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## Development Pressure in South West District of Penang: Issues and Implications

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### Abstract

Urban land use is one of the main subjects in a town's physical development or a town's analytical research and deemed crucial in planning and controlling urban development. Nevertheless, rapid increase in urban population also means high demands on urban land. Drastic pressure of development has changed the pattern of land use in this area and some projects even go the extent of going against the state policies particularly the State Structure Plan and Local Plan. This article attempts to evaluate the changes affecting land use as well as to suggest suitable recommendations which can facilitate more comprehensive planning.

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### 1.0 Introduction

According to Burgess (1925), urban growth is a process of expansion and reconversion of land uses, with a tendency of each inner zone to expand in the outer zone. On the above figure, zone II (Factory zone) is expanding towards zone IV (Working class zone), creating a transition zone with reconversion of land use (Figure 1). Although the Burgess model is simple and elegant, it has drawn numerous criticisms: However, the Burgess model remains useful as a concept explaining concentric urban development, as a way to introduce the complexity of urban land use and to explain urban growth in American cities in the early-mid 20th century. Hoyt (1939) suggested in Sector Model

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(Figure 2) by accepting the existence of a central business district, the zones expand outward from the city center along railroads, highways, and other transportation arteries. Using Chicago as an example, an upper class residential sector evolved outward along the desirable Lake Michigan shoreline north of the central business district, while industry extended southward in sectors that followed railroad lines.

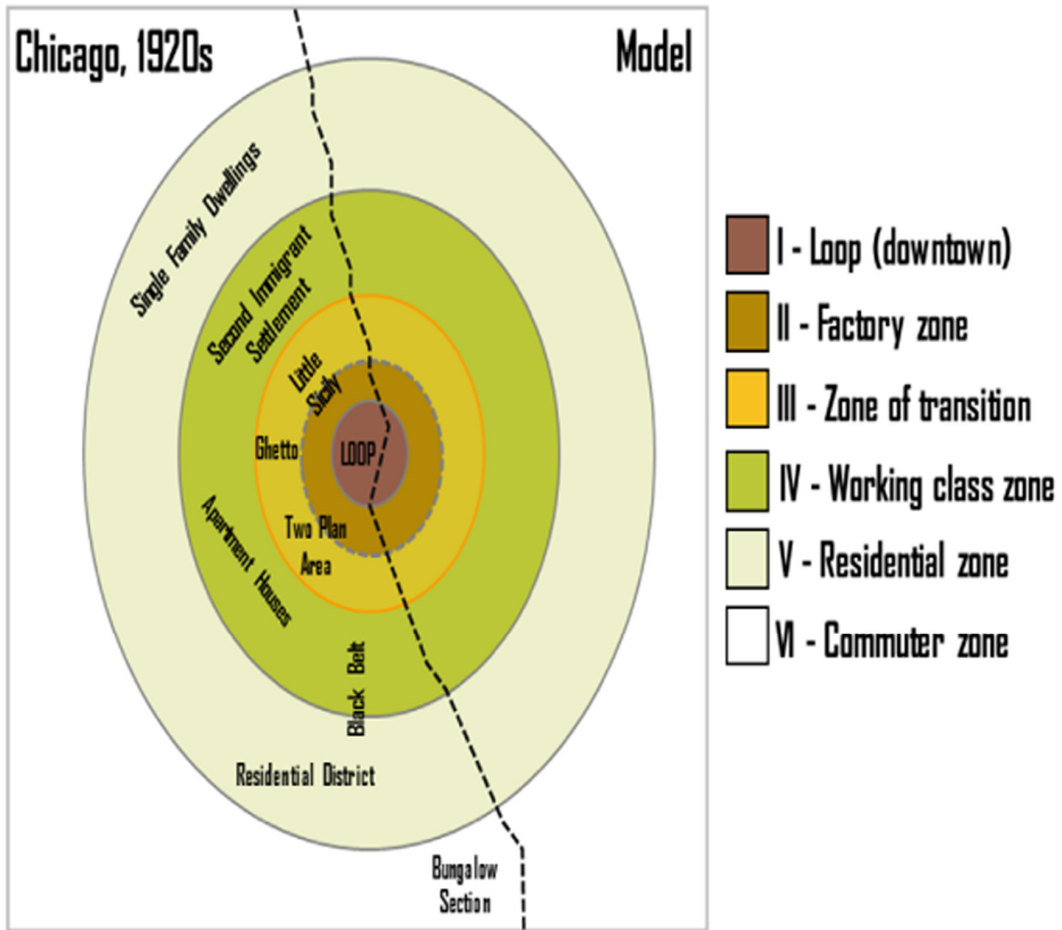


Figure 1: Burgess Land Use Model (1925)

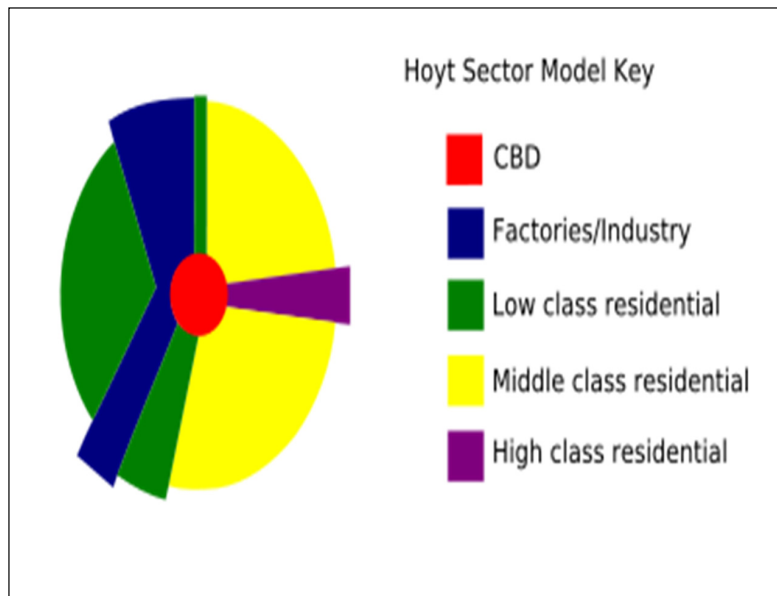


Figure 2: Sector Model by Hoyt (1939)

In the context of this research, industrial decentralization strategy has left a huge effect on changes of land use patterns. Changes in land use from farming to other functions, chiefly in order to build city centers, new housing areas and industrial areas have expedited the development of previously underdeveloped areas. At the same time, the development of physical infrastructure and other social amenities are also built for people's use. The creation of Free Trade Zone has further encouraged the development of industrial-based new towns. Areas like Bayan Baru, Bayan Lepas and Batu Maung are some instances of towns which are created due to the strategy.

Rural urbanization strategy is another influence on land use patterns. This strategy is carried out with the aim of reducing congestion in metropolitan areas by channeling migration to these new towns. Another facet of this strategy is to introduce a town's environment, services and facilities to rural areas. Towns like Sungai Ara, Bukit Jambul, Bayan Baru, Bayan Lepas and Relau are new settlement centers which are created through the rural urbanization strategy. By the same token, the phenomenon of change in land use patterns especially the ones which happen drastically and uncontrollably is feared to leave negative impact on the socio-economic, demographic and geo-political aspects of a certain area. Continuous pressure of development affects the application of rules for farming land. This in turn influences the activities of planning applications which are forwarded by property developers. As time passes by, changes in land use patterns can be seen clearly through its influence on landscape or design of new developments (Akkerman, 2000).

## 2.0 Population

The total population for Penang in the year 2000 was 1,313,449, with 12.9% or 169,442 people living in the south west district. The distribution of population showed that there was higher a number of population in the north east district which made up 33.9% of the total population. Population projection until 2010, 2015 and 2020 has shown a positive growth with more than 2% growth rate per year, including the south west district. It is expected that higher concentration of population in this district will be found in the south east area like in Mukim 11, Mukim 8 and Mukim 7. Even though it is expected that there will be more Bumiputeras in this district compared to Non-Bumiputeras, the future pattern of land use development especially in housing will have a large influence on the projection and composition.

### 3.0 Land Use Pattern And Development's Pressure On The South West District

A major part of the south west district, especially Balik Pulau area has been proclaimed as coastal area and has been classified as 'paddy land' or 'kampung land'. Nevertheless, today the previously declared 'paddy land' is no longer used for paddy cultivation; this land is now developed for housing, as permitted by the state government. The declared paddy area involved 10.4 square km, representing 3.52% of the size of the Penang Island. The east area of Balik Pulau consists of hill land which was decreed under the Land Conservation Act, 1960. Most of these lands are located on the contour grid which is higher than 250 feet and any kinds of development are strictly prohibited, as outlined in the Penang State Structure Plan. The main objective of this act is to preserve and control soil erosion as well as not to allow this area to be cleared or cultivated for short term farming, or developed for other reasons, except with the permission by the Land Revenue Collector and is declared. As big as 11, 236 square km of land or 38% of the island is governed by this act (Comprehensive Development Plan, 2006).

Water Enactment Act, 1967 also outlined land use control policy by not allowing any development (building or renovating) within the distance of 50 feet from the river bank, which involved Sungai Korok, Sungai Kongsu, Sungai Samagahah, Sungai Relau, Sungai Burung, Sungai Pondok Upeh and Sungai Nipah. Sungai Burung Irrigation Areas well as Permatang Damar Laut Irrigation Area are two main areas which have become the constraints to land use developments in the south west area of Balik Pulau. The declared area for reservoir is 51.63 square km or 17.5% of the island size. Forest reserve areas that have been proclaimed following the Forest Ordinance NS Chapter 147 (including Reservoir Area) have also become the constraints to any suggestions for future developments in the south west area. This includes Pantai Aceh Forest Reserve and Telok Bahang Forest Reserve which are located in the north, Bukit Laksamana Forest Reserve, Bukit Kerajaan Forest Reserve and Bukit Relau Forest Reserve in the east, Bukit Gemuruh Forest Reserve on the south and Balik Pulau Forest Reserve on the west. The location of the main forest area is at the level of 300 to 750 meters, with the size of about 52 square km or representing 17.3% of the size of the island.

Based on these four constraints, it is obvious that the actual land use development in the future is very limited in the south west district. Future developments will only be allowed in areas which are not bound by the acts. This district has also become the focus for any suggestions for developments as stated in the Balik Pulau Local Draft Plan. Limited possibilities of future development have also made this area become popular for applications for developments from developers. This is evident from observation of the current land use developments which are obviously concentrated in several areas like Bandar Bayan Baru, Bayan Lepas, Teluk Kumbar, Sungai Ara and Relau, which at the same give pressure of developments on its neighbouring areas. Today, farming land use includes the largest area which is about 2533.3 acres, representing 49.58% from all areas with a concentration on the east side of the south west district. Land use for housing as allowed by the Interim Boundaries Plan represents 18.83% of the whole area which is 962.31 acres, which covers areas from Balik Pulau to Pondok Upeh. Meanwhile, other land use like business, school and government use is still small, represented by not more than 1% from the total area.

Hill land which involves 1,555.46 acres in size or represented by 20.4% from the total area in the south west district has been maintained and proclaimed under the Land Conservation Act 1960. In the year 1970, Penang State Main Plan (1970-1990) was introduced and outlined a few policies and main strategies for state development, including the south west district. Farming land use area has been maintained and Pondok Upeh has been identified for development as the Growth Centre. Realising the existence of too many control instruments on land use and developments and conflicts which arose due to the directives from the State Planning Committee, under the provisions of Section 4(5) Town and Country Planning Act 1976, one main basic plan, Municipal Council of Penang Island Planning and Development Control Policy Plan was drawn up and enforced in October 1996. The main objective if this action was to coordinate all plannings, policies and guidelines for the purposes of planning and controlling of development in the MPPP areas, including the south west district. One of the main functions of this plan is to replace the Interim Boundaries Plan and Land Use Policy Plan which used to be the base for land use control in this state.

Specifically, this Municipal Council Of Penang Island Planning and Development Control Policy Plan is aimed at preparing detailed control about future land use and land use developments including land use change and building activities in the MPPP areas. This basic plan is also supported by a few guidelines and lay out plans which involve controlling criteria like density, plot ratio, building height, building type, design and others. All these are stated in the

Guidelines for Planning Control. Among the main issues that have been identified in the Municipal Council of Penang Island Planning and Development Control Policy Plan is allocation for the density or plot ratio following the Planning Control Zones.

For areas which are zoned as the housing area, the allowed housing development is not more than 5 levels. This includes Teluk Bahang area, Teluk Kumbar, Gertak Sanggul, Jalan Kampung Bahru, Sungai Rusa, Sungai Pinang, Balik Pulau, Pulau Betong, Kampung Pantai Acheh and Batu Maung. For Kampung Housing Zone, any developments in new housing in this area should be suitable in terms of architecture, lay out, scale, colour, and kampung house design which complements the existing environment. New units should not be raised more than two levels. For the existing housing areas (bungalow type), an addition of a house unit is allowed until the maximum density of six units per acre with minimum plot size of 600 square feet per plot. For General Tourism Zone, business/hotel category, the plot ratio allowed is 2:5:1 or 3:5:1 and maximum 5:1 for business and 6:1 for hotel. Meanwhile, the density for housing/apartment for service is allowed for 15 units per acre with the maximum of 30 units per acre. On the other hand, the density of plot ratio development for Farming Zone has been detailed that for land not in the First Grade Grant or land for farming category, a one unit house or a bungalow per lot is allowed even without proper road. Lot boundaries' separation is allowed if the road or access is legal, perfect and the minimum lot size is one acre. In the meantime, for First Grade Grant farming land which has villages, the allowed housing density is maximum 6 units per acre. However, for Hill Land Planning Control Zone, the allowed density is one unit per lot. Nevertheless, separation of lot boundaries is not allowed and ground works and cutting of trees are also prohibited unless permitted by the local authorities (MPPP).

From time to time, the south west district receives pressure from developers as well as individuals who sent applications for land use development, wanting change especially from farming land use to other types of land use like housing, business and mixed development. The application for land use change mirrors future land use developments and is seen as an indicator of the latest trend of land use generally. The applications for land use change which had been forwarded to the the District and Land Office, South West District from the 1970s to mid-1990s showed that more applications were made for Bayan Lepas area, Batu Maung as well as Teluk Bahang. Efforts in land use developments for industries due to the enforcement of urban policy and cottage industries influenced this situation when many farming lands' statuses have been changed to industrial land use to support the Free Industry and Trade Zone (FITZ) which are developed by the Penang Development Corporation. For Teluk Kumbar area, many applications for land use change was found after mid-1980s, believed to happen due to the dispersion of development to new areas. A more interesting pattern is the higher number of applications for land use change in the area of Batu Maung from 1990s until today, as a response to housing and industrial developments, as well as reclaimed land activities (Kamarudin Ngah, 1993).

An analysis on the Application on Planning Permission showed a high number of applications from early to mid-1990s; however this number showed depletion towards the end of 1990s due to the country's economic setback. Rapid developments have occurred in this decade until now, parallel to economic growth and good property market, especially in Mukim 12 Bayan Lepas, Mukim 11 Teluk Kumbar and Mukim 9 Bukit Gemuruh. Mukim 12 Bayan Lepas is seen as an area that has received a massive pressure for developments and it is represented by 60% of overall number of approved Applications on Planning Permission. Specifically, the focused areas of development are noticeable in the areas of Bukit Gambir, Batu Uban as well as along the coastal road, starting from the exit of the Penang Bridge going to the south until Batu Maung. On the north, development is focused on Bayan Baru town centre, Bayan Lepas, Sungai Ara, Bukit Jambul and Relau. About 60% of these Applications on Planning Permission included land use developments for housing, especially terrace and apartments. This is followed by business land use and mixed land use.

Changes in land use pattern have left massive effects on the design and local landscape or newly-developed town. Land use map in the year 1980 for instance showed a flow and direction as well as land use pattern which were focused along Bayan Baru to Bayan Lepas and Batu maung, mainly spreading into the main roads. Industrial land use was concentrated on the area of Bayan Baru-Bayan Lepas, whereby land use for housing is still showing a concentration in the main housing areas like Relau, Bayan Lepas, Batu Maung, Teluk Kumbar, Teluk Bahang as well as a few traditional hamlets in the Balik Pulau area. In the 90s decade, pressure of development dispersed to the areas of

Mukim 12 Bayan Lepas dan Mukim 13 Paya Terubong, in which a large chunk of its areas are hilly, as well as around Relau, Sungai Ara and Gertak Sanggul, with the main focus on housing land use. Future pressure of development is expected to focus on the south west district due to the maximum use of space in the north east district. Coastal areas in the north like Teluk Bahang will remain as a corridor of tourism land use to support the developments in Tanjung Tokong and Batu Feringghi.

#### **4.0 Issues and Constraints**

Rapid developments in land use in the south west district have changed the social structure of settlements in this area. The approved development type especially luxurious housing units and condominiums is actually very far from the actual economic capabilities of the local communities. In fact, the development concept planned and executed by certain government agencies do not reflect the real aspiration and needs in addressing land use issues and affordable housing in this district, particularly for the Bumiputeras. The implication of this is now there is a new socio-economic structure in the newly developed area with more dominant participation of Non-Bumiputeras, especially for business land use and housing. The construction of Bandar Baru Air Putih for example which involves an area of 250 acres which is expected to function as the administrative and education centre in the area of Balik Pulau and the main town for the south west district, seems to raise issues in dominance on property ownership. Similar problems are also visible in the trade and new housing areas like Relau, Bukit Jambul, Batu Uban and Bayan Bay, which leaves a very conspicuous mark on the socio-economic structure and property ownership in this state.

Traditional settlements like Kampung Permatang Tengah is an example where the local community is facing issues with the development of land use which sidelines their importance; in fact, such development will only create a new socio-culture with the influx of new residents. In the long run, this phenomenon will also leave its mark on the area's geo-political structure. In the situations when the farming lands are regarded as having potentials for land use development in the future, obviously the examination of the process of Land Conversion as well as the Application for Planning Permission is parallel to the 'location decision-making' made by the property developers in planning land use development from farming land to housing and business land use. However, in this context, the functions of farming land use and maintaining the settlements and property ownership amongst farmers and rural people should not be treated as a small issue.

Other than the factor of existing land, developers as well as administrators or planners are of the view that decision making concerning locations for developments is influenced by the government, especially the declared policies. In this context, state development policy which is set in the Structure Plan as well as details in the Local Plan have become the main guidelines in channeling the developers and administrators or planners to make decisions for the applications based on type, location and size. Detailed zoning following the classification of a variety of land uses become one main public policy mechanism in deciding the place for location for land use development by the developer. At the same time, it becomes a guideline or point of reference by the Local Authority in giving permission or allowing any applications submitted by the developers.

#### **5.0 Conclusion and Recommendations**

The unique characteristics of the south west district of the Penang Island which see most of the areas being declared as coastal areas, forest reserves and hill land, result in only a small portion of the area having the potential for development. The topographical design becomes the main physical constraint which hinders land use activities in the future. In the meantime, pressure of development from outside areas which border the district like Bayan Baru, Relau, Paya Terubong and Batu Feringghi are seen as threats to controlling land use development in this area, if not managed well. Due to this situation, the south west district requires a policy of land use development which is more comprehensive and is not limited to the planning aspect or controlled development per se. Hence, a Comprehensive Land Use Plan and Management Policy are suggested with the aim to control and organize a more rational development which also helps to conserve natural resources. This policy has to combine two main aspects which are inter-related: planning of development and managing land resources.

Planning of Development involves having a proper and rational filtering system on every strategy and land use development programme for every level of application: land conversion, changing ownership, applying for development, permitting project/ lay out plan, joint-venture / collaboration, companies/special bodies, state government and federal government. The filtering process does not only evaluate the rational needs (including elements and performance of demand elasticity and offer, affordability to own) only but it also takes into consideration ‘geniusloci’ (the associations and influences of a place/the tutelary of a place), for instance the suitability of type and development scale in the socio-cultural context and economy of the local community. The existing acts and guidelines: Town and Country Planning Act 1976, Local Government Act 1976, Penang Island (Earthworks) By-Laws 1975, Land Conservation Act 1960, Environmental Quality Regulations 1979 as well as other regulations must be enforced well. Land use pattern on the south west district also shows that there is a disparity in ownership amongst the ethnics as well as a distribution of geographical space which is imbalanced. Concentration of development only in certain areas will create congestion and land use overcrowding which will later influence the quality of life, as what has happened in Relau area, Bayan Lepas and other new settlements.

In order to preserve the local importance, a Private Sector Development Policy has to be introduced with the aim to maintain the welfare of the residents or the would-be residents of an area that will be developed by the private sector. Social obligation concept and conflict resolution between the residents-developer must be handled using a system that is more equitable. Concurrently, the principle of public participation in planning is manifested in this policy to make way and maintain rights to determine the kind of environment that is wanted without disregarding business profit and social obligation of the developer. A selective pattern of approach has to be adopted to control the wave of development in the south west district. The existing farming land has to be developed parallel to the efforts to develop agro-tourism and to provide support to the objective of making this district as a centre for production, processing and main supplier of agro-based products for the whole of Penang. In this context, tourism programme in the form homestay as well as the conservation of living heritage in farming land and forestry can be undertaken in order to balance the pressure of land use in this district as well as to optimize the existing resources. All the issues addressed in this article need serious attention from all parties so that land use developments in this district can be proclaimed as considering all the socio-economic and local culture and at the same time allowing an optimum land use development which can benefit the whole population. The recommendations given are not exhaustive but should be seen as a variety of alternatives which can be considered to solve and reduce the issues and land use conflicts in the south west district of the Penang state not only for today but also in the future.

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