WATERFRONT DEVELOPMENT FOR RESIDENTIAL PROPERTY IN MALAYSIA

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Abstract

Rivers and water are valuable natural resources for human life, environment and national development. Recognition of water resources as national heritage will contribute towards more long term sustainable property development. Waterfront development is already a well-established phenomenon internationally. In Malaysia, as the economy began to change in 1980s, so did the land uses along many of the river and waterfront locations. The pressures of new technology coupled with an urban population growth and urbanization began to force a transition from water dependent industry to a variety of non-water dependent developments such as apartments, offices, and retail shopping areas. Residential waterfront development has taken advantage of available land and water amenities and incorporated as a feature or "selling point" of the development. It has been found that wide views of water add an average of 59% to the value of waterfront property, as well as providing attractive landscaping and better property neighborhoods respectively. Development of waterfront lands in Malaysia occurred with limited federal, state, or municipal planning guidance; resulting in cost aspects like flooding and pollution. Although some waterfront development projects continue to remain profitable with a maintained successful public access component, many have not. This paper provides a brief introduction to the research project to address this issue, which is currently on-going.

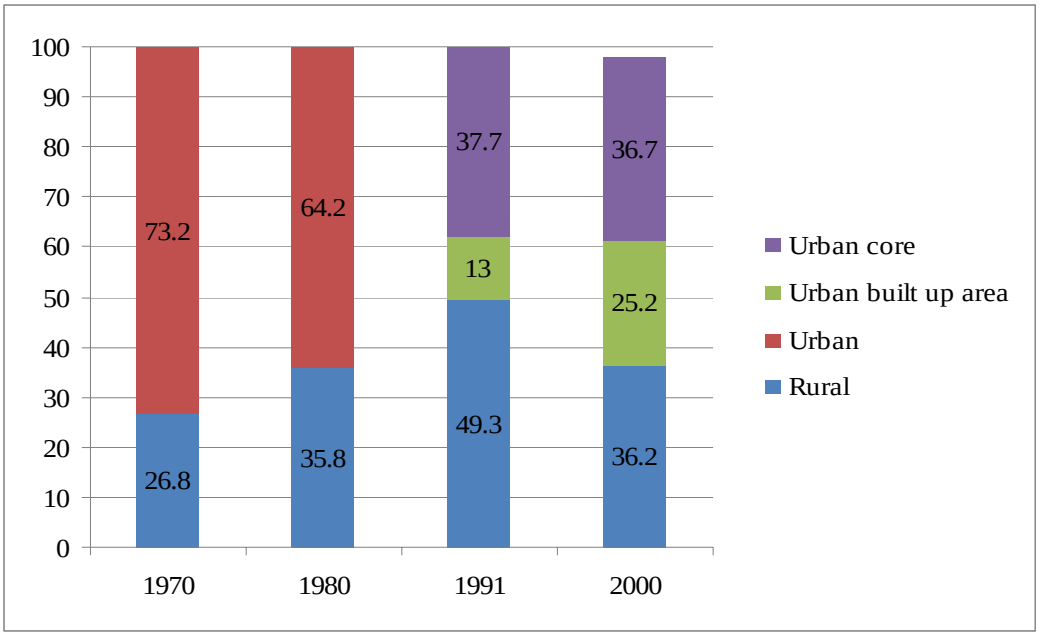
Keywords*: Waterfront, Waterfront development, Riverfront, Residential properties, Guideline*

1.0 Introduction

Malaysia has 519 rivers, with approximately 57,300 kilometres length, and 189 function as a river basins with 30 of them functioning as reservoirs, which supply the 28 million people living in Malaysia with clean articulated water (Department of Irrigation and Drainage, 2009a). Since the beginning of civilization, rivers have played a major and important role in shaping and influencing the development of the nation and the cultures of its people. Almost all major towns in Malaysia are located close to river areas.

Population growth and urbanization over time in Malaysia has lead to an increase in housing demand in urban areas. As with many other countries, the increase of population size in urban area has been faster

than in rural areas and often at the expense of the rural areas. According to Jaafar (2004) almost 61.8 percent of the world population resided in urban areas in year 2000, compared to 31.8 percent in 1980. Figure 1 shows the distribution of Malaysia population by stratum between 1970 and 2000.



(Source: Jaafar, 2004)

Figure 1: Distribution of population by stratum, Malaysia between 1970 and 2000

The current pattern of urbanization in Malaysia has seen the expansion of growth in some areas, not only within legal boundaries, but also spillover into their peripheral surrounds. This phenomenon indicates that the urban population started moving out from densely populated urban areas to settle in the outer limit of urban boundaries.

As a result, Interest in revitalizing community waterfronts is booming in Malaysia. Many developers (private and public) started to initiate development projects close to waterfront areas and people desired more close-to-home recreation, including water activities and views. Glennmarie Cove at Klang Valley and Kingfisher Cove at Likas, are an example of housing developments categorized under waterfront development. In addition, private developers began taking the opportunity to learn how to turn water into gold by exploiting the waterfront's ambience in the marketing of their projects. However, the implementation of these projects are more driven for investment purposes rather than to community needs, with developers neither taking part nor contributing to the government to sustain water as an asset to the country.

In addition, inadequate policy and guidelines related to these developments, at every level of government, caused a negative impact rather than beneficial impact to all participants especially in relation to

environmental problem and sustainable human settlement. This paper will briefly discuss this issue and the subsequent findings could contribute much to the final output of this research which is currently being undertaken.

2.0 LITERATURE REVIEW

Waterfront and Waterfront development

According to Dong (2004), waterfront is defined as *"the land fronting on to water"*. This terminology has been used widely by many researches, but some researchers include different definitions, such as city port, harbor front, riverside and river edge (Hoyle, 2002; Mann, 1973; Tunbridge & Ashworth, 1992; Watson, 1986).

US Federal Coastal Zone Management Act, Office of Ocean and Coastal Resources (1972) officially defines the term urban waterfront as, *"any developed area that is densely populated and is being used for, or has been used for, urban residential, recreational, commercial, shipping, or industrial purposes".*

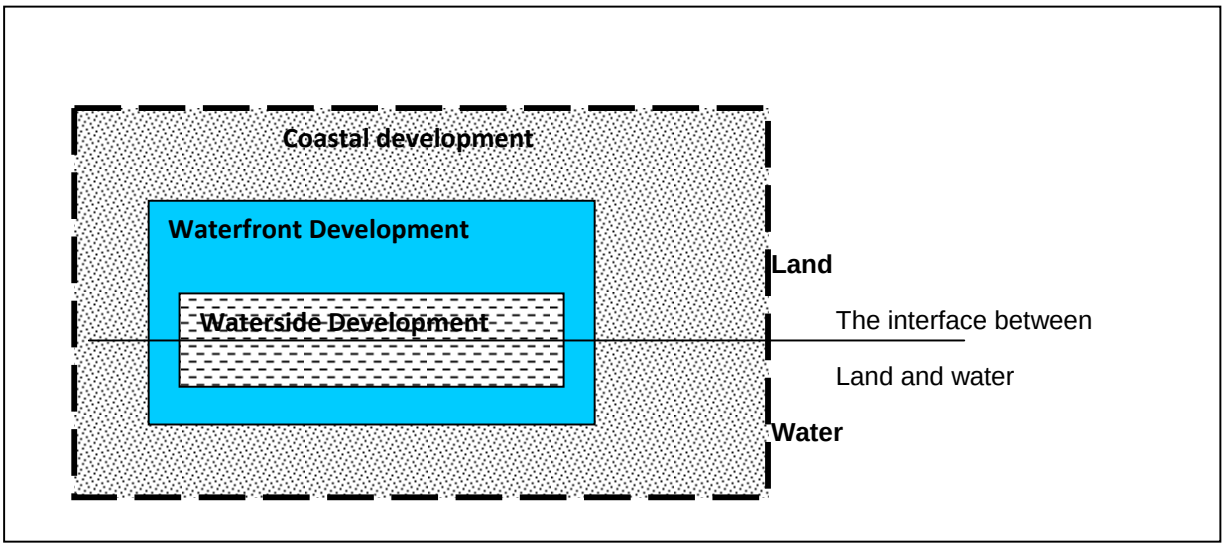
Wrenn (1983) explained that waterfront is a unique and irreplaceable resource, where it is the interface between land, water, air, sun and also a productive plant. Breen & Rigby (1996) believed that waterfront property may not necessarily need to be directly fronting to water but may only need to look attached to the water. He added, for some cases, commanding a view of water can be considered as waterfront property. In addition, Ryckbost (2005) noted, in the development area, waterfront perhaps can be an ocean, lake, river or stream.

Zhang (2002) characterized waterfront as a place integrating land with water and having a natural attraction to people. In addition, waterfronts were the most attractive water features for human settlement. Therefore, by considering many factors, Ryckbost (2005) concludes that waterfronts are *"any property that has a strong visual or physical connection to water".*

Waterfront developments have several expressive and varying interpretations due to characteristics of sites and cities (Dong, 2004). Breen & Rigby (1994) see urban waterfront as any development in towns and cities of all sizes, and water body may be a river, lake, ocean, bay, creek, or canal. He described that the waterfront projects may include buildings that are not directly on the water but are tied to it visually or historically, or are linked to it as a part of a larger scheme.

Goodwin (1999) identified that waterfront boundaries are difficult to determine because they are contained mixed use development, which is relatively homogeneous. In Japan, urban waterfront

developments were endorsed in the third national development plan in 1977 as an addition for existing waterfront development. Figure 2 show the difference among three interrelated concepts to elucidate the definition of waterfront development in Japan (Jin (1994) as cited in Dong (2004)).



(Adopted from Jin (1994) as cited in Dong, 2004)

Figure 2: The territories of waterside, waterfront and coastal development

Initial waterfront developments focused on commercial and urban waterfronts and began as commerce centers (Breen & Rigby, 1996, 1994; Ryckbost, 2005) and survived on trade. Meaning that, the city or town, which was located on an inland river or water mainly focused on water for transportation of goods. Waterfront communities developed after sailors and some traders settled down along the waters edge, but typically among middle and lower classes who resides in these commercial or industrial waterfront areas. As a result, industrial buildings and warehouses were developed along the waterfronts in order to cater to trading and finally becoming a focal point for the city.

Expansion of city size, economic growth, industrial revolution (from 18th to 20th centuries) and reformation of transportation technology has resulted in a decline of waterfronts (Hoyle, 2002; Hoyle & Pinder, 1992; Hoyle, Pinder, & Husain, 1988; Tsukio, 1984). Besides that, people started to move to live in more peaceful areas due to pollution by waterfront manufacturing and industrial uses. Consequently, warehouse and manufacturing facilities along the waterfront were left unused and became the eyesores of the community (Dong, 2004; Hoyle & Pinder, 1981, 1992).

After decades of experienced depression, a massive redevelopment initiative began within the abundant property class (Ryckbost, 2005) and consequently initiated the world-wide era of waterfront revitalization (Hoyle, 2002). In addition, Gospodini (2001) explained, most of the waterfront redevelopments occur in the larger context of urban renewal.

The urban waterfront redevelopment phenomenon of our time began in earlier in the 1960's, bloomed in the 1970s, accelerated in the 1980s (Breen & Rigby, 1994) and will be continued. Historically, waterfronts developments have undergone cycles of transition from water dependent industry (industrial, shipping, and transportation uses) to more public endeavors. Hoyle (2001a) noted that urban waterfront redevelopment, is mainly but not exclusively associated with port cities.

Moreover, between 1970s and 1980s waterfront development and renewal was specifically focused on North America and Europe and steadily expand to Australasia and Japan (Hoyle, 2001a). However, some Newly Industrializing Countries (NICs), Islamic cities and Less Economically Developed countries (LDCs) (Hoyle, 2002) commenced looking at potential waterfront developments in the 1990s, but the purpose was varied from the common waterfront development concept. The development specifically focused on the context of colonial heritage conservation and urban renewal (Arab Urban Development Institute (Riyadh, 1988; Gospodini, 2001; Hoyle, 1999, 2001a, 2001b).

Many cities have already successfully made this transition. The three cities recognized by the media and academics as the leaders of the waterfront redevelopment in North America are Baltimore, Boston, and Toronto. The well publicized success and increasing number of waterfront redevelopment projects taking place in other countries has contributed to a rapid spread of interest in this concept of development (Breen & Rigby, 1994). Although the scale and type of redevelopment of the waterfront varies from city to city, due to the patterns of original development, the basic concept of development is similar. To date, the new era of waterfront developments should continue to respond to new and changing demands, while attempting to maintain its heritage and preserve its natural features (Zhang, 2002).

Waterfront development in Malaysia

A river is a valuable asset for the country and serves an important role for communities for thousand years of human history. It is lifeline of human settlement all over the world. In Malaysia, civilisations have been established along river areas since the earliest time and today, Malaysian rivers shape the life of the

communities along its banks. In addition, thousands more of the Malaysian population use the river for industries (port) to move goods, transportation (waterway), supply water, generate power and recreation. The rivers are also a home for many water ecologies and support ecosystem. Although each of these habitats serves various purposes, they are interconnected with each other and support the overall health of the river. Clearly, rivers are living entities that play a huge role in our lives, environment and natural development (Department of Irrigation and Drainage, 2009a). **Table 1** summarizes the economic important of river for human life in Malaysia and globally.

Table 1: Economic value of the river

Economic Value	Role
Source of drinking water	In Malaysia, rivers provide 97% of our water supply. Among the 189 river basins, 30 of them function as reservoirs which supply the 28 million people living in Malaysia with clean water.
Agricultural	River used to grow crop and plantation through irrigation system.
Industry	Industries need water to manufacture the products that we use. Everything from computers to clothes to paper needs water at some stage of production.
Livelihood	Many local communities "orang asli community" usually depend on the resources provided by the river for main food (fish) and income for living.
Transportation	River has been used as the main form of transportation for people all over the world before others alternative of transportation are invented.
Biodiversity	Rivers are home to a wide range of plants and Animals which live in and around them. Around 40% of all fish species are freshwater forms.
Domestic use	Water from our taps also used for other things (domestic use). Without rivers, our only other source of freshwater is rainwater.
Recreational	Rivers are widely used as a recreational area. Left in its natural state, rivers and its surrounding forest area make a great place for picnics, camping, and canoeing. In some developed countries, rivers are used to run cruises that take tourists on a tour of the city.
Religion	River is used in numerous religious ceremonies and festivals because water is always considered the purest resource on earth.

(Adopted from: Department of Irrigation and Drainage, 2009a)

In Malaysia, the history of waterfront development began in line with the urbanization process. Urbanization has transformed Malaysia from mere back water to a modern and fast developing country. It is also ever changing the life style of the Malaysian population. The expansion of population out from densely populated urban areas to settle in the outer limit of urban boundaries initiated waterfront housing

developments. This transformation symbolises the independent city state effort to remake itself for the 21st century. The current pattern of waterfronts development is specifically focusing on recreational and mixed uses development type. It is interesting to have an overall picture of waterfront development in Malaysia for the past two centuries. The history milestones of waterfront development in Malaysia can be divided into four periods which are in line during urbanization periods;

Table 2: An evolution of waterfront development in Malaysia

Phase	Activities
First phase: During colonial rule (1887 – 1956)	• The river was the most important means for domestic and trade transportation. • Growth of society along the river edge initiated the emergence of port towns and several other urban forms. • Business related to the river activity expanded and the river transformed into a focal point. • Later in this period, shows the relocation of people, especially Chinese, into "new village" during the emergency period (1948 to 1960).
Second phase : After independence & early urbanization (1957 – 1969)	• The developments continue along the river edge and the establishment of the perception of rivers as public open space corridors. • The government started to separate Malaysians from different groups. • Agrarian reform and in situ land development. • The government introduced Federal Land Development Authority (FELDA) to reallocate rural communities especially the Malay group. Indian group has moved to rubber estate and Chinese group remaining located in urban area. • End of this period shows Malaysian population began to adapt urbanization and migration to urban areas. • Buildings and traditional settlements remain along the riverfront together with the polluted river.
Third phase : Urban explosion of industrialization period (1970-1997)	• Reconstruction cities and rural locations and urbanization process expansion all over the country. • Introduction of alternative transportation to facilitate trade and traveler. • Urbanization and new transportation resulted in decline of river functions and remains as abundant area • Introduction and implementation of New Economy Policy and beginning of a globalization of industrial production in Malaysia.

Forth phase: Technology, modernisation and vision 2020 (2000 – present)	• Increasing population in urban area up to 62 percent. • Introduction of ICT technology, expansion of manufacturing and industry in urban area. • Congestion in urban area causing an urban people moved to sub urban area (urban boundary) including river area mainly for recreation. • Waterfront area became popular as recreational area to date developer began to develop mix used developments became a new trend of development all over the country.

(Adapted from: Arshad & Shamsudin, 1997; Food Agricultural Organization, 1978; Rahman, 2001)

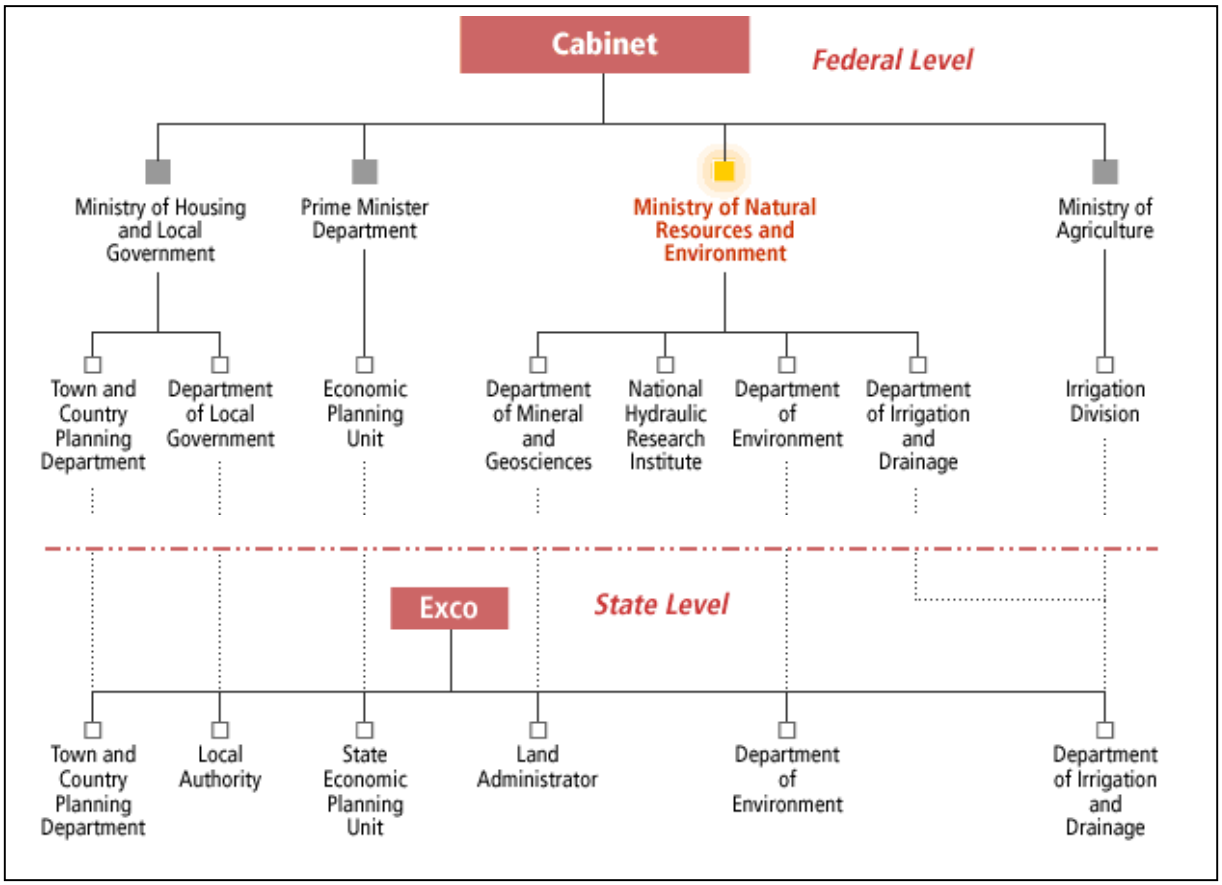
To date, waterfront development projects in Malaysia, specifically close to river areas, are continuing, some will proceed to next phase, some will be redeveloping, while others are starting new waterfront projects. An example of a new evolution of waterfront development is Glenn Marie riverfront project and Kingfisher Cove, which refers to a housing waterfront development and have more recreational purposes (Kota Kinabalu waterfront, Malacca waterfront, Kuantan waterfront; to name a few). Housing will continue to be one of the major new uses representing the most fundamental shift of all from previous industrial occupancy.

Water resources management and legislative associated in Malaysia

Water and land are two main resources associated with development, specifically waterfront development. Under the Federal Constitution, land, water, rivers and forest are under the jurisdiction of the State Government (Federal Constitution, 2006). State Government has full responsibity for water management including gazetting and preserving water catchments, development along the river corridor, urban development and logging for forest timber. On the other hand, natural resources providing revenue to State Government through their uses such as, timber logging, industrial, township development and water supply (Abidin, 2004).

Although water resources management is entrusted under state government, both federal and state governments are involved in water resources management, development and utilization (Elfithri, Mokhtar, Shah, & Idrus, 2004) and have their specific tasks and responsibilities towards water related issues (Welch & Keat, 1987). Clearly, the water resources, including rivers in Malaysia, have been administered by both federal and state's agencies.

Therefore, water resources issues including development associated with them were considered high on the political agenda. Power distribution under the Constitution caused water and land in this country to be managed on sectoral basis, with various institutions at both Federal and State level being involved. It is clear to see that water legislation in Malaysia is enforced by various water related government agencies and focus specifically on water resources matters under their jurisdiction (Abidin, 2004). Figure 3 summarizes the institutional framework related to water resources environment in Malaysia.



(Source: Department of Irrigation and Drainage, 2009b)

Figure 3: Existing Institutional Framework: government agency related to Water environment

In particular, Ministry of Natural Resources and Environment (MONRE) have a full responsibility to water resources management at federal level. MONRE was established due to an announcement of new cabinet formation by late Malaysia Prime Minister on 27 March 2004. The formations of the ministry are through combination of departments from 4 Ministries, namely Ministry of Land and Co-operative Development (KTPK), Ministry of Science Technology and Environment (MOSTE), Ministry of Primary Industries (KPU) and Ministry of Agriculture (MOA). Today, there are six departments under the responsibilities of MONRE, are as Table 3 below;

Table 3: Departments and legislative responsible for water resources management

Departments	Responsibility	Legislative
Department of Irrigation & Drainage (DID)	• To formulate policies / guide lines / rules and regulation for water resources management. • To formulate strategies for the implementation of National Water Resources Management and Seashore Management. • To monitor issues related to development allocation of DID and NAHRIM. • To manage and coordinate natural MONRE functions that are related to Water Resources • To identify and evaluate the implementation of DID's and Policies and Strategies; and	• Malaysian Laws & Regulations • Coastal Management Acts • River Management Acts • Hydrology Acts • Water Act 1920
Department of Environment (DOE) and Biodiversity *	• To plan, formulate and coordinate the implementation of policy, strategy and environment program. • To coordinate the implementation of Multilateral of Environmental Agreements (MEAS). • To monitor the environmental programs and activities. • To enhance and promote the environmental knowledge and encourage public to actively involve in the environmental culture.	• Environmental Quality Act 1974. • National Policy on Biological Diversity 1998. • Wetland National Policy 2003.
Department of Land & Mining	• To ensure that the implementation of land administration in the country and the provision of survey and mapping services are efficient and effective and in line with current government's policy. • To coordinate the drafting of legislations/regulations/policies on land matters, survey and mapping • To monitor and consolidate the implementation of policies/legislation/regulations and Ministry's decisions that are related with the land, survey and mapping. • To assist the Minister in the implementation of his powers and functions under the various legislations/regulations related to land matters, survey and mapping • To coordinate follow-up actions on the incoming issues or instructions from the cabinet with the various departments/agencies within the Ministry on land matters, survey and mapping • To act as the secretariat and coordinate Malaysian international border meetings and inter-state border meetings • To consolidate and manage the National Land Council meetings	• National Land Code 1965. • Akta Hakmilik Strata 1985 Akta Tanah (Kawasan Penempatan Berkelompok) 1960. • Akta Pemuliharaan Tanah 1960 • Akta (Pembahagian) Harta Pusaka Kecil 1955 (Akta 98) • Akta Pengambilan Tanah 1960 • Akta Pesuruhjaya Tanah Persekutuan 1957 Akta Penanam Padi (Mengawal Sewa dan Menjamin Pemegangan) 1967 • Enakmen-Enakmen Rizab Melayu • Enakmen-Enakmen

		Galian/Lombong • Undang-undang lain yang berkaitan
Department of Mineral & Geosciences	• To ensure that policies and legislations related to the development of minerals and geosciences is constantly relevant and contributes to the development of the industry and economy progress and is implemented in an environmentally friendly manner. • To plan and set policies and directions for the development and enhancement of the mineral and geosciences sector	• Dasar Mineral Negara 2 • Akta Penyiasatan Kajibumi 1974 (Akta 129) • Akta Pembangunan Mineral 1994 (Akta 525) • Dasar Mineral Negara
Department of Forestry	• Implementation of sustainable forest management in ensuring sufficient timber resources and conservation of environmental stability. • Research and development in forestry sectors and forest produce in effort of optimizing and varied the resources use • To upgrade the forest management based on the Malaysian Criteria and Indicator or MC&I according to national policy and strategy • To ensure and upgrade the role of the sector according to national and international forestry and environmental objective as agreed in international forums.	• Dasar Perhutanan Negara 1978 (Pindaan 1992) • Akta Perhutanan Negara 1984 (Pindaan 1993) • Akta Lembaga Penyelidikan & Pembangunan Hutan Malaysia (MFRDB) 1985 • Akta Perdagangan antarabangsa mengenai spesies terancam 2008

(Source: Ministry of Natural Resources and Environment, 2008)

* Department of Environment and Conservation Biodiversity are sharing their function.

Although there are six departments responsible under MONRE, only the first three are directly related with water resources management. Each department has been divided into divisions, which have their own task. However, each divisions and department are interrelated in order to make the management easier and more smooth.

Presently, riverfront development guidelines directly guiding any development close to water area exclude coastal areas. Coastal areas are managed and administered separately to river resources, even though responsibility for both is under similar ministry. A Riverfront development guideline, enforced by Department of Irrigation and Drainage through MONRE, in 1996 was mainly to achieve Government mission to maintain development and the environment. This guideline was developed mainly as a

guidance for any development near to water area, especially river area, without considering the actual type of development. Under this guideline, without considering land status or type, any riverfront development planning is compulsory to include and consider the neighborhood area within 50 metres from river reserve and the rivers itself. To achieve those objectives, DID was setting up fourteen criteria for riverfront development projects are shown in table 4 below;

Table 4: Riverfront development guidelines in Malaysia

Objectives	Characteristics
1. To explain and encourage the implementation of this concepts in the development planning of riverfront development. 2. As a references and guidance for any development near to the rivers areas. 3. To provide the uniform guidelines for all the parties involved in riverfront development process in Malaysia. 4. To control all type of riverfront development.	❖ Rivers as a main attraction point. ❖ Beautification works for river reserve. ❖ River water flow rate. ❖ Building and permanent Infrastructure. ❖ Building, infrastructure and River view. ❖ Open space. ❖ Public access ❖ Natural resources and river ecological. ❖ Historical value. ❖ Neighborhood ❖ Standard bridges design ❖ Restoration of water outflow ❖ Recreation activities ❖ An adequate platform level.

(Source: Department of Drainage and Irrigation, 2006)

However, to date, the implementation of this guideline by the developer is restricted due to limited enforcement from the responsible department and ministry. Consequently, many developments near to

water area, especially river area, have a negative effects rather than positive impact to the country as a whole.

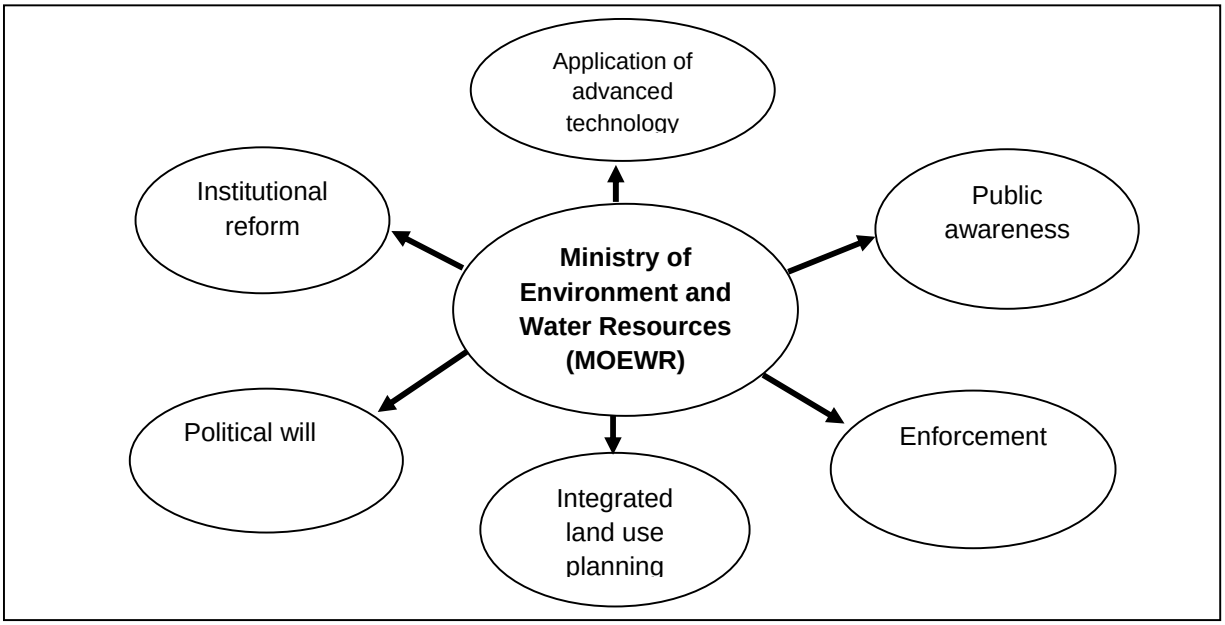
Water management and development in other countries: Singapore

With an urbanized country and a lack of natural resources, Singapore has recently faced a serious water resource shortage. In fact, according to Xie (2006), current water demand is about 1.4 million cubic meters daily and met only 50 percent of daily usage. Therefore, water resource management becomes an important issue for national economic development, Public and social life in Singapore.

For these reasons, since year 1980s, Singapore struggled to create comprehensive policy for water resources management including river management. By changing institutional instrument and enforcement of regulations and legislations, Singapore presently has a sustainable water supply and has become a role model to other countries as a “Garden city country”.

Presently, Ministry of Environment and Water Resource (MOEWR) is responsible for water resources problem in Singapore (Ministry of Environment and Water Resources, 2005). Previously, water resources and environment in Singapore were managed separately by Public Utilities Board (PUB) and Ministry of Environment (MOE). Through institutional reform, MOEWR was established in 1st July 2002 to replace PUB’s and MOE’s functions. A new institution responsible for water related affairs in this country including policy formulation; planning and infrastructure; eliminate administrative barriers in water management as well as making the implementation effective and efficient. Under MOEWR, PUB’s functions are remaining unchanged and extended including sewage treatment and water resources and supply. To date, PUB became a major institution with comprehensively responsible for water related issues in Singapore.

In addition, up to date, MOEWR has been undertaken six approaches in order to achieve sustainable water management. Figure 4 describes Singapore experienced towards this issue.



(Adopted from: Xie, 2006)

Figure 4: Strategy for sustainable water resources management: Singapore

Integrating land use planning is the best approach implemented by the ministry response to waterfront development in Singapore. Urban Redevelopment Authority (URA) plays an important role in urban development in Singapore including waterfront development. In addition, the Singapore Land Authority Act (Cap.301) (2002) provides a comprehensive regulation for land management and water resources issue. Besides that, cross sectoral coordination from various department namely Housing and Development Board (HDB), National Environmental Agency (NEA), Jurong Town Corporation (JLC) and Land Transport Authority (LTA) contributing to the successful of waterfront development and management in this island (Xie, 2006).

Waterfront development impact

The continued growth of waterfront development in cities raises a number of persistent questions. Are they becoming so big that their negative impacts outweigh the opportunities that they provide? The damage that is being done to the riverside is not simply matter of the present. Despite the new environmental awareness of today's public, the economic and social demands that cause wasteful consumption of the water's edge are accelerating exponentially. As far as this is concern, many researchers have conducted research on this particular topic revealing a significant result from positive

and negative views. The following section will discuss the impact of waterfront developments on property from different aspects both positive and negative.

(i) Economic and cost

Water plays a numerous role in the world and the value of water have a different meaning in the context of wildlife habitat, angling opportunities and scenic view (Bastian, McLeod, Germino, Reiners, & Blasko, 2002). Stein, Otto, & Hancock (2001) agrees that scenic beauty and good water quality are essential for high property value along a river. Several studies have been conducted in order to measure the impact on water and water quality on residential price. For example, Steinnes (1992) measured lakeshore water quality on land values, Garrod & Willis (1994) assessed the impact of waterside location on housing price along canal in Great Britain, and Leggett & Bockstael (2000) measured water quality impact on property values along the Chesapeake Bay. All the results found establish the water location and water quality have positive effects on adjacent property values. In addition, Oliva (2006) examined the impact of waterfront development on housing price. Using sales price data for six years (1996 – 2003), the result also established the positive relationship between waterfront development and house price but the impact varied with distance accordingly. However, although most studies have shown a positive impact on view, a few studies also show a weak relationship between view and residential value (Brown & Pollakowski, 1977; Davies, 1974).

In contrast, the growths of waterfront development are also causing their environmental impact to worsen especially regarding flooding and pollution. In recent years, flooding and water pollution have become more significant due to increased development especially in some areas which are near to waterfronts. Earlier studies conducted by researcher indicated the occurrence of flooding had reduced a property value compared to similar properties without flooding (Bialaszewski & Newsome, January 1990; Eves, 1999, 2001, 2002, 2004; Fibbens, 1992; Guttery, Poe, & Sirmans, 1998; Guttery, Poe, & Sirmans, 2004). According to Kauko (2002) and Kauko, Hooimeijer, & Hakfoort (2002) with reviewed empirical literature, they sees an extreme negative effects from flooding and drought, and finally can reduce the property value (Mooney & Eisgruber, 2001). Besides the flooding, water pollution has also been attributed to waterfront development. Water pollution has become a matter abiding national and international threat since 1968 (Mann, 1973). This water pollution affect does not only impact on health and welfare of nearby urban population but also includes ground waters and it is undoubtedly the most critical environmental issue nowadays.

(ii) Social

Increasing number of waterfront development projects also contribute to social impacts. Previous research done which focused on social impact on waterfront development showed waterfront development significantly increased household income, job opportunity, regional business sale and tourism (Krausse, 1995; Parsons & Wu, 1991; Rexhausen & Vredeveld, 2003). According to Small & Arnott (1994) waterfront redevelopment provides a better safety and access to downtown and also creates new economy activity and Keane (1996) agrees that regional industrial and employment are closely tied to the quality of transportation. Better transportation and access to the waterfront development also reduced accident numbers and safety for pedestrian (Miller, 1993). However, waterfront developments also create a negative impact on society, especially among teenagers (Chang & Huang, 2005).

(iii) Cultural

Cultural aspects are important in presenting an identity of the country. Chang & Huang (2005) show that waterfront development in Singapore have transformed landscape identity and affected people's relationship to the place and it is also transformed waterfront cultural in some areas (Crouch & Parker, 2003). Transformation from port cities to mix used development caused some people, especially ex-port workers to feel that they have lost their connection to the area. However, behind the negative impact faced by this transformation, it can also have a positive impact. Usually, new waterfront developments also attempt to create a new cultural economies and community interaction (Chang & Huang, 2005; Forest & Johnson, 2002; Krausse, 1995).

(iii) *Political*

The agglomeration of world population in urban areas has made cities consume more space to accommodate the demands of its habitants. Massive urbanization results in the expansion of population not only within urban area but to spill over to sub urban boundaries, including along the riverside (Yossi & Sajor, 2006). Unfortunately, the significance of conserving urban environment is often neglected and affects the quantity and quality of water or river. On the other hand, development can visually disturb the city's landscape and deteriorate the river environment. Most cases because of demand for flood mitigation infrastructure and government policy often results in urban conflict. This scenario shows inadequate assessment and mitigation of the river environment implementation and failure of city planners responsible for creating proper managed land along the riverside definitely arise those problems (Baiquni, 2004).

On the other hand, according to Muego (2006), the attitude and fragmented approach of the local government for example, the lukewarm attitude and token gesture were identified as a factors to failure. So, policies, practices and actions among various stakeholders in response to waterfront development problem, especially related to environment is needed (Muego, 2006). It is clear that policy of both local and central government that are responsible in the dynamics of growth of the city and particular areas.

(v) Community

According to Yossi & Sajor (2006) waterfront development problems such as pollution and flood were interrelated with waterfront communities behavior. Major pollution sources are domestic activities of riverfront settlers. In many countries, with adopting the top down approach cause involvement of the communities is very limited in the decision making stage. The top down culture of development is basically due to communities waiting for assistance rather than initiating help for themselves. Finally, the development seem less significant to the community and benefitted only to other stakeholders. As an alternative, the implementation of bottom up approaches from the planning stage to the development process is required. Furthermore, the willingness of government to learn from the grass root level is necessary especially to facilitate the creation of bottom up approach in the community ensuring maximum involvement of the communities in every level of development projects.

3.0 Conclusion

River is national assets to the country and serves basic needs to human life. It is not a liability, so that need to be taken care of it. A river if well managed; it will give returns and generate the economy. For an example, the programme to rehabilitate and manage rivers has to be a continuous effort to ensure that rivers and their surrounding environment are in the best possible condition. An integrated management of river which involve all the stakeholders are the main focus towards this goal. The correlation between quantity, quality and the environment has to be emphasized and incorporated into the process of management and development of waterfront.

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