

# **URBAN DEVELOPMENT IN MALAYSIA: TOWARDS A NEW SYSTEMS PARADIGM**

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# MALAYSIA'S URBAN FUTURES

## Urban Development in Malaysia: Towards a New Systems Paradigm

### 1.0 Introduction

Over the last decade, during the 10th and 11th Malaysia Plan periods, the Malaysian government has significantly recalibrated its spatial policies. It has reshaped its strategies and programmes on the role of cities as engines of growth and thus as key elements in national economic and social development<sup>1</sup>. This transpired towards the end of the 9th Malaysia Plan (- 2010) from a decisive switch in approach towards the national space economy: from distribution/dispersal, balance and equity towards concentration/agglomeration, efficiency and productivity.<sup>2</sup> The philosophy changed from place-centred to people-centred, as had been advocated at the time by the World Bank<sup>3</sup>, among others. It entailed a different vision for urbanisation, urban growth and migration from lesser to higher opportunity areas. A range of national policy documents<sup>4</sup>, regional and local management plans, and linked implementation programmes have elaborated on the strategies for urban competitiveness, while simultaneously adhering to ambitions of urban liveability, inclusiveness, sustainability and resilience. With respect to Peninsular Malaysia, the concrete policy choices have been first, to focus enhancement of urban competitiveness on four main urban complexes (Greater Kuala Lumpur, Iskandar, Greater Penang, and Kuantan). Second, to maintain an urban balance by simultaneous enhancement of high-potential and catalytic centres throughout the territory, some connected through linking corridors.

As the 11th Malaysia Plan period is ending, accomplishments of policies, strategies, and programmes are not commensurate with stated targets and overall ambitions. From an analysis of the reasons for this it is clear that in the 12th Malaysia Plan and future physical and urban development plans a fresh approach is needed, for cities to play the role of 'key movers' of national economic and social development.

This policy note addresses the underachievement relative to ambitions, and the underlying causes. Equally important, it outlines the contours of a fresh approach, especially towards the inter-urban balance. We illustrate consequences of the current urban systems thinking, key urban questions, and the need for, as well as prospect of, alternative policy options through a case study of the South Perak urban system. In the middle part of this paper we discuss its current functioning and likely directions of future development.

### 2.0 Cities and national economic development: Malaysia's experience over the last decade

Like elsewhere, the policy focus on urban agglomerations has been inspired by the imperatives of greater efficiency and productivity, and – linked to this – the benefits derived from agglomeration economies.

While the strategies and programmes have delivered on some aspects, during the past decade a range of issues have arisen. Three are singled out here.

First, as a result of the strategies and programmes, Greater Kuala Lumpur, Iskandar, and Greater Penang have deliberately developed into large conurbations, towering above all other urban centres in the Peninsular. Collectively they account for nearly 60% of the peninsula's population. The rapid expansion of the three conurbations and their development into dispersed mega- or meso-clustered urban agglomerations have significantly undermined the benefits targeted. The much observed and discussed phenomenon of urban sprawl<sup>5</sup>, combined with slow development of public transport, and limited attention to environmental aspects, has engendered significant negative externalities and loss of efficiency and productivity. Dispersed development has resulted in an overall lowering of economic density (with Greater KL performing substantially worse than other mega-cities in South-east and East Asia); this issue has been reinforced by a continuous gradual 'donutisation'. In the case of Greater KL, economic functions and people have relocated to more lucrative locations in newly developed decentralised sub-metropolitan nodes. Initiatives to arrest hollowing out of the city centre have had mixed results – in some cases leading to new economic activities but accompanied by gentrification processes and loss of traditional communities. Overall, city development dynamics have not been beneficial to liveability.

A study by the World Bank presented in early 2015<sup>6</sup>, outlining the issues mentioned above, met with a response in the 11th Malaysia Plan through city-specific development plans to restore and enhance competitiveness and productivity by addressing density, urban transport connectivity, liveability, sustainability and inclusivity<sup>7</sup>. However, at the current juncture it is apparent that the issues remain unsolved. While it cannot be established with certainty that the conurbations have grown beyond optimal size (there are multiple complex causes to the persistence of issues, see later), it calls into question a continued focus on the apex of the urban hierarchy.

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**Disclaimer:** The findings, interpretations, and conclusions expressed in this paper are entirely those of the authors. They do not necessarily represent the views of Think City or the Department of Human Geography and Planning of Utrecht University. This paper is an effort – from observations and empirical research – to spark debate, and action as to Malaysia's urban future policies.

Our main concern in this paper is with the other two issues. The latter observation above is reinforced by the second major one highlighted by development 'on the ground' over the past decade.

With increasing spatial concentration and dominance of Greater Kuala Lumpur, most urban agglomerations beyond the three major conurbations have not developed sufficient economic mass and agglomeration economies to enlarge and reconfigure their economic base. Economic stagnation has resulted from an incommensurate share in investment. Besides insufficient availability of high-quality jobs, underdevelopment of connectivity has limited people's access to employment. Resource drainage rather than build-up has resulted. As younger skilled persons relocate to the larger urban centres, the demographic base has been impacted. Where regional urban voids have been existent for some time, these have hardly been filled.

In other regions, 'Bandar Negeri' (State Capital Cities) and 'Bandar Utama' (Main Cities) have continued to struggle to either join national growth paths or develop their own productive economic growth paths. Them assuming a meaningful place and role in state and national development has remained rather elusive. The urban system has lost rather than maintained balance. The thrust of simultaneous enhancement of the role of those below-first-tier urban agglomerations and centres has only partially been accomplished. State development plans that have attempted to address this have produced little as national policy making and planning have remained rather silent on concrete balancing strategies with a clear spatial component. There remains a gulf between urban competitiveness and development ambitions of states and their urban centres, and the effectiveness of approaches, programmes and instruments.

Third, the lacklustre performance of sub-regional urban agglomerations as to economic mass has been compounded – like the three prime conurbations – by two factors. One is inefficient urban form and expansion. Low density development has been detrimental to productivity gains. At the same time, liveability and sustainability have suffered from lack of revitalisation, through a lack of resources notwithstanding urban plans.

The latter frequently have remained unimplemented (or deficiently implemented) also due to the prevalence at the local level of prioritising of expenditure based on considerations beyond plans. The second compounding factor has been the evolution of urban structures at the regional scale. Due to deficient connectivity and lack of appropriate conceptual framing, immature 'clusters' have left the urban structure fragmented and poorly integrated. This situation has been hardly conducive to building mass (see the frame on the South Perak case study).

### 3.0 Interpreting the issues in the Malaysian context: the role of prevailing urban paradigm

Which factors have contributed to the issues outlined above? There is no single dominant factor that we can hold responsible but rather a complex combination of factors. Those contributing to the first, and in part the third, issue have been documented and analysed in depth in a range of reports and literature<sup>8</sup>. A brief listing will suffice here:

- + patterns of land availability and prices
- + local land development imperatives and practices leading to incongruities between plans and actual developments
- + more generally, the land management system that allows loopholes in land and real estate development resulting in rather weak enforcement of rules and regulations
- + revealing a perceived incompatibility between development control and ambitions to join the ranks of global cities or Asian regional hubs
- + an urban public transportation situation leading to very high levels of private transport use, reliance and choice preference
- + financial constraints
- + government and governance: insufficiently integrated institutions and policies
- + gaps in the spatial planning system: insufficiently coordinated interventions and programmes

As to the increasing inter-urban imbalance, specifically underperformance of regional urban agglomerations, and fragmented urban structure at sub-regional levels, available reports and documents<sup>9</sup> offer several factors, including:

- + again, weaknesses in the overall planning system
- + finance and staffing competency deficiencies and challenges at lower levels
- + government and governance: the high degree of centralisation and federalisation, with lower levels having decreased responsibilities for delivery of services and development programmes<sup>10</sup>. Therefore, local authorities are handicapped and constrained by limited jurisdictions, capabilities and financial funds.

No doubt, the above factors are quite valid. However, we wish to advance another, namely the *prevailing urban system paradigm*. While closely linked to some of the above-mentioned factors, so far this has remained 'under the radar' and thus little scrutinised. The prevailing paradigm concerns a conception of cities or urban agglomerations and centres as *structured hierarchy*.

The National Urbanisation Policy (NUP) 2006 adopted a classification that distinguished between national, regional, sub-regional, state and district growth centres, as well as major and minor settlement centres and towns. Under its first thrust it explicitly stated that "urban development shall be based on the urban hierarchy system of the NUP"<sup>11</sup>, and it constituted the foundation for the pattern of urban services planning and delivery.

The paradigm has continued to dominate urban development thinking, approach and practice in Malaysia at all levels. This is evident from more recent national physical and urbanisation plans, as well as state development plans. It has continued to be adhered to even when urban competitiveness had entered the policy and plan making arena, and *internationally* thinking on efficient urban systems – related to national economic performance and prosperity – began to change (see below).

This structured hierarchy system thinking has promoted an approach to cities in national economic development whereby urban centres have been considered on an *indi-*

vidual basis, divorced from other urban centres, in proximity or not. This is well illustrated by the way top conurbations feature in urban development planning.

At the most, centres have been approached as distinct layers, for example the definition of appropriate supply of services. Urban centres as 'islands' has also promoted another feature endemic to urban planning and development practice, namely the local or sub-regional 'project' (development) syndrome. Ubiquitously, plans have tabled new projects as a panacea for issues and concerns identified. Yet, equally pervasively, plans have remained silent on how individual-city-based projects would contribute to performance and productivity.

#### 4.0 City Systems Rethinking

With the re-conceptualised role of cities in national development, over the last decade or more new thinking about city systems has emerged in academic and policy circles. As recently rehearsed in a Cities Alliance (2019) document this thinking reflects an awareness that "strengthening the capacity of individual cities to compete for trade, investment and development, independent of the relationships they have with other cities within national and (sub-)regional urban systems, is likely to have a marginal impact on lifting national economic performance and prosperity in non-metropolitan areas overall"<sup>12</sup>.

This document alludes to the idea of the substitution of 'size' with 'network' strength, or agglomeration economies derived from intra- and inter-urban networking. While hierarchy runs the risk of producing an 'archipelago'-like landscape of urban centres (see figure 1 below) networks principles conceive urban centres as nodes in a diversity of urban links. These are structured at various spatial scales from national, to sub-regional, to intra-metropolitan that accommodate flows of people, resources and products. These flows promote the growth of supply- and value adding chains of industry clusters or sectors, through linkage and collaboration.

As to the various spatial scales, at the metropolitan level, the dominant links are those between intra-metropolitan territorial clusters. At the national scale links are those between conurbations, between conurbations and regional cities, and between different regional cities. Urban specialisation, rather than competition, at inter- and especially intra-regional scale can help to build the economic mass to sustain multiple tier nodes in a way enabling them by combining to challenge the competitive dominance of existing conurbations.

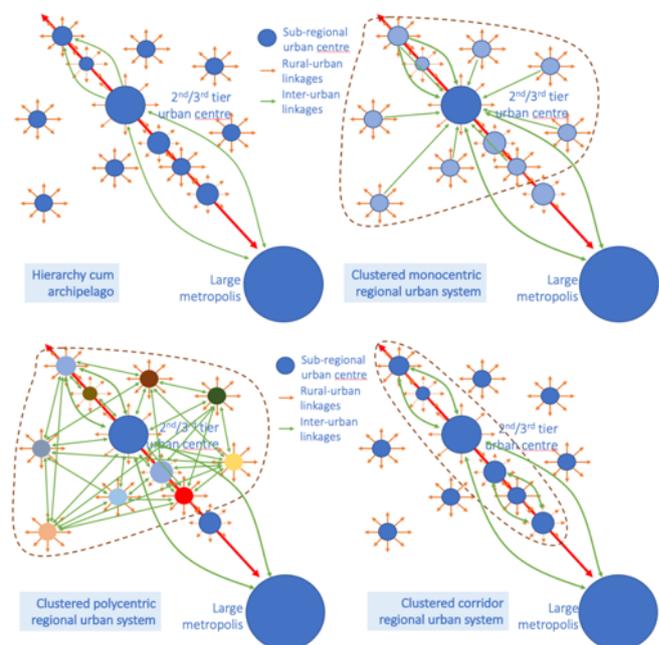
Having taken over from hierarchy thinking, network conceptualisation of urban systems is by now rather well developed. This includes a stream focusing on regional urban polycentricity, providing the mass necessary for the productive development and operation of agglomeration economies<sup>13</sup>. Another stream, reinvigorated in response to spatial urban imbalance, focuses on development of secondary cities networks at inter- and intra-regional scales through connection<sup>14</sup>. A key element of this new kind of 'strategic architecture' of city systems is the focus on intra- and inter-urban connectivity. This is in recognition of the fact that for economic development increasingly urban nodes are embedded in growing networks of inter-connected hard and soft infrastructure and services.

Focusing at the (sub-)regional scale we suggest here a synthesis by offering the idea of the *integrated regional city*. This refers to a set of urban centres located in relative proximity to achieve necessary mass and agglomeration economies *in combination*, allowing it to function as an engine of (sub-)regional, and ultimately, national development.

With respect to the concept of the regional city, differential patterns and direction of links, whether or not centred on urban centres just below major conurbations, and the role of major infrastructure, have engendered different variants. The main being *clustered monocentric*, *clustered polycentric*, *the corridor system*, and combinations of these three.

They are shown schematically in the figure below.

Figure 1: Configurations of a 'regional city'



Source: adapted from Cities Alliance 2019

The clustered monocentric system, shown in the upper right corner in the figure, revolves around unequal city size and integration through unidirectional links towards a main centre. There is not necessarily specialisation of smaller urban centres; rather they contribute to a diversified main centre that achieves mass and agglomeration economies by 'borrowing size' from the surrounding centres. In the clustered polycentric system, shown in the bottom left corner of figure 1, city sizes are ideally more equal. Integration is through bi-directional links driving specialisation of sub-regional centres (as denoted by the different colours in figure 1) through which economic complementarity in the system is achieved. As to links, each centre is connected to most other centres. A main centre notwithstanding, the pattern and intensity of links enable most centres to 'borrow size' from each other, and to 'borrow' functions from higher order centres. The integrated regional city conforms to this variant.

**Continued on page 8**

## South Perak Urban Development Study

### 1.0 Introduction

The argument set out in the main part of this paper inspired a study into urban development in the territorial space between Greater Kuala Lumpur and Penang conurbations. It was undertaken in the first half of 2019. There were several aims: first to validate the thesis of hierarchical urban system thinking producing insufficient mass and agglomeration economies, leading to underperformance.

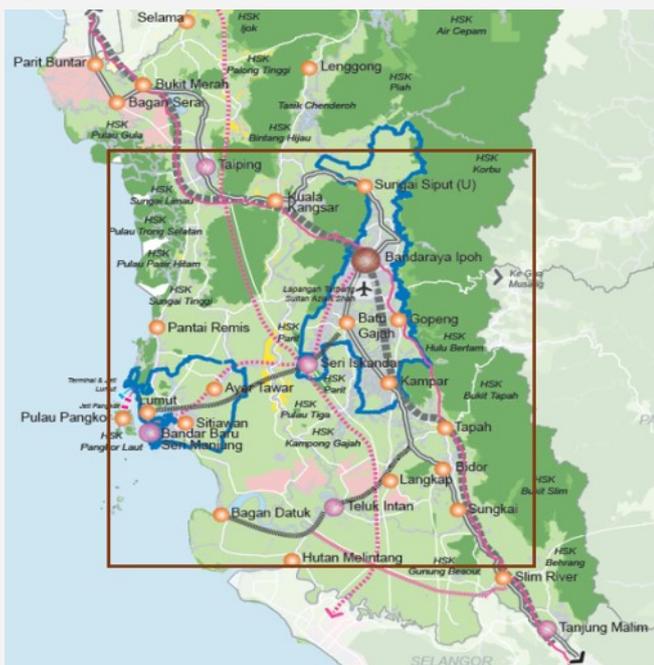
As a structured polycentric network of regional urban centres was deemed beneficial for (sub-) regional agglomeration economies, urban mass and performance, the second aim was to gauge the potential for, or development of, such a configuration from current urban system characteristics, development plans, and their fit to several scenarios.

Thus, the study set out to map the structure and grasp the functioning of the (sub-)regional urban system in the area, departing from several dimensions of polycentricity.

The following elements were scrutinised:

- + level of integration indicated by infrastructure, transport and connectivity, labour commuting, and functional urban areas
- + morphological structure: patterns of urban growth associated with land and real estate development, and population distribution
- + distribution of urban services functions across urban centres, and the occurrence (and patterns) of size borrowing
- + in the functional dimension, spatial economic complementarities and specialisation through the distribution of productive investment and economic functions; overall economic 'climate' and perceptions of the attractiveness, and push/pull factors, of the region
- + urban governance characteristics, especially the aspect of cooperation and coordination by, versus competition of, authorities.

Figure 3: South Perak Research Area



Source: Malaysia National Urbanisation Plan 2

The area of South Perak was chosen as it is the potential location of a 'regional city' as defined in the main part of this paper. Figure 3 demarcates the research area and its urban centres. Ipoh functions as the core urban centre. The area has a total population of about 2.3 million. Table 1 shows the change of population size of the urban centres since 2000.

The full findings of the study are reported in Grunsven, L. van, ed., 2019<sup>1</sup>. Here we briefly sketch the economic and urban evolution of the region and summarise main findings on each of the elements. A brief conclusion follows.

### 2.0 Evolution of the region and its urban centres in brief

During the colonial period, strategic location and plentiful natural resources enabled South Perak to assume an important economic and cultural role in Peninsular Malaysia. Tin-ore mining and trading, and the development of related industries led to the flourishing of the economy in and around Ipoh. Elsewhere, plantation agriculture boosted the regional economy.

With the gradual decline of tin-mining from the early 1980s caused by depletion and the drop in the price of tin-ore, the then most populous state of Malaysia started an economic downturn. Because of insufficient contingency planning no new economic growth paths were timely put in place. Notwithstanding a still thriving agricultural sector, until now the region continues to struggle economically. Although the population has increased from 1.7 million in 1980 to 2.5 million today, the region has experienced a sizeable drain of skilled labour to higher-growth neighbouring states.

Associated also with the conurbations concentration policy pursued by the federal government, this has handicapped the infusion of new economic activities. In the last few decades South Perak authorities have pushed for economic structural changes by attempting to develop new manufacturing and services 'clusters'.

Below some more observations are offered as to their potential to become prime economic drivers. Urbanisation has progressed notwithstanding lacklustre economic performance and each of the urban centres has gained size demographically as shown in Table 1. However, although it remains a secondary city Ipoh over the past four decades has lost position and rank amongst Peninsular Malaysia's main urban centres.

### 3.0 Infrastructure, transport and connectivity, labour commuting flows/patterns

Table 1 Population of Urban Centres in South Perak, 2000-2016

| Urban area        | Total population per year* |                  |                  | Average annual population growth rate (%) |             |
|-------------------|----------------------------|------------------|------------------|-------------------------------------------|-------------|
|                   | 2000                       | 2010             | 2016             | 2000-2010                                 | 2010-2016   |
| Ipoh              | 552,121                    | 669,218          | 730,900          | 1,92                                      | 1,47        |
| Taiping-Kamunting | 163,730                    | 207,640          | 230,500          | 2,38                                      | 1,74        |
| Lumut-Sitiawan    | 143,893                    | 178,916          | 199,500          | 2,18                                      | 1,81        |
| Teluk Intan       | 77,361                     | 88,695           | 100,700          | 1,37                                      | 2,12        |
| Kampar            | 57,389                     | 69,940           | 77,700           | 1,98                                      | 1,75        |
| Sungai Siput      | 43,385                     | 48,954           | 54,700           | 1,21                                      | 1,85        |
| Kuala Kangsar     | 44,773                     | 49,226           | 54,600           | 0,95                                      | 1,73        |
| Batu Gajah-Pusing | 39,434                     | 49,095           | 54,000           | 2,19                                      | 1,59        |
| Seri Iskandar     | 23,468                     | 43,062           | 52,600           | 6,07                                      | 3,33        |
| Tapah             | 29,264                     | 33,959           | 40,200           | 1,49                                      | 2,81        |
| Bidor             | 30,389                     | 31,244           | 34,700           | 0,28                                      | 1,75        |
| Pantai Remis      | 28,045                     | 28,832           | 30,400           | 0,28                                      | 0,88        |
| Gopeng            | 23,998                     | 26,363           | 28,400           | 0,94                                      | 1,24        |
| <b>Total</b>      | <b>1,257,250</b>           | <b>1,525,144</b> | <b>1,688,900</b> | <b>1,93</b>                               | <b>1,70</b> |

Source: Florijn, D. 2019

Confining the analysis here to transport infrastructure, our study shows still limited development. The road infrastructure consists mainly of federal and local roads. The North-South Expressway (NSE) is the only highway, connecting Ipoh with Taiping and conurbations outside the region (see maps below). Over time the Ipoh-Lumut connection, passing through Seri Iskandar, has been upgraded to a main road. Although labelled an 'expressway', its capacity and travel speed remain far below that of the NSE. The railway running parallel to the NSE, inherited from colonial times but substantially upgraded recently, remains the only rail infrastructure connecting Taiping, Ipoh and some smaller urban centres with the main conurbations of Penang in the north and Kuala Lumpur to the south.

As there is no internal rail infrastructure, the main public passenger transport is the regional bus system operated by PerakTransit. Analysis of this system reveals some significant features:

+ There are three separate systems, MyBas, StageBas and ExpressBas. MyBas caters to public transport mainly within Ipoh city with a few outliers to Batu Gajah/Seri Iskandar and Gopeng. StageBas has three main radial routes connecting Ipoh with Kuala Kangsar, places along the Ipoh-Lumut Expressway, and places along the Gopeng/Kampar axis. Express buses in part duplicate StageBas routes, with Taiping and Teluk Intan as additional stations; the major focus of this sub-system though is connection of Ipoh and some sub-regional urban centres to conurbations.

+ Thus, the (sub-)regional public road transport system, mainly catering to connections between Ipoh and regional urban centres, lacks integration, that is links between urban centres below Ipoh. It hardly conforms to a system needed for a polycentric regional city. Rather it conforms to a monocentric configuration.

+ The data obtained show that public transport ridership actually has gradually declined. Apparently perceived as unsuitable for home-work commuting because of limited routes, timetables (frequency), travel times and quality, frequent travellers prefer private motorised transport (car and motorcycle) for home-work and other trips.

Private transport preference and subsequent dependency has resulted in a vicious circle where public transport has received limited investment. At the same time growing private transport is causing negative externalities. In view of distances combined with the pattern and quality of the road system, travel times to/from the main urban centres are well above the threshold of acceptability for home-work travel, even with private transport. It is not feasible from each urban centre to reach any other urban centre within one hour maximum travel time. Overall connectivity is such as to be prohibitive to middle- and long-range commuting, limiting place of work options for a part of the labour force. This impacts the aspect of complementarity and urban specialisation in the regional economy (see later).

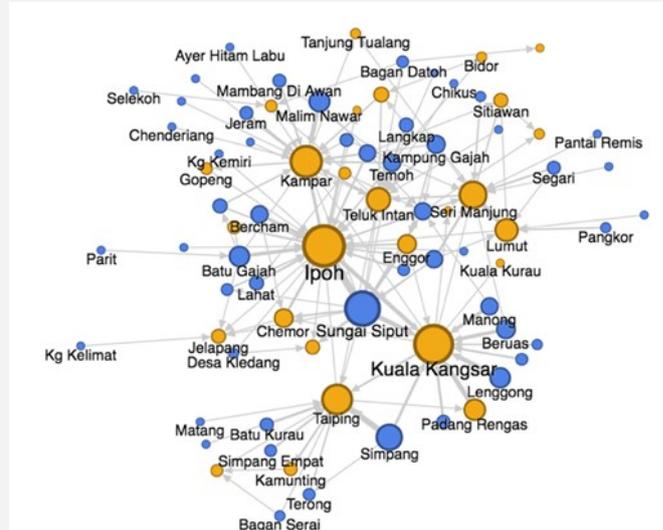
Deficient connectivity is indeed reflected in actual commuting patterns. As expected the major urban centres are marked by net in-commuting, the others by net out-commuting (Figure 4). More importantly, the connections shown in Figure 4 reveal a dominant short distance pattern, revealing rather confined labour fields of urban centres. Being main employment centres and sources of skilled labour, only Ipoh and Lumut/Seri Manjung/Sitiawan have a wider field. In the case of Ipoh this is also associated with the location of smaller urban centres in proximity (Batu Gajah, Gopeng and Simpang Pulai to the South, and Chemor and Kuala Kangsar to the North) and their relatively good connectivity. In the case of Lumut/Seri Manjung/Sitiawan, Pangkor as an important tourist destination, and the marine port activities are place-specific factors. From mobility patterns it emerges that there are rather distinct non-overlapping Functional Urban Areas focusing on the main urban centres. In turn this indicates that the (sub-)regional urban system has not achieved integration through people flows.

#### 4.0 Morphological structure: patterns of urban growth associated with real estate development; population distribution

Figure 5 shows, through change in built-up areas, the evolution of urbanisation and urban development in the study area. This reflects physical development over time leading to conversion of land use,

and change in population distribution. Next to catering to need for housing and commercial property, real estate development has been used also to pump prime local economies whereby effective demand has not always been the main consideration.

Figure 4 Network graph of commuting patterns in the case study area (excl. intra-urban travel)



Brown: net in-commuting; Blue: net out-commuting

Source: Achtereekte, T. 2019<sup>2</sup>

The scrutiny of the pattern of (recent) development and inventory/mapping of real estate projects under construction (Figure 6) prompt a number of insightful observations.

+ There is a focus on both ends of the Ipoh-Lumut connection: Ipoh city and the Lumut/Seri Manjung/Sitiawan complex. Their evolution as urban centres is marked.

+ Strikingly, there is no indication of significant corridor development along the NSE, as until very recently there have been few sizeable construction projects. Only now construction of a new township is underway in the vicinity of Tapah.

+ As Ipoh has expanded, compactness has increased as much development is in the form of infill projects. This augurs well for density. Unfortunately, this is not repeated in other urban centres.

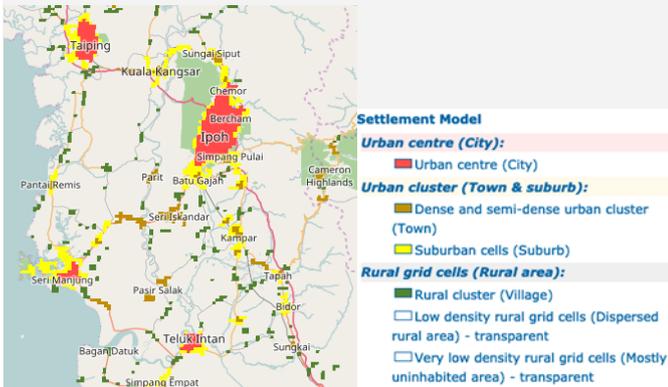
+ Corridor development is apparent along the Ipoh-Lumut Expressway (Figure 5). Combined with ribbon developments elsewhere, this indicates the importance of (road-)infrastructure for the expansion of the built-up area. The development outside Ipoh is actually characterised by significant spatial scatter.

+ The location of new townships, discontinuous from existing built-up area, further contributes to distributed or scattered development (Figure 6). New townships require substantial investments in access infrastructure to link them to existing urban centres.

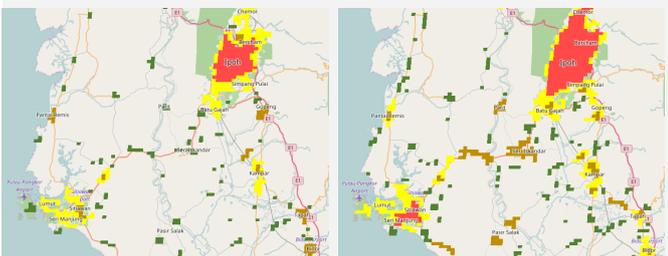
<sup>1</sup> Leo van Grunsven, ed. 2019, South Perak Cities. A Study of Urban Structure: Pattern and Potential for Regional City Development. Utrecht University.

<sup>2</sup>Achtereekte, Thomas 2019. Travel to work commuting patterns and functional urban areas: the Perak Diamond region. Master thesis, Faculty of Geosciences, Utrecht University, The Netherlands

Figure 5 A) Urbanisation in South Perak, 2016

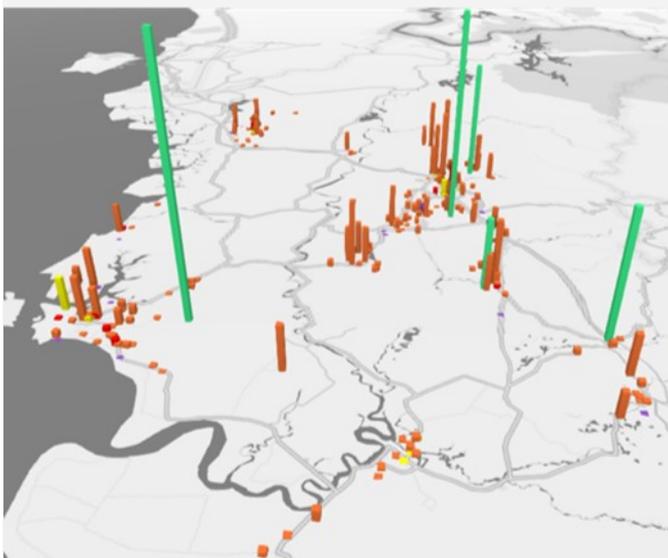


B) Change in urbanisation main urban centres, and along infrastructure axes, 1975 (left) and 2015 (right)



Source: European Commission Global Human Settlements Layer (GHSL), data downloaded from <http://ghsl.jrc.ec.europa.eu/datasets.php>

Figure 6 Spatial distribution of observed construction projects. The height of the bar indicates the size of the project, based on the number of units under construction.



Source: Florijn, D. 2019<sup>3</sup>

+ This pattern contributes to lack of density or insufficient gaining of density of urban centres outside Ipoh, thus also not gaining the mass required for clustered polycentricity. The only exception appears to be Taiping with contiguous development of Kamunting.

+ The characteristics of real estate and built-up area development are reflected in the changes in urban population distribution. The changes in population size of individual urban centres shown in Table 1, when calculated in relative terms, show that Ipoh city has in fact gained share; for rank size the figures reveal that the distribution has become even more 'fitted' towards the largest urban centres, rather than away from them (as would have been necessary for clustered polycentricity).

A range of imperatives underlie scattered real estate construction and land development. One imperative is the distributed development of affordable housing, necessary for easy access. Some others, related to land, will be briefly touched upon below in the context of urban governance.

### 5.0 Urban functions, economic performance, complementarities and place specialisation

The presence of services functions in urban centres and their distribution across these can provide a good indication of inter-urban integration through size borrowing and/or agglomeration shadows. That is, the presence of functions that a city normally would not be able to support based on its size (function borrowing), or absence of functions that one would expect based on urban size and rank, and that are captured by other order centres. Our study has arrived at the following main findings<sup>4</sup>

+ Ipoh does not have any 'above-level' services functions indicating that it has not been able to borrow size in this aspect. There are no functions that 'belong' to higher order urban agglomerations.

+ Conversely, few smaller urban centres lack services because of location in, or capture by, a larger centre. Thus, there is hardly any occurrence of agglomeration shadows. There is also little evidence of function borrowing by smaller urban centres through combining size.

+ There are a few place-specific characteristics that are 'outside' this pattern. One is the presence of large educational institutions in Seri Iskandar (which also explains the exceptional population growth as it is caused by influx of students from elsewhere). However, this is the result of deliberate policy, rather than size borrowing.

Moving to regional and urban economies, industry analysis shows that over time economic structure has changed, at the levels of the region, districts and urban centres. Manufacturing has changed character and services have developed. At the regional level diversification has taken place. Yet, the pattern of structural change indicates a still restricted range of comparative advantages.

Analysis of the diversity and industry development initiatives from the perspective of complementarities and specialisation at the district and urban centres levels has produced the following insights:

+ The geographical distribution of companies and industries is more even than that of population.

+ The region is featured by two main centres, Kinta (Ipoh) and Manjung (Lumut), which differ in terms of the role played in the regional economy. Yet, the nodality (absolute economic importance) of Kinta substantially exceeds that of Manjung which scores better on centrality (relative economic importance).

<sup>3</sup>Florijn, Daan 2019. Impacts of land and real estate development on regional urban structure. The Perak Diamond region. Master Thesis, Faculty of Geosciences, Utrecht University, The Netherlands

<sup>4</sup>Jansen, T. 2019. Urban functions in the Perak Diamond. A consideration of functional polycentricity. Master Thesis, Faculty of Geosciences, Utrecht University, The Netherlands

+ In addition, the portfolio of industries and employment of districts currently shows much more similarity than difference, having converged substantially (rather than diverged) over the past decades. The same goes for urban centres, more or less.

+ This indicates that distinct regional economic corridors as advanced by State regional-industrial policy fades as merely a spatial construct when put against the rigorous test of data.

+ This also indicates that cluster initiatives in the region have either met with little success or remain immature, their mass being insufficient to drive local economic structures to more specialisation.

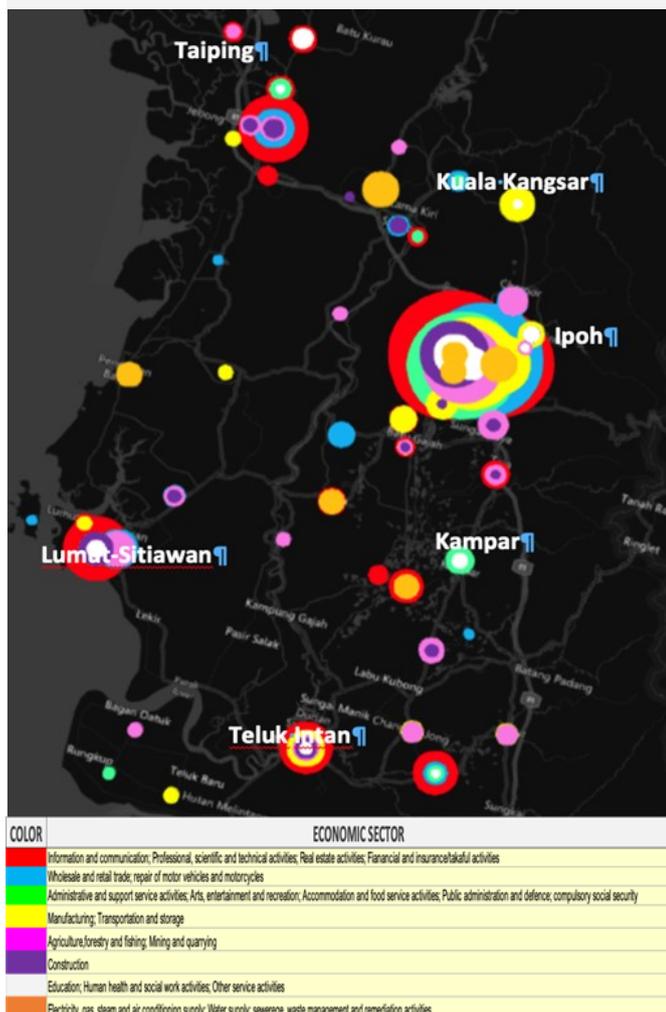
+ Lack of complementarity and specialisation is revealed by Figure 7, pertaining to urban centres. As such, economically districts and urban centres in fact operate independently from each other.

+ Figure 7 and underlying data also indicate that each "island" in an economic archipelago functions as a monocentric system, where peripheral nodes exploit the centrality and nodality of the main urban centre serving it through a specialised industrial composition.

Lack of mass and immature or weak potential clusters have a negative impact on investment pull factors of the region. Structural change notwithstanding, the hardly buoyant economic situation of the region is evidenced by lacklustre investment performance.

When benchmarked with other states and national average based on capital investment per unit of output Perak consistently has underperformed<sup>6</sup>.

Figure 7 Industry composition of incorporated companies in urban centres, South Perak, 2018



Source: Bianchi, G. 2019<sup>5</sup>

The attractiveness of the region and its urban centres in terms of opportunities, mass, connectivity and quality of infrastructure (incl. industrial estates) are not perceived such as to pull in significant investment. Investment mainly comes from local players that have longstanding presence in the region.

#### 6.0 Urban governance characteristics

Lack of complementarity and urban specialisation also reflects prevailing government and governance structure and practices, our last element. From our analysis the following observations emerge:

+ Structure is rather fragmented with little vertical and horizontal links; de facto, demarcation of jurisdictions of authorities and agencies at State level is rather 'flexible' resulting in multiple loci of policy initiatives in the same field. There is a tendency to engage in development coalitions by agencies from partial interests.

+ Local level institutions hardly have a role in State policy making, yet fragmentation enables them to engage in development (programmes) with their own imperatives and incentives. For instance, local level agencies show a tendency for agricultural land conversion maximisation inspired by the opportunity to reap additional income from higher land rents. Local level actions at times conflict not only with programs at State level but also with regional efficiency and productivity considerations.

+ Overall, there does not appear to be an established framework for inter-agency or inter-local, and multi-level, cooperation and coordination of policies and programmes. Rather, occurrences of coordination and co-operation are 'ad hoc' and linked to specific projects. It is not clear though to what extent place competition is a hindrance to establishment of a cooperation framework.

#### 7.0 Situation and Prospects

The appraisal of the South Perak urban system based on the above elements overall validate weaknesses of spatial policies pursued at federal and state levels hitherto as argued in several sections of the main part of this paper. The region shows a low level of inter-urban integration; the regional urban structure is marked by sub-regional territorially distinct subsystems, that have either monocentric (e.g., Ipoh and urban centres in proximity) or corridor (e.g., the Ipoh-Lumut/Sri Manjung/Sitiawan axis) features. Additionally, there are still rather isolated urban pockets. Lagging economic performance of the region and spatial economic characteristics reveal - and cannot be divorced from - limited functioning of urban centres as a regional city, let alone along the integration model of clustered network (polycentricity).

This undermines agglomeration economies and mass, and thus competitiveness. In its conception of cities, State development plans have thus far conformed to the National Urbanisation Policy. Given a lack of study it is unclear what changes federal infrastructure projects, such as the West Coast Expressway, or thrusts in the draft Perak State Development Plan 2040<sup>7</sup> will engender. From these policy thrusts and program proposals renewal of thinking and practice is not apparent. It is timely for State level planners to incorporate in the Development Plan the new paradigm and proposals as suggested in this paper.

<sup>5</sup> Bianchi, Giacomo 2019, Economic Dynamics in the Perak Diamond. A Consideration of Functional Polycentricity. Master Thesis, Faculty of Geosciences, Utrecht University, The Netherlands

<sup>6</sup> Raaijmakers, Luka 2019. The Spatial Configuration of Private Investments by Economic Actors in Perak. Master Thesis, Faculty of Geosciences, Utrecht University, The Netherlands

<sup>7</sup> PlanMalaysia@Perak/UPEN 2019 Draf Rancangan Struktur Negeri Perak 2040. Ipoh.

**Continued from page 3**

In the corridor system, a main infrastructure route, highway, or rail, is the structuring element for transport and links. The network develops along the infrastructure route as mobility is constrained by either weakly developed transport infrastructure connecting urban centres throughout the region, or sub-regional transport infrastructure is directed to 'feeding' mobility along the main transport route. Inter-urban connection may not be very strong and, like in the case of clustered mono-centricity, mass may be gained in the main centre.

Each variant has advantages and disadvantages. For policy makers it is imperative that the optimal is adopted, considering factors such as distribution of socio-economic opportunities, externalities, constraints imposed by existing land-uses, planning targets and regulations, ecology and environment, and sustainability in general. Mono-centricity has the disadvantage of internal unequal development, the risk of urban sprawl from the main centre, while the pattern of links constrains growth of sub-regional centres that consequently are likely to end up in the 'agglomeration shadow' of the larger centre.

Corridor development has similar disadvantages; specific to this model may be congestion caused by the concentration of mobility through the main infrastructure, and some of the sub-regional urban centres left unconnected in the urban landscape. Over the last decade in academic discourse and policy thinking the clustered polycentric variant has been advanced as most optimal because of its capacity to produce competitive economic mass and agglomeration economies, its inclusive structure, and mobilisation of resources. However, to make it function poses specific demands, especially on connectivity and governance. In the next section we will offer observations on these in the context of suggestions for the way forward in Malaysia.

**5.0 Challenges and the way forward in Malaysia: a new paradigm**

Below we suggest directions forward to better meet the challenges that are evident from the foregoing sections. We propose six elements.

**1) Implementation of measures for efficient (intra-) urban form.**

As to the first issue (and in part the others as well), the challenge is not so much devising new concepts, as good practice with respect to efficient intra-urban form is well known. Existing documents articulate policies and instruments that foster compact city development and density, including strengthening institutions for land policies and management of land markets. That also goes for the need to remove institutional division and replace it with coordination between different fields of intervention. The governance challenge here remains the effective implementation of measures recommended.

Intra-urban form is relevant from the perspective of city-level considerations of liveability, sustainability, productivity and resilience. However, it also impinges on the performance of the city system.

**2) Adoption of a new city systems paradigm.**

The current government is already moving balance back into the centre of policy making in a range of fields. However, in urban development little concrete has ema-

nated yet as to paradigm shift. As the next element we posit that balance with agglomeration economies can be achieved by moving away from the hierarchy cum conurbations concentration city system thinking, towards a paradigm that is based on a larger role to 'regional cities' and urban distribution, cum networks principles based on the concept of regional cities.

We suggest that in adoption of the new paradigm in the Peninsular Malaysian context, the clustered polycentric, or integrated regional city, variant should be prioritised. There are two notes to be made. First, the relevance of place specificity in elaboration, from (sub-) regional and local characteristics. Second, as suggested in the above, performance of this variant is not automatically forthcoming. The network configuration and intensity of links and flows requires due attention given to connectivity, our third element.

**3) Focus on connectivity.**

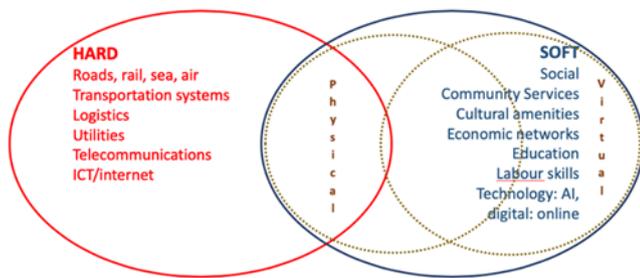
For networks to operate effectively in terms of efficiency and productivity, good connectivity is required. This operates at different scales. Starting with links and flows at the intra-conurbation level, compact development makes connectivity easier and cheaper. Strong external connectivity is essential to feed regional cities. Research that has revealed highly differential performance of polycentric urban system cases notwithstanding similar morphology, suggests that such system configurations only meet the targets of economic mass, agglomeration economies, productivity and efficiency, if several conditions are met.

First, the capacity to exploit combined urban mass is only realised if there is adequate *linkage* and *interaction*. It is the *contingent factor* for polycentric regional cities to resemble single large agglomerations from the perspective of competitiveness derived from urbanisation economies. Second, linkage and interaction are multi-dimensional: they comprise *functional, physical, institutional and cultural facets*. While each of these are necessary, they may vary in significance. Institutional and cultural facets will be elaborated on in the next element. The functional knitting together hinges on the presence of urban economic complementarities, avoiding inter-city competition through specialisation. In the physical aspect connectivity requires investment in infrastructure and services in several formats and areas. The two are highly intertwined.

Government efforts should be increased to build the necessary connectivity and network infrastructure and services. Next to hard infrastructure to support transport, communications and logistics systems and services, equal importance should be given to soft infrastructure in public and private sector services to support intangible flows<sup>20</sup>.

The figure below depicts a framework for hard and soft connectivity and network infrastructure.

Figure 2 Framework for hard and soft connectivity in network infrastructure



Source: adapted from Cities Alliance 2019, p. 42

Hard infrastructure is rather self-evident. Soft connectivity infrastructure has both virtual and physical elements. The virtual ones include exchanges of data, information, knowledge and ideas, increasingly using technology and digital platforms. Physical elements are still place- and space-based, involving meeting places to produce and exchange knowledge and skills, and debate ideas fostering development.

Several factors are particularly important in the devising of policies and programmes. A first is the interrelationship between the hard and soft components, their balanced development, and scaling: inter- and intra-urban<sup>21</sup>. A second one is sustainability, in view of intensity of flows and increasing ecological and liveability concerns. This will imply a focus on public transport modes with sufficient density, volume and frequency to replace motorized private transport. A third concerns the skills and competencies of those who oversee and operate infrastructure and connectivity systems. This is a function of both the availability of new technology-driven system configurations, and on the increasing complexity of systems. Fourth, effective devising and implementation of connectivity expansion and improvements requires substitution of principles of governance. We turn now to this element.

#### 4) Adoption of new principles of government and governance.

Some issues as to government and governance have already been noted in the previous section. Principles of these in Malaysia still rest on hierarchy whereby lower levels conform to higher levels. State and local government must look to federal government to secure funding for investment that advances infrastructure networks. As resources often are not forthcoming, lower level government institutions, while formally lacking power, independently follow imperatives that are in their own interest, in the process exploiting loopholes in rules and regulations. Such principles and practices are no longer functional in the new paradigm of urban systems development. This is the more so when there is unproductive allocation of whatever resources there are at local level, guided by political expediency rather than economic efficiency.

There are several new principles needed. First, effective devolution empowering local authorities. This also may entail doing away with bureaucratic layers that constitute a hindrance to effective governance through duplication. The need for decentralisation has been argued before in academic and public discourse about Malaysian government and governance<sup>22</sup>. Therefore, there is no need to further elaborate except to state that trans-

fer of powers to lower levels should not continue sub-optimal allocation of resources driven by misguided considerations that do not follow collective interests.

Here, the second principle comes in. The institutional integration referred to above implies nearby urban centres joining forces via inter-urban cooperation and collaboration to become a more relevant actor demographically, economically and politically. Another purpose is to share existing resources more efficiently, co-ordinate decisions in issues affecting the larger scale, such as infrastructure and land use, all of which can create a favourable investment environment<sup>23</sup>. The need for vertical and horizontal cooperation, collaboration and coordination to create productive complementarities (instead of duplication) has been reiterated by Cities Alliance in its recent report by stating that: “The future development of...regional... cities can no longer rely on each centre independently trying to create some form of competitive advantage, but on ways they can work together with or against metropolitan regions to achieve collaborative advantage.”<sup>24</sup>

A third principle is that in shaping such cooperation and coordination proximity plays a significant role. This should not be understood as solely one of distance. Institutional integration is assisted by a shared ‘culture’ that is a function of the development of emotional ties and a sense of shared identity. These allow the emergence of tighter and more durable networks of activity, as common problems, objectives and interests become more evident across the region and are more easily agreed upon. Conversely, polycentric regional cities lacking cultural proximity may remain politically more fragmented, less willing to adhere to a common strategy and develop autonomous and competing understandings of their territory<sup>25</sup>.

A fourth principle is that foregoing principles will benefit the operation of local authorities from enhanced capabilities, competencies, capacities and also financially. Improvements in this sphere are needed. Particularly helpful here is a multi-level approach to urban development policy making and planning. This element will be discussed briefly next.

#### 5) Multi-level approach to urban development policy making and planning, and programme implementation.

Devolution and cooperation combined with coordination imply a more sophisticated approach to urban development policy making, and the devising as well as implementation of programmes. While the principle of multi-level planning is already there, there are still shortcomings in effective practice.

More effectiveness is needed for urban centres to invest in those public goods, services, and partnerships that will most contribute to competitiveness of the regional cities. At the current juncture advancements in information technology are very rapid, to the extent of indeed engendering disruptive change. There is general agreement that new technologies and the already quite advanced Internet of Things provide new opportunities. Mastering and invoking new information/ICT based instruments and devices can help to significantly enhance effective practice of multi-level planning. These instruments are also relevant to our last element.

### **6) Improving the information/data base of urban development policy making and planning.**

Mapping, interpreting and understanding the development of regional cities in Malaysia is greatly handicapped by either the lack of, the fragmented availability, or the deficient quality of relevant data and information.

One instance is the virtual absence of data on inter-urban commuting and travel for the use of services. Wider data collection and information production is necessary for a new urban systems paradigm to be effectively adopted. It is also needed for improved grounding of urban development policy and planning decision-making in a relevant and accurate, up-to-date, data and information base.

It is imperative to develop shared integrated regional information systems for data and information services, and data/information sharing. Part of this is to create, or enhance tasks of, regional specialised knowledge centres or think-tanks with a view to collaborative research on regional city management for better competitiveness. Such think-tanks are in a good position to explore and invoke new technology/IT-enabled avenues for data-collection, processing and analysis on a range of subjects. IT-enabled methods indeed can generate data and information of scope and quality that cannot be achieved by traditional methods.

### **6.0 Conclusion**

Recently publicised policy initiatives show that in the current government there is no lack of political will to address the urban development issues highlighted in this paper. Less evident is the recipes to effectively address them. In this paper we argue a move away from focus on top urban conurbations and structured hierarchy paradigm. We also argue that the way forward is a 'new' network-based urban systems paradigm based on the integrated regional city. This is to be applied to different levels, tailored to region-specific circumstances.

The Malaysian government when further developing urban and regional development policies, strategies, action and funding programmes, should allocate a larger proportion of resources to the network-driven urban architectures and to connectivity networks outside the main conurbation areas. Our research on the South Perak case reveals the negative outcomes of the concentration cum hierarchy approach of urban development in Peninsular Malaysia, in terms of performance of a 'in between' region. It also reveals the relevance of a paradigm shift from the issues at hand.

Foremost, it shows that a paradigm shift - and the new principles that come with it - present tremendous challenges, like those in the area of government and governance. While there are ways forward much depends on whether the political will is there to confront these challenges.

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Endnotes

<sup>1</sup> See 10th Malaysia Plan, pp. 116-118; 11th Malaysia Plan, pp. 8-35 to 8-39.  
<sup>2</sup> See 10th and 11th Malaysia Plan, Francis E. Hutchinson 2016, *Evolving Paradigms in Regional Development in Malaysia*. ISEAS Economics Working Paper No. 2016-5.  
<sup>3</sup> See World Bank 2009, *Reshaping Economic Geography*. World Development Report. Washington: the World Bank; World Bank 2009, *Reshaping Economic Geography in East Asia*. Washington: the World Bank.  
<sup>4</sup> National Physical Plan 2 2010, National Physical Plan 3 2016, National Urbanisation Policy 1 2006, National Urbanisation Policy 2 2016. Federal Department of Town and Country Planning, Ministry of Urban Wellbeing, Housing and Local Government, Malaysia  
<sup>5</sup> World Bank Group, Khazanah Nasional, and Economic Planning Unit 2015, *Achieving a System of Competitive Cities in Malaysia*. Main Report. Kuala Lumpur: World Bank Group. Malik Asghar Naeem 2016, *Policies and Issues Concerning Urban Sprawl and Compact Development Paradigm Adoption in Greater Kuala Lumpur*. Malaysia. MIT, Malaysia Sustainable Cities Program Working Paper Series. Jamalunlaili Abdullah 2012, *City Competitiveness and Urban Sprawl: Their Implications to Socio-economic and Cultural Life in Malaysian Cities*. *Procedia Social and Behavioral Sciences* 50, pp. 20-29. Shahrizia Osman, Jamalunlaili Abdullah, & Abdul Hadi Nawawi 2017, *The Financial Costs of Urban Sprawl: Case Study of Penang State*. *Planning Malaysia: Journal of the Malaysian Institute of Planners*, 15-2, pp 13-24.  
<sup>6</sup> World Bank Group, Khazanah Nasional, and Economic Planning Unit 2015.  
<sup>7</sup> See 11th Malaysia Plan, chapter 8, pp 8-35 to 8-38.  
<sup>8</sup> See the sources listed in notes 4 and 5.  
<sup>9</sup> Ibid.  
<sup>10</sup> Francis E. Hutchinson 2014, Malaysia's Federal System: Overt and Covert Centralisation, *Journal of Contemporary Asia*, 44-3, pp. 422-442.  
<sup>11</sup> See National Urbanisation Policy 2006, p. 37.  
<sup>12</sup> Cities Alliance 2019, *Connecting Systems of Secondary Cities. How Soft and Hard Infrastructure Can Foster Equitable Economic Growth among Secondary Cities*, page 9. Brussels: Cities Alliance/ UNOPS.  
<sup>13</sup> This and the following arguments are based on extensive literature in the fields of urban systems at different spatial scales, polycentricity, secondary cities, and favoured regional urban policies. They undergird the directions suggested for Malaysia in the next sections. We

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7, 11 pages. Seymour, T. 2017, *Urban Polycentricity in Northern England: Economic Catalyst or Chimera?* University College London, Bartlett Development Planning Unit Working Paper No. 190. 29pp. Van Oort, Frank, Evert Meijers, Mark Thissen, Marloes Hoogerbrugge, Martijn Burger 2015, *De Concurrentiepositie van Nederlandse Steden. Van Agglomeratiekracht naar Netwerkkraft*. Den Haag: Platform31. World Bank Group, Khazanah Nasional, and Economic Planning Unit 2015. Yang Jiawen, Ge Song, and Jian Lin 2012, *Measuring Spatial Structure of China's Mega-Regions*. Lincoln Institute of Land Policy Working Paper. In the EU context, the work of ESPON has contributed much to the incorporation of network thinking into European spatial planning.  
<sup>14</sup> Brian H. Roberts 2014, *Managing Systems of Secondary Cities*. Brussels: Cities Alliance/UNOPS; Cities Alliance 2019, page 9.  
<sup>15</sup> It is recognized that there is not one single type of network. Rather, networks underlying the development of polycentric regional cities can be identified as regular, random, or scale-free. Regular networks are marked by each node having about the same number of links, but they are not homogeneous in that the spread of nodes - although rather uniform - can occur around a major hub. Random networks are also marked by each node having about the same number of links; in addition, they tend to be homogeneous as there is no central hub that significantly diverges in size. In scale-free networks urban centres differ in number of links, with a central hub being highly connected. They also lack homogeneity. In clustered polycentric regional city discourse it is held that the random configuration offers best prospects of regional city economic mass, efficiency and productivity. The scale-free configuration is second-best. National and regional urban policy should in first instance promote the former. For a discussion, see Cities Alliance 2019, pages 53-56.  
<sup>16</sup> See the literature mentioned in footnote 13.  
<sup>17</sup> For an application to the Malaysian context, see World Bank Group, Khazanah Nasional, and Economic Planning Unit 2015.  
<sup>18</sup> Government of Malaysia 2019, *Shared Prosperity Vision 2030. Restructuring the Priorities of Malaysia's Development*. Putrajaya: Ministry of Economic Affairs.  
<sup>19</sup> See Meijers, Evert, Hoogerbrugge, Marloes; Cardoso, Rodrigo 2018, *Beyond Polycentricity: Does Stronger Integration Between Cities in Polycentric Urban Regions Improve Performance?* *Tijdschrift voor Economische en Sociale Geografie*, 109(1), pp. 1-21.

<sup>20</sup> This classification and its elaboration is based on Cities Alliance 2019, Chapter 3.  
<sup>21</sup> Cities Alliance 2019, pages 43-53.  
<sup>22</sup> Francis E. Hutchinson 2014, Malaysia's Federal System: Overt and Covert Centralisation, *Journal of Contemporary Asia*, 44-3, pp. 422-442. Faiez Shahridan, Rao Vijayendra 2019, *The Demand-side of Public Service Delivery and the Strengthening of a New Malaysia*. Penang: Think City Urban Policy Series, Working Paper No. 1.  
<sup>23</sup> Meijers, Evert, Hoogerbrugge, Marloes; Cardoso, Rodrigo 2018, *Beyond Polycentricity: Does Stronger Integration Between Cities in Polycentric Urban Regions Improve Performance?* *Tijdschrift voor Economische en Sociale Geografie*, 109(1), pp. 1-21, and Espon 2016, *Polycentric Territorial Structures and Territorial Cooperation*. Espon Policy Brief 6.  
<sup>24</sup> Cities Alliance 2019, page 77.  
<sup>25</sup> Meijers, Evert, Hoogerbrugge, Marloes; Cardoso, Rodrigo 2018, *Beyond Polycentricity: Does Stronger Integration Between Cities in Polycentric Urban Regions Improve Performance?* *Tijdschrift voor Economische en Sociale Geografie*, 109(1), pp. 1-21.

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