

# Land Use Conflicts and Governance Solutions: The Case of Pulau Pangkor, Malaysia

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*Pulau (Island) Pangkor is a famous tourist destination island in Malaysia due to the presence of striking natural and cultural resources. Research reports seem to indicate that Pulau Pangkor is experiencing land use challenges due to the impact of a population increase and growth in tourism activities. Present urban development is concentrated in the main town area (near Pangkor Jetty) and follows the main east-west axis. Basically, local residential development is in the eastern corridor, while the western corridor concentrates more on the development of tourism facilities. Organic growth has given rise to the development of unplanned built-up areas. Concerns have been expressed towards the occurrence of land use conflicts and limits to the island's carrying capacity. The aim of the article is to explore these concerns and propose possible governance solutions for the development challenges on the island. Land use composition and trends are initially discussed, followed by examination of certain outstanding issues. Secondly, the existing development planning and control system is scutinized. In contrast to the mainland Manjung District, future development on the island requires more systematic management. To that effect, a possible land use governance framework as policy is outlined which could enhance the existing development processes further.*

*Keywords: land use, conflicts, development planning, governance, Pulau Pangkor*

## Introduction

Land is a limited and precious commodity on an island. According to United Nations Environment Program (UNEP), land use is characterized by the arrangements, activities and inputs people undertake in a certain land cover type to produce, change or maintain it. Land use is closely related to the development process. Land resources serve as an important input in the development process, particularly in housing development. The housing sector produces housing units that are very important to the population inhabiting a given area. The level of housing

needs in a particular locality depends on its own housing demand factor. A densely populated island will generate more demand for housing compared to another which is less densely populated. Increasingly for most islands across the world, housing development has become an important issue as population growth continues to fuel the demand for housing. Unlike the mainland areas of Peninsular Malaysia, an island such as Pangkor with limited land resources requires a more systematic management of its housing development programmes.

Coupled with that, the impact of decades of tourism activities on island development has brought about a change to the social and physical environment of the islands in Malaysia (Badaruddin, Ahmad, Jamil and Kong 2005). The development and expansion of tourism often result in a significant socioeconomic effect on the islands (Safura, Norjanah and Mastura 2013). Land use conflicts have become more common with the increase in tourism activities, hence resulting in a major challenge to development planning on the island.

### ***Study Area***

According to the Report of National Marine Parks Malaysia: Policy and Concepts 1989 issued by the Department of Fisheries Malaysia, there are three categories of islands located in Malaysia; (a) the larger “Development Island” such as Pulau Langkawi, Penang Island and Labuan Island, (b) the “Tourist Island” such as Pulau Pangkor and Pulau Tioman, and (c) the smaller “Marine Park Islands” such as Pulau Payar, Pulau Harimau and Pulau Kapas.

Pulau Pangkor is separated from the mainland of Peninsular Malaysia by the Dinding Straits (Figure 1). The island is located 8 nautical miles from the coast of the mainland Manjung district. It is a small island with a total land area of about 8 sq km., of which 80 percent is hilly land that forms the central part of the island (Rahmah and Hamdon 2010). The island’s interior remains heavily forested (Figure 2a) and maintains a river system, Sungai Pinang, which supplies a significant source of permanent fresh water. The forested interior of the island is home to 65 reptile species, 17 amphibian species, and 82 total herpetofauna species (Rooijen, Chan, Grismer and Norhayati 2011).

Due to its outstanding natural and cultural attractions (Figure 2b), Pulau Pangkor is also well-known as a tourist destination in Malaysia. As an example, in 2013, a total of 1,001,415 tourists visited the island. This represented an increase of 16,736 persons compared to the year 2012, which recorded 984,679 tourists (Manjung Municipal Council 2014). In 2014, the island had 15,499 inhabitants, occupying only about 20% of the island. Due to the rich marine resources, the key economic activity on the island is in the fisheries sector (Wong, 2008). It is estimated that 64% of the

FIGURE 1

Location of Pulau Pangkor



local population is involved in the fisheries sector, followed by 24% in the business and services sectors, while the rest serves in the public sector (Manjung Municipal Council 2014). Of this, it is estimated that 10% of the local residents are involved in tourism-related businesses, such as restaurants, handicrafts, souvenirs and accommodation providers.

Pulau Pangkor is equipped with basic facilities and utilities, such as police stations, fire stations, a water supply pipeline from the mainland, electricity and telecommunications. Pulau Pangkor has experienced a rapid development process, particularly in the tourism sector since the 1970s (Othman and Rosli 2011).

In terms of land use, urban development is mainly concentrated in Pangkor Town (near Pangkor Jetty area) and follows the east-west axis towards the western corridor (Figure 2b). The development in the eastern corridor is more on local residential development, while the western corridor concentrates more on the development of tourism facilities. Organic growth as a result of rapid population increase has led to the development of unplanned settlements. Industrial facilities such as workshops, boatyards, and food processing factories based in Sungai Pinang Kecil and Sungai Pinang Besar exist are situated cheek-by-jowl with nearby residential areas. In line with the development goal of creating a balanced and sustainable development on the island, local officials need to take into account existing land use conflicts and overall future growth direction.

### Methodology

Methods of analysis begin with an assessment of secondary sources on existing governance and planning system, referrals to local plans and housing-related reports. In addition, some important references in the



FIGURE 2a  
Satellite view of Pulau Pangkor



FIGURE 2b  
Map view of main area Pulau Pangkor

form of journal articles and books are used to develop some important theories and concepts in this study. Although the approach is more focused on the review of secondary sources, site visits are made to collect primary data on housing types found on the island. Empirical interview data in the field with relevant interviews have not been collected.

Table 1 describes analysis methods by resources and materials that will be used to achieve the research objectives.

### Land Use Composition and Trends

Before examining more recent data, data for the year 2007 will be used first. Table 2 shows the area and percentage of land use on Pulau Pangkor by category. Overall, the forest area is the largest land use on the island. Forestry land use covers an area of 1,522.67 hectares (72.49%) of the study area. Forested areas cover most of the highlands and steep slopes located in the central part of Pulau Pangkor, stretching from north to south. Built-up areas, which include land use for residential, commercial, industrial and public facilities, utilities and infrastructure covered an area of 314 hectares (14.27%) of the study area. Most of the built-up areas are located along the eastern coast of Pulau Pangkor and the corridor between the Pangkor Town and Pasir Bogak. Built-up areas could also be found at tourist attraction areas such as Teluk Nipah, Pangkor Laut and Teluk Dalam. The table shows that land used for housing is the highest after forests and vacant land uses. Housing occupies an area of 157.58 hectares (7.50 %) of the total area of the island.

TABLE 1  
Detailed Methodology of Data Gathering

Research Elements	Resources and Research Area
Land use trends/ Changes in land use consumption	Secondary Resources: Data and information obtained from reports and written records issued by the planning agency; Perak Department of Irrigation & Drainage Report on Land Use used by the Federal Department of Town and Country Planning Peninsular Malaysia.
Land and land use composition	Secondary Resources: Land use by sector, land use status (abandoned/ untapped land)
Residential/ housing area classification	Primary resources (site visits) and secondary resources: An overview of the location of housing areas by four zones: North, West, East and South Zones  Determination of the housing area across island, including fishermen's villages.  The resulting housing area map is the basic form of illustrations obtained from initial studies and secondary reference sources.
Issues and problems	Reviews from newspaper reports, complaints received and other official reports.  Benchmarking against the experience of other islands in the world and references to secondary sources (books, journals and articles).
Conceptual framework	-Theory of governance - Centralized and decentralized approaches - Institutional framework of the land use planning system in Malaysia
Discussion	i. Addressing housing issues ii. Identify governance framework
Housing development	Planning control and housing development  i. Planning system in Malaysia and the agencies involved in the planning process.  ii. Long-Term planning: 5-Year Malaysia Plans (MP), National Physical Plan (NPP), State Structure Plan (SSP), Local Plan (LP) and Special Area Plan (SAP).  iii. National Housing Policy

Table 3 shows the distribution of land use on Pulau Pangkor for the years 1999 and 2015. Based on the table, land use recorded for housing was 82.65 hectares (3.75%) for 1999 and 244.73 hectares (11.10%) for the year 2015. The amount shows increasing percentages of land use for housing. The growing need for more land for the residential sector indicated that factors such as population growth, increased competition for resources, and reduced supply are increasing playing an important role.

The housing sector is becoming an important land use sector on Pulau Pangkor because it involves all islanders who see housing as an essential prerequisite for today's lifestyle and its necessities. Sustainable development in the built environment is a key element in ensuring comfort within the overall living environment. Pulau Pangkor is small and isolated; thus, the effort to achieve sustainable development in the housing sector well-integrated into the local context is a high-priority need. As sustainability concerns all of society, the task of implementing it lies not just with one stakeholder, such as the design community (archi-

TABLE 2  
Land Use in Pulau Pangkor, 2007

Land Use Category	Area (Hectares)	Percent
Housing	157.58	7.50
Business and Services	92.72	4.42
Industry	0.82	0.04
Institutions and Community Facilities	22.22	1.06
Open Space and Recreation	28.67	1.36
Vacant land	160.81	7.66
Transportation	50.28	2.39
Infrastructure and Utility	3.68	0.18
Agriculture	32.95	1.57
Farming and Aquaculture	17.91	0.85
Forest	1522.67	72.49
Beach	10.01	0.48
Water body	0.17	0.01
<b>Total</b>	<b>2100.49</b>	<b>100.0</b>

Source: Federal Department of Town and Country Planning Peninsular Malaysia, 2007

fects, planners, etc.) or public officials. It must be a voluntary and ethical action undertaken by society as a whole.

TABLE 3  
Distribution of Land Use in Pulau Pangkor for year 1999 and 2015

Type of Land Use	1999 (ha)	%	2015 (ha)	%
Housing	82.65	3.75	244.73	11.10
Trade	109.10	4.95	331.77	15.05
Industry	2.14	0.10	9.12	0.41
Education Public Facilities	10.26	0.47	10.26	0.47
Public Use	5.57	0.25	5.66	0.26
Special Use	22.34	1.01	23.59	1.07
Religious Use	0.82	0.04	0.87	0.04
Recreation	0.34	0.02	21.02	0.95
Infrastructure and Utility	3.48	0.16	3.48	0.16
Forest*	1968.18	89.26	1554.38	70.50
<b>Total</b>	<b>2204.88</b>	<b>100.00</b>	<b>2204.88</b>	<b>100.00</b>

Note: \* including forest and limited tourism.

Source: Perak Department of Irrigation & Drainage

## Discussion of Land Use Issues

### *Land Use Conflicts*

Land use conflicts are caused by organic land development on Pulau Pangkor (Perak State of Town and Country Planning Department 2014). A few instances of land use conflicts have been identified in the Physical

Report for Pangkor Island Local Plan 2015. As we have seen in the earlier discussion, urban development on Pulau Pangkor has developed in an organic and unsystematic fashion, based on decisions made by multiple stakeholders. Urban development has occurred individually in a piecemeal fashion; this gives rise to unharmonious land uses and less attractive urban appearance. Haphazard development has not resulted in optimal living conditions. This has led to discomfort among local residents, especially if they have to live in close proximity to incompatible land uses such as food factories and other industrial premises.

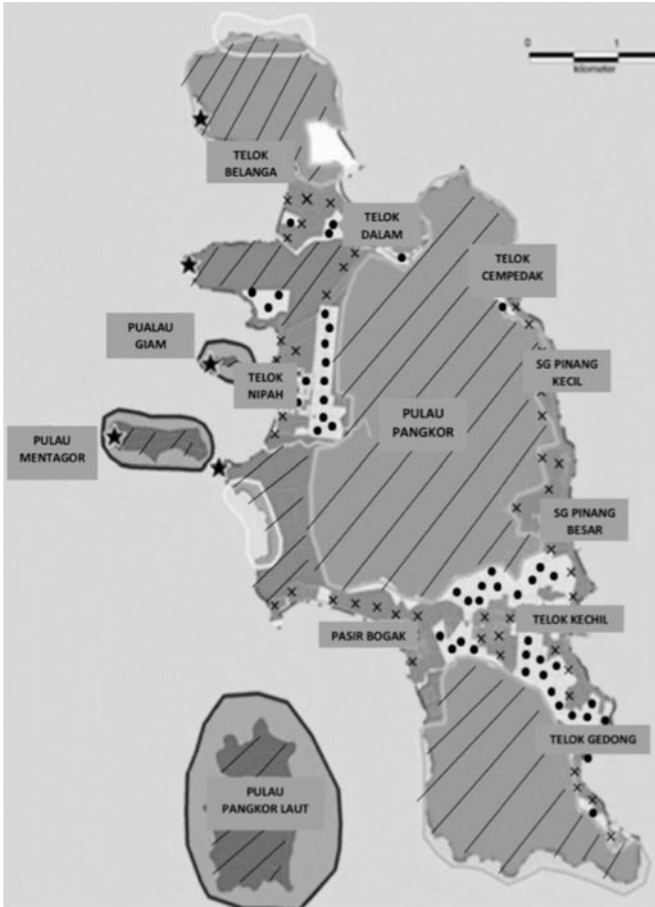
Based on site visits to Pulau Pangkor, it was also found that road infrastructure was inadequate, leading to conflicts in movement of road users. Most roads on Pulau Pangkor are relatively narrow; while this is not in itself a bad thing for a tourist island, it does pose a problem when the houses come too close to the road shoulders. Construction of houses too close to the road will threaten the safety of residents and becomes an inconvenience to the rising number of motor vehicle owners. There is also the issue of intermingling of private residences with tourist accommodation such as hotels and chalets, which is a phenomenon less than desirable in terms of privacy and family development.

### **Consideration of Natural Resources**

Pulau Pangkor is well-endowed with natural resources. Forest reserve areas (areas marked with slanting lines) dominate the island with an area of 1968.18 hectares in 1999; this has declined to 1554.38 hectares in 2015. This is roughly equivalent to between 70-80 percent of the total land area. Figure 3 shows that the potential areas (dotted areas) for future construction and development are very limited. The figure also shows the built-up areas (areas with symbol X) are already filled with buildings and there is limited land area available for future use unless some form of redevelopment takes place.

In the context of supply and demand, although the forest reserves experienced a reduction (from 89.26 % in 1999 to 70.50% in 2015), the forest reserves will continue to be protected by law and may not be used for any other purpose. These conditions inadvertently limit the supply of land available for future development, especially given the heightened concerns about environmental conservation and natural resources sustainability. Presently some residential areas have to be built adjacent to the forest areas, since forest reserves are dominant on the island. Residential areas built too close to the forest area will bring about security risks such as a threat from wildlife and potential occurrence of landslides.

FIGURE 3  
Natural Resources Conservation Area on Pulau Pangkor



\* forest reserve areas comprising North Pangkor Island Forest Reserve, Sungai Pinang Forest Reserve and South Pangkor Island Forest Reserve.

Source: Majlis Perbandaran Manjung, 2007

### Competition between Land Uses

Another issue arises from different demands for the use of land available on the island due to differing human needs for daily existence. This gives rise to competition for the use of land by various sectors on the island. Population growth will lead to growing needs for housing areas and other supporting sectors. The development of residential areas requires public facilities and infrastructure that can serve the community. These facilities and infrastructure need to be upgraded to meet current requirements of the island population.



Due to the nature of limited land suitable for use on the island, competition is intensified because of the rapid growth of tourism activities on the island. With an increasing number of tourists on the island, the business and services sector now not only need to serve the island community but also the transient population as well. The combined population depends on shopping centres, mini-markets and grocery stores. Service businesses such as restaurants, post offices, professional services and labour services will need additional land to accommodate an upgrade in service provision. The high demand for transport services, including ferry services, taxis, car and motorcycle rentals will also lead to an expansion of demand in physical spaces including parking and storage facilities.

### Concerns over Carrying Capacity

The carrying capacity concept is a planning and management process to identify how much change is acceptable for an environment, i.e. to determine thresholds and recommend actions to be taken to reduce or limit the negative effects (Lim 1997). The two main factors that determine the level of carrying capacity on Pulau Pangkor are population size and number of tourists (Majlis Perbandaran Manjung 2015). The number of residents on Pangkor is ca. 25,000. In that report, population is projected to grow by an annual average growth rate of 1.85 percent. The projected impacts will be an increase in demand of housing units, the need for more employment opportunities and the required improvements to infrastructure and utilities as identified above.

The number of tourists estimated in 2007 was 433,060: this is broken down into domestic tourists, estimated at 263,981, and international tourists, 169,079. In 2013, the number of tourists had reached 1,001,415 (Majlis Perbandaran Manjung 2014). In the report, the number of tourists is expected to grow by an annual growth rate of 5% per annum. The report also identified the impacts that need to be addressed including:

- The need to improve land and air transport services to encourage more tourists
- The need to provide more hotels and other suitable accommodation
- The need to upgrade the hotels and rooms to international standards
- The need for more labour in the tourism sector, and
- Increased need for skilled workers in the tourism and hospitality industry.

Hence, based on these projections showing a continuing increase in the number of residents and tourists, and acknowledging limitations of land resources on Pulau Pangkor, local management had to consider measures to limit the use of the natural resources for development. Sustainable land use is that which meets the needs of the present, while

simultaneously conserving resources for future generations. Land use has to be planned for the community as a whole because the conservation of soil, water and other land resources is often beyond the means of individual land users. We have to bear in mind that a community that destroys its land forfeits its future. Against this background, the development planning system and planning control existing in Peninsular Malaysia will be outlined first.

### **Development Planning System and Planning Control in Peninsular Malaysia**

The legitimacy of the planning system in Malaysia is enshrined in the Federal Constitution. The administrative system in Malaysia is divided into three levels: federal, state and local level (Figure 4). Each level of government has its own planning authorities. At the federal level, the Town and Country Planning Department under the Ministry of Housing and Local Government is responsible for developing policies that will guide the implementation at state and local levels of government. At the local level, the local planning authority executes town planning functions. Town and Country Planning Act 1976 defines a local authority as the local planning authority of a particular district or area. There are two main agencies responsible for planning and development control on Pulau Pangkor, namely: (i) Manjung District and Land Office, which is under the Office of the Perak State Secretary; and (ii) Manjung Municipal Council, which is the local government agency (Majlis Perbandaran Manjung 2007).

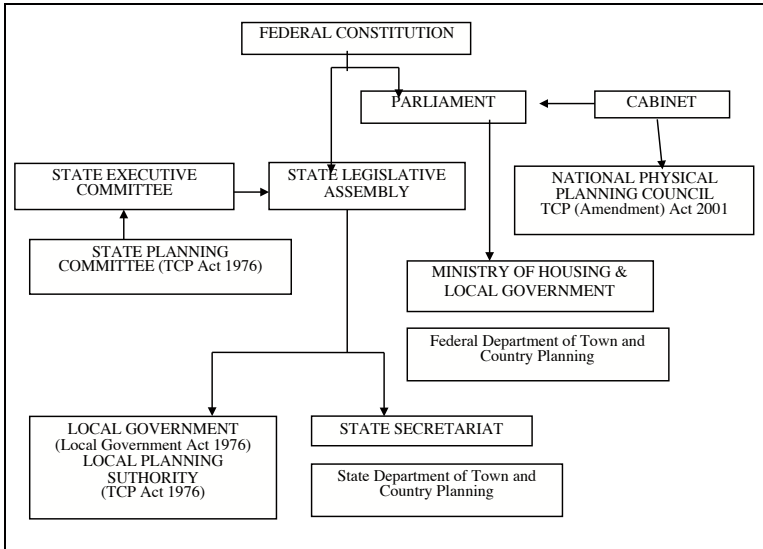
In Malaysia, development plans and policies are one of the dominant types of planning tools in the development process. Policies and development plans can be categorized into several different categories based on the policy duration and stages of implementation. Development policy in Malaysia consists of long-term, medium-term and short-term planning. It consists of the federal development plan and extending up to the special area plan. Implementation stage consists of federal, state and local policies; development plans are the joint effort and ideas of the planners from the federal, state and local agencies.

### **Land Use Governance and Its Link to the Development Planning System**

The notion of governance has long been a part included in the work carried out by international agencies such as United Nations Development Programme (UNDP) and the World Bank. According to the UNDP, good governance refers to governing systems which are capable, responsive, inclusive and transparent. According to the United Nations, governance refers to the practice of political as well as adminis-

FIGURE 4

## Institutional Framework of Land Use Planning in Malaysia



Source: Bruton, 2007 as cited in F. Ahmad, et. al., 2009

trative authority at every level in managing a nation's affairs. Two broad governance issues need to be prioritized; a) good governance must be implemented by all institutions involved to manage resources efficiently and effectively, to deliver public services in a fair and responsible manner and open to public participation; (b) the rule of law including participation, electoral integrity, freedom of expression, and political plurality must apply. We will examine the notion of land use governance and how it might relate to the existing development planning and control system.

Broadly categorized, approaches to land use governance have taken either a centralized or decentralized form (Steelman 2000). Centralization, according to Bollens (1993), is defined as "direct, non-local regulatory control or the promulgation of non-local standards with which local plans and decisions must conform". In this context, the holders of power at the central level, which is the federal government, became the dominant actor in the affairs of land use governance. The main challenges of this approach are: the difficulty of specifying general laws for specific and unique localities (Bollens 1993); conflicts with local culture and practices that create political and legal implementation challenges; and the difficulty of enforcing compliance with state or regionally promulgated rules. However, in this regard, Malaysia does not practice centralization of power over land matters in the federal government, as land affairs are under the individual state's jurisdiction.

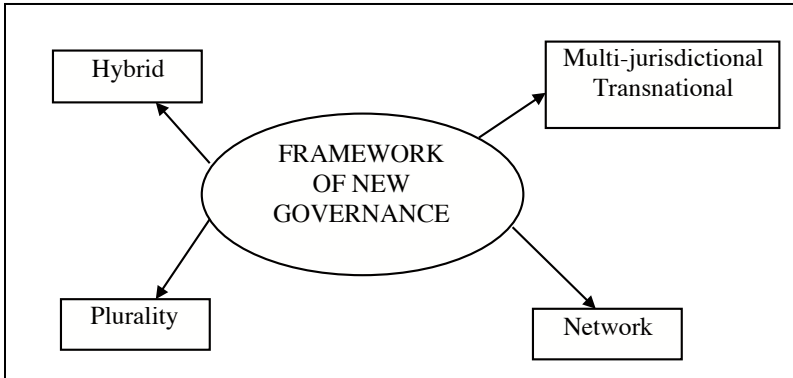
In contrast to the centralized approach, decentralized land governance is defined as when “minimal state intervention in growth management focuses state actions on providing guidelines, assistance and incentives for growth management by local governments” (Porter, 1992). Many previous scholars have agreed that this approach has a more friendly relationship with local communities. In Malaysia, this approach is at times practised by the state government, which devolved power to implement development planning at the local level.

Bevir (2013) describes ‘new governance’ as the one that combines the characteristics of hybrid, plurality, multi-jurisdictional, and network arrangements (Figure 5). A distinctive feature of new governance is that it combines established administrative arrangements with features in the market. Governance arrangements are often hybrid practices, combining administrative systems with market mechanisms and non-profit organizations. These features show the importance of the private sector strategy as being more effective and efficient than public governance strategy. The government of Malaysia, through the Malaysian Administrative Modernization and Management Planning Unit (MAMPU), has introduced several transformations to adapt several key corporate strategies regarding the system of governance and management in the public sector to improve the effectiveness and efficiency of service delivery to the public.

Another distinctive feature of governance is that it is multi-jurisdictional and often transnational. Current patterns of governance combine people and institutions across different policy sectors and different levels of government (local, regional, national, and international). In the case of development planning on Pulau Pangkor, several important internal actors are involved in the planning process. It includes government departments and agencies of the federal, state and local regulation authorities. For example, the Ministry of Housing and Local Government (federal), the Department of Perak State Town and Country Planning (state), and the Municipal Council (local government). Each stage involves the administration and governance systems that differ by the type of development plans to be produced. For example, the 5-Year Malaysia Plan (MP) and the National Physical Plan (NPP) are development documents produced at the cabinet and ministry level, while the Structure Plan (SP) is produced by the State Town and Country Department.

A third feature of governance is increasing the range and plurality of stakeholders. These interest groups, including non-governmental organizations, are increasingly actively involved in the decision-making process regarding planning and development. Stakeholders involved in the process of governance in Pulau Pangkor encompass all

FIGURE 5  
Theory of Governance



Source: Bevir, 2013

that is representative of the community, such as residents' associations led by the head of the village, fishermen's associations, car rental associations, industry associations, tourism associations and other organizations represented by a group of individuals who share the same common interests. The increasing range and variety of stakeholders has led to the emergence and active promotion of new practices and institutional designs, including public-private partnerships and collaborative governance.

Finally, governing arrangements, different levels of governance, and multiple stakeholders are linked together in the same network. This network will determine the overall direction of a governance system and shaping some other important elements such as the management ecosystem, actors involved, communication methods used and effective strategy decisions. Network in the context of land use development outlines the relationships between the various elements and components involved in the development planning and control activities.

### Conclusion

As can be seen from the above discussion, land availability on Pulau Pangkor is influenced by the topography of the island. More than 70% of the island is forested and hilly with heights of over 200 metres above sea level. Hence, areas deemed suitable for development are limited. Future development has to be mindful of the need for conservation of natural resources and sustainable land use. This article has outlined several land use challenges with respect to organic urban growth on the island, such as land use conflicts, intense competition between land uses, and concerns over the island's carrying capacity.

In Pulau Pangkor, land use conflicts stem from limited land resources, especially the availability of land for development, land use conflicts and imbalances of development. Land use conflicts occur as a result of organic land use development with the pattern of urban development starting from Pangkor Town and expanding to the western corridor of the island. In addition, there are also serious problems in the transportation system such as narrow roads that make it difficult for rescue teams to reach their destinations to perform rescue work. Furthermore, many vehicles belonging to islanders parked on the side or shoulder of the road invite the risk of accidents and theft. The increase in population continues to put pressure on the need for land use for various development purposes, especially housing, commercial, infrastructure and public facilities and so on (Ng et al. 2017). In this regard, planned and sustainable land use planning is essential to manage these issues effectively.

The article identified that a key factor in achieving sustainable land use development is through the existing development planning and control system. A well-planned land use zoning system, provision of open space and recreational areas, provision of community facilities are among aspects that can impact positively on residents' living environment. Planning mechanisms and planning controls play a crucial role in sustainable land use development.

Finally, a land use governance framework needs to be incorporated into the development planning and control system. The new governance structure as suggested by Bevir (2012) will be able to strengthen the existing process. This includes hybrid practices between public-private organizations. The Majlis Perbandaran Manjung and the Manjung District and Land Office are the main local internal actors. However, other agencies involved in developing and formulating effective policies, legislation, control, and management are important partners too. The increasing variety of stakeholders involved in the process of governance on Pulau Pangkor has led to an active promotion of collaborative governance. The network of co-collaborators will determine the overall direction of the governance system in shaping the management ecosystem and arriving at effective strategy decisions. Empirical case studies addressing a number of these areas and concerns are desirable, including interviews with a range of stakeholders at multiple levels.

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