WATERFRONT DEVELOPMENT FOR RESIDENTIAL PROPERTY IN MALAYSIA

by

*Azlina Binti Md. Yassin[1]

Prof. Chris Eves[2]

John McDonagh[2]

1. University Tun Hussein Onn Malaysia (UTHM), Malaysia
2. Lincoln University, Canterbury, New Zealand

E-mail: mdyassia@lincoln.ac.nz, chris.eves@qut.edu.au, mcdonagj@lincoln.ac.nz

*Contact Author

Abstract

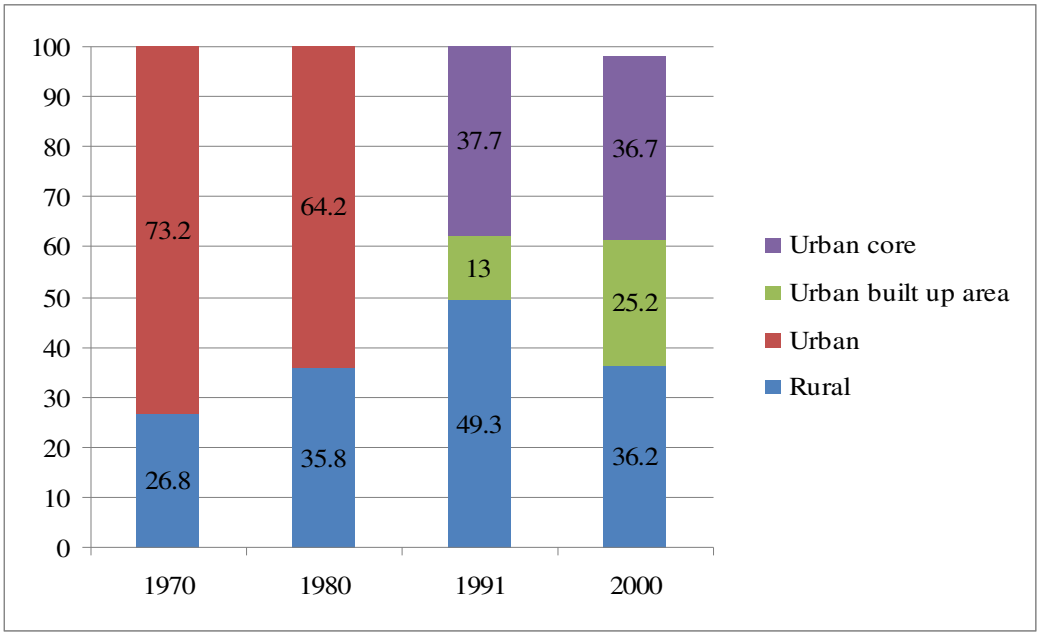
Rivers and water are valuable natural resources for human life, environment and national development. Recognition of water resources as national heritage will contribute towards more long term sustainable property development. Waterfront development is already a well-established phenomenon internationally. 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. The result will give a significant contribution to the final output of this research.

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

1.0 Introduction

Malaysia has 519 rivers, totalling approximately 57,300 kilometres in length. Among them, 189 function as river basins, 30 of which function as reservoirs that supply the 28 million people living in Malaysia with clean water which flows through our taps (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.

In Malaysia, population growth and urbanization over time has led to an increase in housing demand in urban areas. Like many other countries, the increase of population size in urban areas is faster than in rural areas. According to Jaafar (2004) almost 61.8 percent of population resided in urban areas in the 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, not only within established boundaries but also via spillover into peripheral areas. This phenomenon indicates that the urban population has started moving out from densely populated urban areas to settle in the outer limits of urban boundaries.

Associated with this growth, interest in revitalizing community waterfronts is booming in Malaysia. Many developers (private and public) have started to initiate development projects close to water areas, and there is demand for more close-to-home recreation, including water activities and views. Glennmarie Cove at Klang Valley and Kingfisher Cove at Likas are examples of housing developments categorized as waterfront development. In addition, private developers have begun 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 is more focused on investment rather than catering to community needs, with developers neither participating in nor contributing towards sustaining water as an asset to the country.

In addition, inadequate policy and guidelines related to these developments, at every level of government, have had negative rather than beneficial impacts on all participants, especially in relation to environmental problems and sustainable human settlement. This paper will briefly discuss this issue and the findings will contribute to the final output of this research, which is currently ongoing.

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 in research, but some researchers prefer to use several different terms such as city port, harbor front, riverside and river edge (Hoyle, 2002; Mann, 1973; Tunbridge & Ashworth, 1992; Watson, 1986).

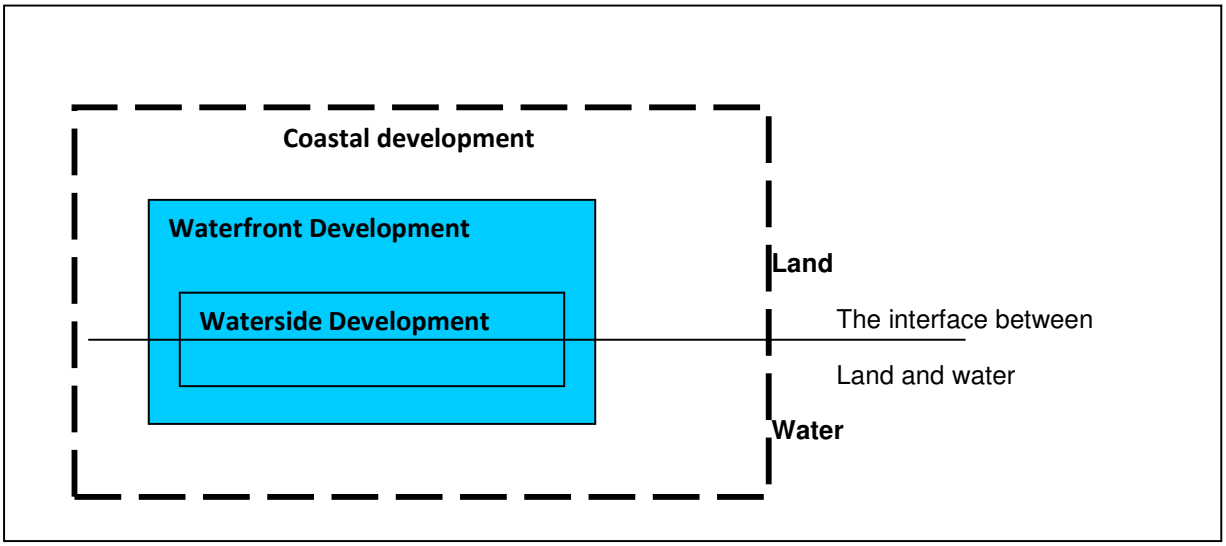
The US Federal Coastal Zone Management Act, Office of Ocean and Coastal Resources (1972) officially defines the term urban waterfront as, *"any developed area that is densely populated and is being used for, or has been used for, urban residential, recreational, commercial, shipping, or industrial purposes".*

Wrenn (1983) explained that the waterfront is a unique and irreplaceable resource where it is the interface between land, water, air, sun and also productive plants. Breen & Rigby (1996) believed that waterfront property may not necessarily need to be directly fronting on 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 could 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 the characteristics of sites and cities (Dong, 2004). Breen & Rigby (1994) see urban waterfront as any development in towns and cities of all sizes, and the water body may be a river, lake, ocean, bay, creek, or canal. He described that 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 contain mixed use development which is relatively homogenous. 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 were focused on commercial and urban waterfronts and began as commerce centers (Breen & Rigby, 1996, 1994; Ryckbost, 2005) and survived on trade. A commerce centre is defined as a city or town which is located on an inland river or water and mainly focused on water for transportation of goods. Waterfront communities developed after sailors and traders settled down along the water's edge, but it was typically the middle and lower classes who resided 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 became a focal point for the city.

Expansion of city size, economic growth, the 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). In addition, people have moved to live in more peaceful areas and away from pollution by waterfront manufacturing and industrial uses. Consequently, warehouse and manufacturing facilities along the waterfront were often left unused and became the eyesores of the community (Dong, 2004; Hoyle & Pinder, 1981, 1992).

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

The urban waterfront redevelopment phenomenon of our time began in the early 1960s, bloomed in the 1970s, accelerated in the 1980s (Breen & Rigby, 1994) and has continued until present. Historically, waterfront 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 1970 and 1980 waterfront development was specifically focused on North America and Europe and steadily expanded 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 differed from previously common waterfront development concepts. 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 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 have been contributed to a rapid spread of interest in this concept of redevelopment (Breen & Rigby, 1994). The scale and type of redevelopment of the waterfront varies from city to city due to the patterns of the original development, but the basic concept of development is similar. This new era of waterfront development 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

Rivers are valuable assets for the country and have played an important role for communities for thousands of years of human history. They are the lifeline of human settlement all over the world. In Malaysia, the earliest civilisations were established near rivers, and today Malaysia's rivers shape the life

of the communities along their banks. In addition, thousands of the Malaysian population use the river for industry, transportation, water supply, power generation and recreational purposes. The rivers are also an important ecosystem and home for many water-dwelling species. Each of these habitats serves various purposes, but 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 importance of rivers 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	Rivers are used to irrigate crops and plantations.
Industry	Industries need water to manufacture the products that we use. Everything from computers to clothes to paper requires water at some stage of production.
Livelihood	Many local communities, "orang asli community", depend on the resources provided by the river for food (fish) and income.
Transportation	Rivers have been used as the main form of transportation for people all over the world before other forms of transportation have been invented.
Biodiversity	Rivers are home to a wide range of plants and animals, which live both in and around the river. Around 40% of all fish species are freshwater varieties.
Domestic use	Water from our taps is 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 their surrounding forest areas 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	Rivers are 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 urbanization processes. Urbanization has transformed Malaysia from mere back water to a modern and fast developing country. It has also changed the life style of the Malaysian population. The expansion of population from densely

populated urban areas to settle in the outer limits of urban boundaries initiated waterfront housing developments. This transformation symbolises the country's effort to remake itself for the 21st century.

The current pattern of waterfront development specifically focuses on recreational and mixed-use development types but it is useful to have a picture of waterfront development in Malaysia for the past two centuries as background.

The historic milestones of waterfront development in Malaysia can be divided into four periods which are in line with urbanization periods:

Table 2: 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 river activity expanded and the river transformed into a focal point. • Later in this period, the relocation of people, especially ethnic Chinese, into "new villages" during the emergency period (1948 to 1960).
Second phase : After independence & early urbanization (1957 – 1969)	• Development continues along the river edge and the establishment of the perception of rivers as public open space corridors. • The government started to separate ethnic 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 ethnic Malay group. The ethnic Indian group moved to rubber estates and the ethnic Chinese group remained in the urban area. • End of this period shows the Malaysian population beginning to adapt to urbanization and migration to urban areas. • Buildings and traditional settlements remain along the riverfront living together with the polluted rivers.
Third phase : Urban explosion of industrialization period (1970-	• Reconstruction of cities and rural locations and urbanization process expansion all over the country. • Introduction of alternative transportation to facilitate trade and

1997)	travel. • Urbanization and new transportation resulted in a decline of river functions and remains as abundant area • Introduction and implementation of a New Economy Policy and beginning of the globalization of industrial production in Malaysia.
Forth phase: Technology, modernisation and vision 2020 (2000 – present)	• Increasing population in urban areas up to 62 percent. • Introduction of ICT technology, expansion of manufacturing and industry in urban areas. • Congestion in urban areas causing urban people to move to suburban areas (urban boundary), including river areas but mainly for recreation. • Waterfront areas become popular as recreational areas and developers begin to develop mixed use developments as a new trend all over the country.

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

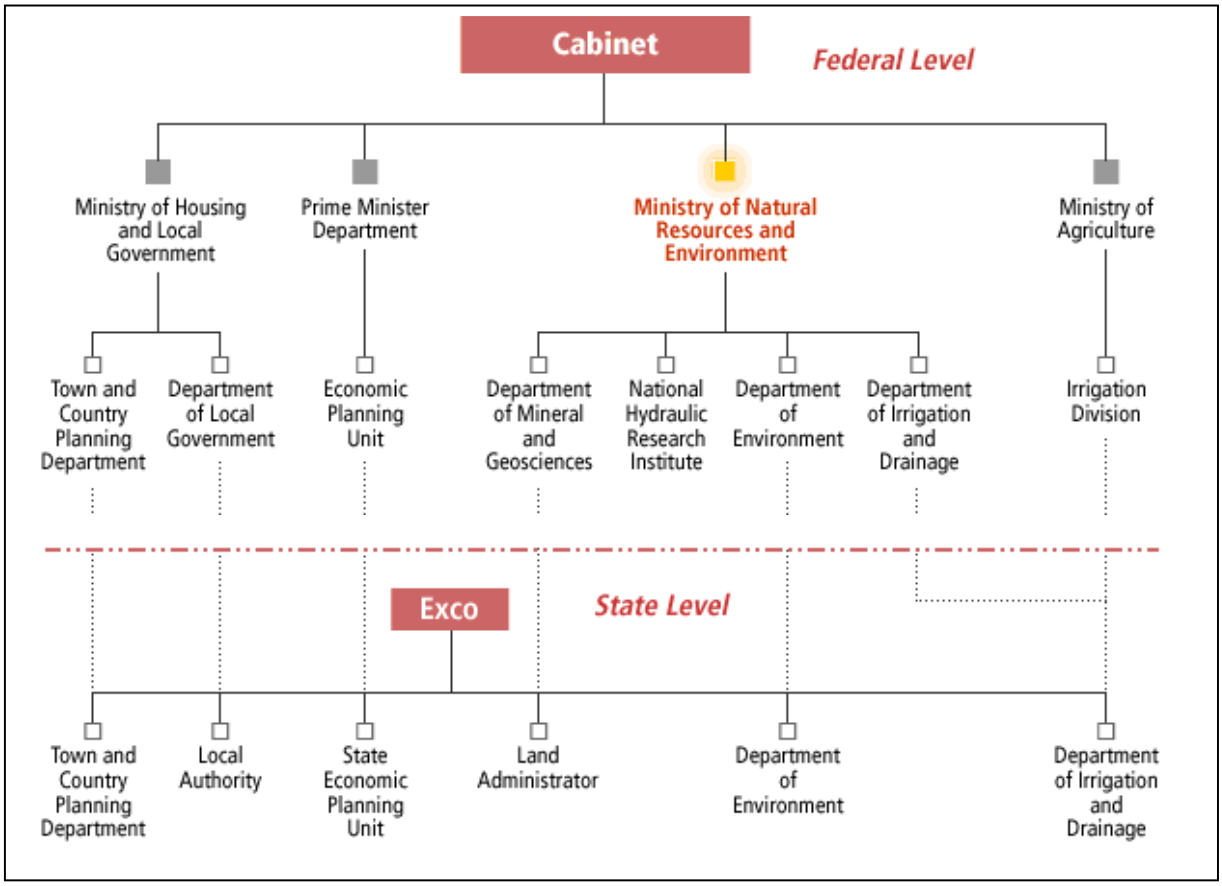
To date, waterfront development projects in Malaysia, specifically those close to river areas, are continuing; some will proceed to next phase, some will be redevelopments, while others are starting new waterfront projects. Some examples of a new evolution of waterfront development are Glenn Marie riverfront project and Kingfisher Cove, which refer to housing waterfront developments designed more for 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 resource management and associated legislation 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 responsibility for water management including gazetting and preserving water catchments, development along the river corridors, urban development and logging for forest timber. On the other hand, natural resources provide revenue to State Government through their uses such as, timber logging, industrial and township development and water supply (Abidin, 2004).

Although water resources management is primarily entrusted to state government, both federal and state governments are involved in water resources management, development and utilization (Elfithri, Mokhtar, Shah, & Idrus, 2004) and have their own specific tasks and responsibilities regarding water related issues (Welch & Keat, 1987).

Therefore, issues regarding water resources, including development associated with them, are high on political agenda. Power distribution under the Constitution has caused water and land in this country to be managed on a sectoral basis; with various institutions, 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 each focuses specifically on water resource matters under their jurisdiction (Abidin, 2004). Figure 3 summarizes the institutional framework related to water resources in Malaysia.



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

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

In particular, the Ministry of Natural Resources and Environment (MONRE) has full responsibility to manage water resources at federal level. MONRE was established due to an announcement of new

cabinet formation by the late Prime Minister of Malaysia on 27 March 2004. The formations of the ministry are through combination of departments from four 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, as in 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 regulations 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 DIDs and Policies and Strategies	• 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 environmental knowledge and encourage the public to actively participate in 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 to 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 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	• 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

	• To consolidate and manage the National Land Council meetings	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 objectives 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.

There are six departments responsible under MONRE, but only the first three are directly related to water resources management. Each department has been divided into divisions which have their own tasks. However, each division and department is interrelated in order to make management easier.

Presently, riverfront development guidelines directly guiding any development close to water areas exclude coastal areas. Coastal areas are managed and administered separately from river resources, even though responsibility is held under a similar ministry. Riverfront development guidelines were enforced by the Department of Irrigation and Drainage through MONRE in 1996 mainly to achieve a Government Mission to maintain development and the environment. These guidelines were developed mainly as a guide for any development near water areas, especially river areas without considering the type of development. Under these guidelines, without considering land status or type, it is compulsory for any riverfront development planning to include and consider neighboring areas within 50 meters from the river reserve and the river itself. To achieve those objectives, DID set up fourteen criteria for riverfront development projects as in table 4 below:

Table 4: Riverfront development guidelines in Malaysia

Objectives	Characteristics
1. To explain and encourage the implementation of these concepts in the development planning of riverfront development. 2. As a reference and guide for any development near the river area. 3. To provide the uniform guidelines for all the parties involved in riverfront development processes 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. ❖ Buildings and permanent Infrastructure. ❖ Building, infrastructure and River view. ❖ Open space. ❖ Public access ❖ Natural resources and river ecology ❖ Historical value. ❖ Neighborhood ❖ Standard bridges design ❖ Restoration of water outflow ❖ Recreation activities ❖ An adequate platform level.

(Source: Department of Drainage and Irrigation, 2006)

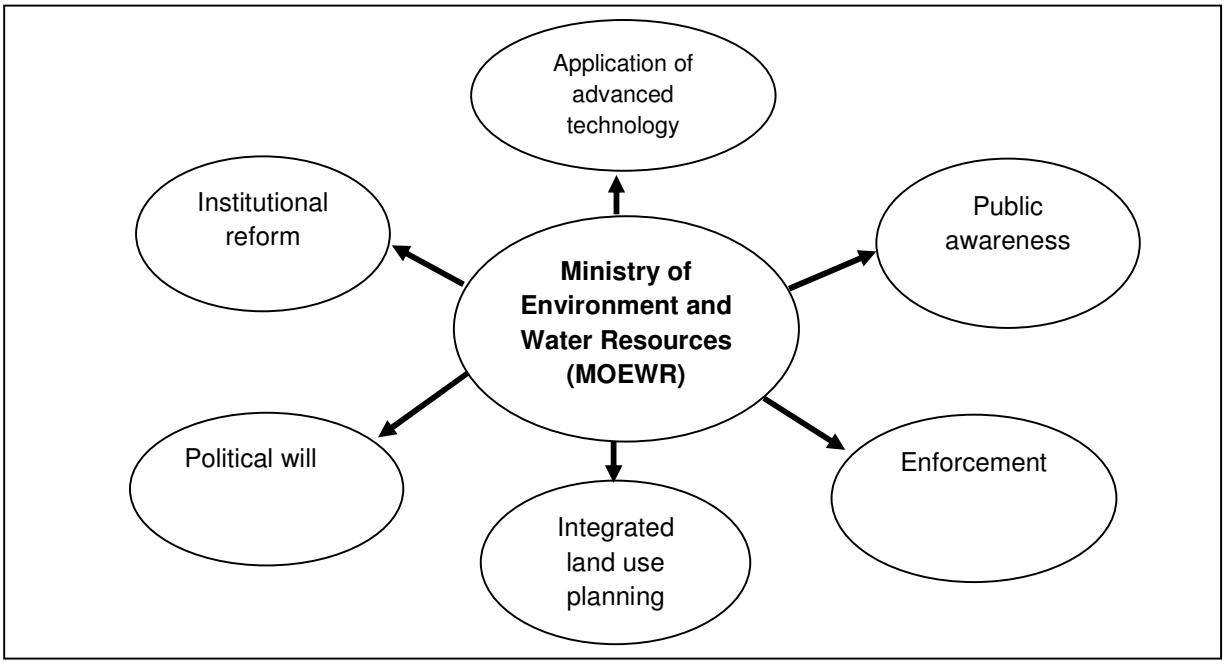
However, to date, the implementation of these guidelines by the developer has been disregarded due to no enforcement from the responsible departments and ministry. Consequently, many developments near water areas (especially river areas) have had negative rather than positive effects on the country as a whole.

Water management and development in other countries: Singapore

With an urbanized country and lack of natural resources, Singapore is facing a serious water resource shortage. In fact, according to Xie (2006), Current water demands is about 1.4 million cubic meters daily and only 50% of this is met. Therefore, water resource management is becoming an important issue for national economic development, public and social life in Singapore.

For these reasons, since the 1980's, Singapore has engaged in a comprehensive effort to enhance water resources management including river management. By changing institutional instruments and enforcement of regulations and legislation, Singapore presently has a sustainable water supply and has become a role model to other countries as a "Garden city country".

The Ministry of Environment and Water Resource (MOEWR) took responsibility for water resource problems in Singapore in 2002 (Ministry of Environment and Water Resources, 2005). Previously, water resources and environment in Singapore were managed separately by the Public Utilities Board (PUB) and Ministry of Environment (MOE). This new institution is responsible for water related affairs including policy formulation; planning and infrastructure; it aims to eliminate administrative barriers in water management as well as making the implementation effective and efficient. Under MOEWR, PUB's functions remain unchanged but are extended to include sewage treatment and water resources and supply. In addition, MOEWR has undertaken six approaches in order to achieve sustainable water management (refer figure 4).



(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 in response to waterfront development in Singapore. The 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 comprehensive regulation for land management and water resource issues. Besides that, cross sectoral coordination from various departments, namely the Housing and Development Board (HDB), National Environmental Agency (NEA), Jurong Town Corporation (JLC) and Land Transport Authority (LTA), contributes to the success of waterfront development and management on this island (Xie, 2006).

Waterfront development impact

The continued growth of waterfront development in cities raises a number of persistent questions. Are the developments 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. Many researchers have conducted research on this particular topic revealing a significant divergence of both positive and negative views.

The following section will discuss the impact of waterfront developments on property from these different perspectives; both positive and negative.

(i) Economic aspects

Water plays numerous roles in the world and the value of water has a different meaning in the context of wildlife habitat, angling opportunities and scenic view (Bastian, McLeod, Germino, Reiners, & Blasko, 2002). Stein, Otto, & Hancock (2001) agree 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 of water and water quality on residential price. For example, Steinnes (1992) compared lakeshore water quality with land values, Garrod & Willis (1994) assessed the impact of waterside location on housing prices along canals in Great Britain, and Leggett & Bockstael (2000) measured the impact of water quality on property values along the Chesapeake Bay. All the results found that the waterside 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 growth of waterfront development is also causing a negative environmental impact, 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 waterfronts. Earlier studies indicate 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). Kauko (2002) and Kauko, Hooimeijer, & Hakfoort (2002) reviewed empirical literature, and found an extreme negative effect from flooding and drought, and reduction in property value (Mooney & Eisgruber, 2001). Besides flooding, water pollution has also been attributed to waterfront development. Water pollution has become a matter of national and international threat since 1968 (Mann, 1973). This water pollution does not only impact on health and welfare of nearby urban population but also includes ground water and it is one of the most critical environmental issues nowadays.

(ii) Social aspects

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

(iii) Cultural aspects

Cultural aspects are important in presenting the identity of a country. Chang & Huang (2005) show that waterfront development in Singapore has transformed the landscape identity and affected people's relationship to the place, and it has also transformed waterfront culture in some areas (Crouch & Parker, 2003). Transformation from port cities to mixed-use development has 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 attempt to create new cultural economies and community interaction (Chang & Huang, 2005; Forest & Johnson, 2002; Krausse, 1995).

(iii) *Political aspects*

The agglomeration of world population in urban areas has made cities consume more space to accommodate the demands of its inhabitants. Massive urbanization results in the expansion of population not only within urban areas, but also via spill over to suburban boundaries, including along the riverside (Yossi & Sajor, 2006). Unfortunately, conservation within the urban environment is often neglected and affects the quantity and quality of the water or river. Development can visually disturb the city's landscape and deteriorate river environments. In most cases, development results in conflict between urban and river uses because of demand for flood mitigation infrastructure and government policy. This scenario shows inadequate assessment and mitigation of urban development effects on the river environment and the failure of city planners responsible for creating proper managed land along the riverside (Baiquni, 2004).

On the other hand, according to Muego (2006), the attitude and fragmented approach of local government (for example, lukewarm attitudes and token gestures) were identified as factors in failure. So better developed policies, practices and actions among various stakeholders in response to waterfront development problems, especially those related to the environment, is needed (Muego, 2006). It is clear that policies of both local and central governments are responsible for 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 the 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 seems less significant to the community and beneficial 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 approaches in the community, ensuring maximum involvement of the communities in every level of development projects.

3.0 Conclusion

Rivers are national assets of a country and serve the basic needs of human life. They are not a liability, and need to be taken care of. If a river is well managed; it will benefit the economy. For 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 rivers which involves all the stakeholders should be the main focus. The correlation between quantity, quality and the environment has to be emphasized and incorporated into the process of management and development of waterfront areas.

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