every day, and only 20 percent of all journeys in the city are made by public transport [20].

Factors that encourage compact development, on the other hand, include increases in energy cost, which makes long commutes very expensive; the increasing value of time in modern competitive life; urban planning tools (e.g. installation of greenbelts) that constrain spatial growth; and the development of efficient and affordable public transportation systems [2].

Setting up greenbelts/growth boundaries to contain urban sprawl

Greenbelts and urban growth boundaries are often used to constrain urban development. Greenbelts can be used to promote higher density, save prime agricultural land, provide recreational places, and conserve natural forests. Moreover, greenbelts encourage compact development, which reduces the cost of infrastructure [21]. The history of greenbelts can be traced back to Europe in the nineteenth century, particularly in England, where greenbelts circle around London, Liverpool, Manchester, Leeds, York, and Birmingham, among others. The same planning tool has also been employed by a number of other rapidly developing cities across the world, such as Seoul, Sao Paulo, and Tokyo [21].

Greenbelts have also been used in the United States, but with mixed results. Factors that contributed to this limited success include pressure from real estate interests, problems of multiple jurisdictions leading to a lack of coordination to implement the strategies, pro-development interest groups, and pressure to increase the housing supply to accommodate a growing population. The New York region is an exception to this pattern; it succeeded in keeping a large area of open space intact on the urban periphery mainly because of proactive advocacy of the Regional Planning Association.

In recent years, greenbelts in the United States have been re-imagined, and are now taking the form of a growth boundary or growth limit. They are used, in other words, to limit the spread of the city by prohibiting development beyond the defined urban boundary/limit, or by making it extremely expensive for developers to pay for the provision of infrastructure in the area to be developed beyond the urban growth limit. About twelve cities or counties in the States have employed this tool of urban growth management. One of the best known examples of implementing a growth boundary concept is Portland, Oregon. Its key purpose was to encourage higher density in the city, and it was supported by the installation of a massive public transit system [21]. However, the growth boundary in Portland also met with stiff opposition from interests groups—such as developers and owners of nearby agricultural land—thereby making it difficult for planning agencies to keep the greenbelt intact.

The history of establishing greenbelts in developed as well as in rapidly developing countries reveals that this urban control strategy produced positive effects when it was coupled with promoting higher densities served by public transportation [21]. The discussion in preceding paragraphs reflects that understanding. Although urban growth containment through the use of greenbelts or growth boundaries is questioned by developers and others groups with vested interests (such as owners of agricultural land nearby the city), it is still a common planning

tool in practice, and helps increase density in urban areas and makes public mass transit more viable.

In the case of Malaysia, even though the National Urbanization Policy has stated the need to establish an Urban Growth Limit (UGL), the implementation of such a policy has not been successful. This is reflected by the phenomenon of ribbon development that has been occurring along the major highways that link the states.

The compact city development approach

Greenbelts and growth boundaries contribute to what is known as the “compact city”—a term that was coined by Dantzig and Saaty in their book, *Compact City: A Plan for a Livable Urban Environment* [22]. The fundamental characteristics of the compact city include mixed-use development, an emphasis on public transportation, urban regeneration, strict controls on development outside the city boundary, and pedestrian-friendly pavements [23, 24]. It has been suggested that a compact and sustainable city “must be of a form and scale appropriate to walking, cycling and efficient public transport and with a compactness that encourages social interaction” [25]. The best and most replicable examples of compact cities are Curitiba (Brazil), Singapore, Hong Kong (China), Freiburg (Germany), and the aforementioned Portland (USA).

Much of Curitiba’s success can be traced to investment in public transportation, the integration of pedestrian and bicycle paths into the larger road network and transportation plan, and regulations that encourage high-density and mixed land-use development around the transportation hubs [26].

Effective land management policies are among the most critical factors in promoting sustainable cities. Implementing such policies can be achieved only when city government have the knowledge and understanding of the effects of density, infrastructure, zoning, public transportation and other factors. The local authorities also need professional staff that can ensure skillful and prudent use of planning tools such as zoning, minimum lot size, floor area ratio, and height limits [26], as well as a thorough understanding of how to use greenbelts and growth boundaries as a planning tool to contain the urban growth.

Research methodology

As discussed in the introduction to this paper, our research attempts to seek answers to the questions pertaining to the urban sprawl that occurs in greater KL, land use policies and practices that could lead to more compact city development, and potential barriers to implementing compact development policies.

Qualitative research methods, comprising content analysis of policy-related documents and in-depth interviews, have been employed for

this research. The documents reviewed include National Urbanization Policy (2006)[10], National Physical Plan-2 (2010) [27], 10th Malaysian Plan 2011-2015 [28], Kuala Lumpur Structure Plan 2020 [29], Kuala Lumpur Draft City Plan 2020, and the Selangor State Structure Plan 2020. In-depth semi-structured interviews of an average duration of one hour and 15 minutes were conducted with six individuals, including government officials, academics, and members of non-governmental think-tanks concerned with urban development in Kuala Lumpur.

Analysis and discussion of policies and practices

Interviews with the government officials of urban planning departments reveal that urban sprawl occurred due to outward migration from Kuala Lumpur city to the districts of Gombak and Petaling in the neighboring state of Selangor.

Dr. Jamalunlaili—Council Member, Malaysia Institute of Planners and Associate Professor, at Universiti Teknologi MARA (UiTM) in Shah Alam—confirmed that urban sprawl in Kuala Lumpur (KL) is a serious issue.ⁱⁱⁱ Development is burgeoning further and further away from Kuala Lumpur (in many cases, to the suburbs in the state of Selangor) largely because of the high cost of living in Kuala Lumpur. He further stated that large-scale urbanization occurred between 1991 and 2000, and during that time, some 10 municipalities outside of Kuala Lumpur grew by 8 percent per year, while Kuala Lumpur grew by 1 percent, and while the overall growth in Malaysian population averaged 2.2 percent per year.

Jamalunlaili explained that in certain cases, speculation may be a cause of urban sprawl, but that for the most part, sprawl occurs due to the availability of cheaper land on the periphery of the city. Moreover, the construction of highways—making land accessible in areas farther away from the main city—also prompts urban expansion in other municipalities surrounding KL, such as Petaling Jaya City Hall, Sepang Municipal Council, and Ampang Municipal Council. Similarly, Chua Rhan See, Principal Assistant Director, Federal Department of Town and Country Planning, described the availability of cheaper housing on the outskirts of the city as the main causes of urban sprawl in the KL metropolitan region.

Key policy documents favor compact development

A strategy for reducing sprawl suggested by the National Physical Plan (NPP-2), 2010, emphasizes increased concentration in existing urban areas in Greater Kuala Lumpur. The NPP-2 and National Urbanization Policy, 2006, provided a foundation for the preparation of the Kuala Lumpur Structure Plan 2020 and the Kuala Lumpur City Plan 2020. The latter document also emphasizes increasing density and mixed land-use, especially in the center of the city. The local plan (Kuala Lumpur City Plan 2020) attaches a high priority to infill development, and also

encourages the redevelopment of existing but deteriorated dwellings into high-density and good quality housing.

City government initiatives for promoting compact development

The city government—in line with the policies suggested in National Physical Plan (NPP-2), Kuala Lumpur Structure Plan 2020, and the Kuala Lumpur City Plan 2020—has taken steps to promote compact development in the city. The KL Central Project is one example of infill development characterized by high density, mixed land use (residential, commercial, and office buildings) and a focal point for public transit (Teriman et al., 2009). Similarly, the KL city government has identified an inventory of 821 hectares of vacant and abandoned land in the city core and surrounding area that could be used more efficiently.

Increased attention is also being paid to the rehabilitation of historic buildings and public open spaces. Central Market, Petaling Street, and Masjid Jamek are examples of some of these rehabilitated areas. The rehabilitation initiatives in these areas include repaving streets; covering parts of the street covered with attractively designed shades; landscaping; the preservation and maintenance of traditional old buildings; and making certain areas accessible only to pedestrians. Collectively, these efforts promote walking, and make the city center a more attractive and livable place.

These policies and practical initiatives undertaken by the planning agencies indicate that those agencies are serious about increasing density and making development more compact in the city core. An in-depth interview with Julie Binti Samsudin, senior Manager at SPAD (Land Public Transport Commission) confirms that planning agencies are committed to implementing the compact urban development policies enshrined in the National Physical Plan 2010 and the Kuala Lumpur City Plan 2020. Providing efficient public transport, she says, is a top priority, and in fact it was that realization that led to the establishment of SPAD in 2010. Public transport stands as one of the National Key Results Areas (NKRA) aimed at putting Kuala Lumpur on the list of the top 20 livable cities—and one of the top 20 economies in the world—by the year 2020. Improving the service and connectivity of different areas in the city through public transport is the main focus area of the department. Samsudin stresses that a comprehensive master plan for the provision of excellent public transport service in the next 30 years has been prepared, in which rail-based public transport will serve the KL city, while buses will provide the main mode of transportation to connect KL with surrounding regions.

Heavy investments in mass transit system have been made to increase public transport ridership rate from the current 20 percent to 50 percent by the year 2030. The rail network for urban as well as suburban areas in Greater KL has expanded since 1990, and now connects different

district regions with 200 km of rail track [30]. The target set by Kuala Lumpur Structure Plan, 1984, for public transportation, especially for the Light Rail Transit (LRT) has successfully been achieved. However, a significant modal shift from private cars to public transport still needs to materialize [29].

The rail-based public transport system in the KL metropolitan area came into operation in 1996, and since then has expanded incrementally. The central area of the city is served by a Light Rail Transit (LRT) System and KL Mono Rail. Together, they provide some 60 kilometers of rail network. A commuter train, KTM Komuter, makes the city core accessible for suburban areas of the KL metropolitan area. Similarly, a dedicated express train connects the city center with the KL international airport.

The Mass Rapid Transit (MRT) project started in 2011. Once complete, it will comprise three rail lines connecting suburban areas in Greater KL to the central city. The first line, scheduled to be completed within two years, will serve a population of about one and a half million people. A single train on the line—with a maximum capacity of 1,200 passengers—will be able to replace 12 buses, or approximately 700 cars.

In addition to improving its rail-based public transport, KL is also increasing its public buses. Five Bus Express Transit (BET) routes are currently in operation, with the goal of reducing travel time from the outer areas of the city center. Moreover, a comprehensive Bus Rapid Transit (BRT) plan with dedicated bus lanes has also been proposed to make buses a faster and more efficient mode of public transportation.

Kuala Lumpur City Government has also started paying more attention to transit-oriented development and, as a first step, has identified nearly 70 transit planning zones (TPZ). A TPZ is an area of 250 meter radius around a mass transit station. Its development is characterized by high building density, along with mixed land uses. Intensification of land use in the identified TPZs—by replacing single-storey buildings with high-rise ones, and encouraging mixed land-use—is already underway.

The successes described in the preceding paragraphs, however, tell only one side of the story. In the absence of established growth boundaries on urban development, expansion of rail and road networks in the Klang Valley region may also cause further urban sprawl in that region. Moreover, in spite of all investment in mass transit, private vehicles are still a preferred choice, as is reflected by the fact that the ratio of registered cars and motorcycles was 985.7 vehicles per 1000 population in the year 2000, and cars account for more than 56 percent of all motorized trips in KL. Some of the key reasons for this preference—as revealed in the planning policy-related documents and echoed during the interviews—include the availability and affordability of parking in the city center, the cheap price of fuel, the availability of relatively inexpensive

motor vehicles, a lack of integration of rail-based stations, and low frequency of feeder buses [29].

The planning authorities seem well aware of the challenges of traffic congestion and the difficulties of discouraging people from using private vehicles in and around the city. In response, the KL City Plan 2020, as well as agencies such as SPAD (Land Public Transport Commission), have adopted a number of strategies, including (1) staggered starting hours for schools, government offices, private sector offices, and commercial activities; (2) incentives for promoting carpooling to reduce the number of single-occupant vehicles entering the city center; (3) the introduction of “congestion pricing” to discourage cars entering the city center and congested areas and (4) increasing parking fees. The full implementation of these strategies, however, can only take place after more efficient public transport facilities are in place in the city.

Divergence between urban development policies in controlling urban sprawl and achieving compact development

This section of the paper identifies some of the fundamental gaps in urban development policies that could be a barrier to controlling urban sprawl and achieving compact development.

Overlooking the importance of greenbelt or growth boundary concept

Although the urbanization policy of Malaysia crafted in 2006 calls for the delineation of urban growth boundaries, those boundaries have never been implemented, due to a lack of coordination between federal and local government. More recent urban planning documents—such as the 10th Malaysia Plan (2011-2015), KI Structure Plan 2020, and KL City Plan 2020—emphatically underscore the need to respond to urban sprawl, but are silent on the issue of implementing urban growth boundaries. Adopting compact city development policies and installing a mass transit system have been assumed to be sufficient to deal with sprawl, but the likelihood of those strategies succeeding in the absence of city growth boundaries seems minimal, in part because growth boundaries can be helpful in establishing a successful mass transit system [21].

There appears to be a gap between the planning policies that tried to curb urban sprawl and the development-control procedures that failed to deter development along major transportation routes. For example, large residential estates and new townships such as Saujana Putra, Putra Heights, Nilai Impian, among others, were allowed to develop along the highway linking the states. The rapid pace of urbanization in Malaysia included a concentration of population in a number of contiguous suburbs—sometimes called “conurbations”—surrounding and merging into

the large cities. The Kuala Lumpur conurbation, comprising Kuala Lumpur, Putrajaya, Shah Alam, Klang, Nilai, and Seremban, has been declared the “National Growth Conurbation” (National Physical Plan, 2010). In order to promote urban economic competitiveness, the economic resources will be concentrated in identified growth conurbations, especially in the national growth conurbation. Figure 3 shows the identified Growth Conurbations.

The tenth Malaysia Plan (2011-2015)[28] points out that the Greater KL conurbation has been identified as a National Key Economic Area, or NKEA^{iv}. Major projects and initiatives are planned for the Tenth Plan, towards transforming Greater KL into a leading global city.

It is assumed that the concentration of heavy investment in KL city and the KL conurbation will attract more people from the other parts of the country, and cause further urban sprawl in Greater KL [3]. The expected urban sprawl in the KL conurbation could conceivably be controlled by through the establishment of greenbelts and growth boundaries of the cities in the conurbation; however, the tenth Malaysian plan did not mention such strategies. One explanation may be that the planning departments intend KL and its conurbation to merge together, creating a “mega-city.”

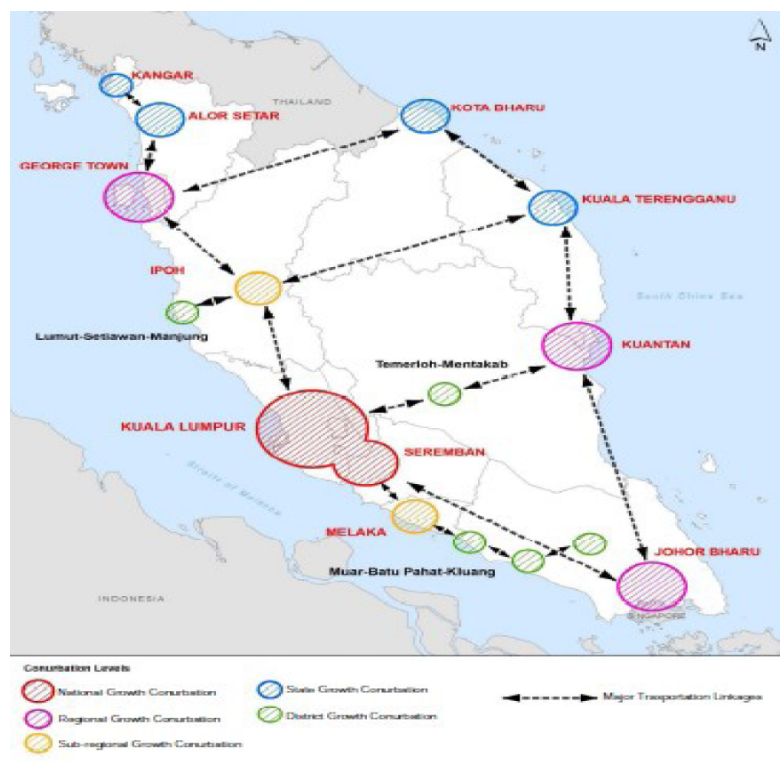


Figure 3. National and regional growth conurbations^v

Or, alternatively, they may see such an outcome as inevitable. For example, Dr. Dolbani Mijan—Deputy Director General, Federal Department of Town and Country Planning—suggests that the continued growth of KL and the satellite towns around it seems unavoidable, and assumes that at some point in time, a mega-city will indeed emerge. That is not an outcome for which he advocates; instead, he argues for making KL a compact city with a population of not more than 3 million, to avoid creating a mega-city similar to Dhaka or Jakarta, with their populations of between 10 and 15 million.

This state of affairs makes it all the more important to employ the planning tools of greenbelts and growth boundaries to contain the growth of cities in a metropolitan region. But these planning tools won't be effective without effective and vigilant development controls, to keep development within the stated urban growth limits. Again, stringent development-control policies and procedures—along with with stricter implementation of these policies through the planning application process—will be needed to prevent the merging of cities brought upon by ribbon development along the major highways.

Compact development is part of the solution to the challenge of urban sprawl, but livability is another key part of that solution, and needs due attention. High density can be counterproductive—even harmful—if it comes at the expense of parks and other open spaces for residents [31]. The overall density suggested by the 2020 KL City Plan is 9,600 people per square km. This target has been criticized as being too dense [32], and it directly contradicts the prescriptions of the National Physical Plan 2010, which suggests that the density of the city should be (only) 2,500 person per square km. A density of 9,600 person per square km is much higher than the densities of some of the established sustainable cities such as Curitiba, Brazil (4,300 persons/km²) [33], Vancouver, Canada (5,249 persons/km²) [34]; Copenhagen, Denmark (6,600 people/km²) and San Francisco, USA (6,926 people /km²) [35].

Open spaces, recreational areas, and sports facilities are an integral part of urban life and help make cities attractive and livable places. This land use currently comprises only 6.5 percent of the total land in KL—and that percentage decreases substantially if privately owned golf courses are excluded. Looking at another measure, the existing percentage of open space translates to 0.36 hectares per 1,000 population. This is far below the target of 2 hectares per 1,000 population recommended in the National Urban Policy (Govt. of Malaysia, 2006). The existing ratio of open space to urban population is far lower those that prevail in other well-planned cities of the world, such as London (4 hectares per 1,000 people), Melbourne (2hectares/1,000) and Toronto (2hec/1,000) (CGG Response DKLCP2020).

Conclusions and implications for policy

Urban sprawl, especially in the Kuala Lumpur (KL) metropolitan area, is widely recognized as a serious issue by the professionals and academics who are charged with urban development in Malaysia. The planning regime seems enthusiastic in its embrace of the goal of making Kuala Lumpur a world-class city. In that spirit, Greater KL has been selected as a National Key Economic Area—which threatens to exacerbate the challenge of sprawl.

The current urban development policy documents seek to address the problem of sprawl through compact development, the provision of mass public transit, and transit-oriented-development. These initiatives are commendable, but alone they are insufficient to achieve the goal of making cities compact and sustainable. They need to be complemented by establishing greenbelts or urban growth limit policies.

The availability of financial resources is of critical importance for implementing compact development policies, especially when it comes to acquiring expensive land and installing expensive infrastructure for mass transit systems. The cost of those huge investments, however, are likely to be outweighed by the benefits that can be achieved in the long run by reducing energy consumption and environmental pollution (Tachieva, 2010). In the case of Malaysia, fortunately, the availability of financial resources does not seem to be a major constraint, given that the ruling regime has access to the required resources. However, the success of the initiative will depend upon political stability, and a continuity of policies and priorities—and the funding of those ongoing projects—even in the event of a change in the government.

Compact development is not just about making cities dense, but it is also about making cities them sustainable and livable. Therefore, an increase in population density in KL city should be proportional to the provision of enough open space on a per capita basis. Planners need to embrace the minimum standard of 2 hectares of open space for every 1000 people living in the city, as suggested by National Physical Plan (2010)[10].

There is a pressing need to enhance coordination between federal, state, and local planning agencies for crafting viable policies, to ensure the effective implementation of policies at the local level. For example, Selangor—one of the Malaysian states of Malaysia that surround KL—recently prepared its first “structure plan,” which encourages compact development and the provision of mass transit, but fails to include initiatives to contain urban growth, due to (1) a lack of coordination among the relevant departments, and (2) a lack of implementation of the policies.

The above-mentioned strategies, if implemented successfully, should keep Malaysia on its chosen path: elevating Malaysia to its rightful place among the developed nations, helping Kuala Lumpur evolve into a

world-class city, and paving the path for other compact and sustainable Malaysian cities.

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Notes

ⁱ Source: Ministry of Federal Territories, GoM

<http://app.kwpcb.gov.my/greaterklkv/overview>

ⁱⁱ Sources: World Bank (2011) Malaysia Economic Monitor: Smart Cities

ⁱⁱⁱ Interview conducted in November 2014

^{iv} Greater KL or Klang valley is one of the 12 National Key Economic Areas that are the focus point for private sector-led investment.

^v Source: Ministry of Federal Territories, Government of Malaysia

<http://app.kwpcb.gov.my/greaterklkv/overview>