

Lessons Learned from Planning of Kota Bharu Waterfront City Centre – A Revisited

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Abstract

Kota Bharu City Centre is located about 25 km from Sultan Ismail Putra Airport and 7km from Wakaf Bharu Train Station in the North. Kota Bharu City Centre was designated as the new city centre and waterfront of the Kota Bharu and Kelantan following the Government of Kelantan decision to relocate the new city centre outside the Kota Bharu the administrative capital of Kelantan on 30 May 2001 to decentralise and alleviate problem of congestion and high land value. The planning of Kota Bharu City Centre is planned to embrace two (2) main themes – totally new and integrated township and build top quality, affordable and uniquely-designed buildings of the city. It showcases a new approach adopted by Kelantan's built waterfront and environment inbuilding future cities. It incorporates innovative ideas of community building, townscape, transportation planning, urban ecology and adopting new technologies in city building. Therefore, this paper seeks to draw lessons from Kelantan's experience in realizing the vision of developing an extended integrated township around Kota Bharu taking into focus the Kelantan river waterfront development in its aspiration to transform Kota Bharu into a world-class city.

Keywords: Kota Bharu City Centre, integrated township, townscape, waterfront.

1 Introduction

Kelantan, a state in Malaysia is a multi-cultural and multi-racial society of approximately 1.65 million people (2012) where ethnic Malays, Chinese, Siamese and Indians live together in relative harmony. Geographically, Kelantan consists of ten distinct land districts: Kelantan, which shares common land borders with Thailand, Perak, Kedah and Terengganu. There are 10 districts in Kelantan – Kota Bharu, Tumpat, Pasir Mas, Bachok, Pasir Puteh, Machang, Tanah Merah, Jeli, Kuala Krai and Gua Musang (see Figure 1).

The foundation of the present modern urban system in Kelantan and Malaysia was laid during British colonialism (1786 – 1957). During the colonial era, basic infrastructure such as transportation and utilities were built to support commercial, financial, social and administrative functions to further exploit the resources (e.g. rubber) in the state and country. From 1980 to 2012, Kelantan's population has increased more than two-fold from 0.95 million to 1.65 million and life expectancy

for males and females has increased from 60.0 years and 64.0 years. In 1980 to 64.2 years and 70.5 years, respectively in 2012. The gross national product (GNP) per capital over the same period has risen sevenfold from US\$360 (US\$ 1.00 = RM2.50 in 1980 – 1995) in 1980 to US\$880 in 2014 (US\$1:00 = RM3.60 in 2014). The state gross domestic product (GDP state) growth rate has averaged 5.5% p.a. in the year 2000 – 2012. Applying a poverty line income of RM763 per month for a household of 5 in Peninsular Malaysia, the incidence of poverty has decreased from 22.9% in 1995 to 2.7% in 2012 while the incidence of hard-core poverty (half of the poverty line income) decreased from 7.4% in 1995 to 0.3% in 2012 (Department Statistics of Malaysia, 2012). The mean monthly gross household income has increased RM 1,472 to 1995, RM 2,432 in 2010 and to RM3,168 in 2012 with an average annual growth rate of 5.5%.

The rate of urbanization in Kelantan is on the increase, from about 15% in 1960 to 64% in 2010 and is expected to exceed 70% by 2020. The rate of urbanization in Kelantan has been moderated since the 1970s. Today, 64% (or 1.02 million) of all Kelantanese live in towns and cities, a relatively moderated level of urbanization in the country. By the year 2020, 70.0% of the state's population will be urban with an estimated total urban population of 1.8 million people (Rancangan Struktur Negeri Kelantan, 2003 – 2020). Rapid urbanization has had consequences for the distribution of population and huge demands on land, water, housing, transport and employment. One of the most significant impacts of the urban development by state after independence in 1957 in Malaysia is the creative and innovative urban development of Kota Bharu City Centre.



Figure 1 Map of Kelantan

2 Background of Kota Bharu City Centre

The planning of Kota Bharu City Centre is the largest integrated urban development project ever in Kelantan since independence in 1957. It is a landmark project in the development history for the local design team to embark on a project which represented Kelantan's values and culture. The project combines the development of business and leisure and private institutions with accompanying amenities and infrastructure and commercial cum residential development. It is planned as the new city centre of Kelantan.

There are several new Governmental administrative centres and new city centre such as the cities of Washington DC (1887), Ottawa (1880), Canberra (1912), Chandigarh (1952), Islamabad (1960), Navi Mumbai (1972), Abuja (1975), Pudong (1993), Astana (1998), Naypyidaw City (2006) and New Songdo City (2009) which provide case studies for Kelantanese especially and Malaysian planners in general to learn from them. However, the first new Governmental administrative centres in Malaysia was Putrajaya. The idea for the establishment of Kota Bharu City Centre away from Kota Bharu City was started as early as 2007. Among the main rationales for moving the congested city centre away from Kota Bharu were; to ensure a quality urban living and environment for the Kota Bharu City Centre and to relieve the pressure on Kota Bharu's over-stretched infrastructure and congested but also resolved the great shortage of Government land to cater for increased demand for shop-houses, housing,

new five-star hotels, recreation areas and office spaces. It had always been assumed that it was easier and cost effective to have a new site or Greenfield development.

Kota Bharu city centre is located about 2.5 km from Kota Bharu and 20 km from Sultan Ismail Petra Airport Pengkalan Chepa in the north (Figure 2). Kota Bharu is located within the Planned Satellite City of Kota Bharu, which is the fastest growing region north of Kelantan. Kota Bharu City Centre represents Kelantan's first Planned Satellite City in the Northern region of Kelantan in Kota Bharu area stretching from Pulau Jeramito Palekbang, Tumpat covering a length of 10 km and a width of 1.5 km. This Planned Satellite City corridor development is supported by a high capacity, digital telecommunication infrastructure designed to meet international standards in all aspects relating to capacity, reliability and pricing. On the western side of Kota Bharu City Centre, 5 km away is Wakaf Bharu city, another small township which functions as the nearest train station for Kota Bharu.



Figure 2 Location of Kota Bharu City Centre

3 Planning of Kota Bharu City Centre

(a) Site Selection – 2005

In the early 2000, two sites were considered for the locations for the new Kota Bharu City Centres. Among the two new sites were Two Side of Kelantan River from Kota Bharu District – from Lembah Sireh to Pulau Jerami and Tumpat District – from Pasir

Pekan to Kampung Lautand Tunjung Area (refer Figure 3). The present Two Side of Kelantan River site was selected based on the following factors:

- Land acquisition and infrastructure cost
- Strategic location within a growth corridor
- Good accessibility to major transportation network (rail, highways (SYP2 bridge, Sultan Ismail Petra bridge and Kelantan river)
- Presence of pristine natural vegetation and land form
- Potential for positive externalities to the neighbouring regions
- Minimal negative impact to local communities



Source: Liziz Standaco Sdn. Bhd., 2011

Figure 3 Site selections for Kota Bharu City Centre

By June 2005, the Two Side of Kelantan River from Kota Bharu District – from Lembah Sireh to Pulau Jerami and Tumpat District – from Pasir Pekan to Kampung Laut site was finally selected over the rest of the five locations due to its strategic location between Sultan Ismail Petra Airport, Kota Bharu City Centre and Wakaf Bharu train station, the lower development cost, its surrounding natural environment and Kelantan river. The location of the Wakaf Bharu train station is unique and strategic. It is near to Kota Bharu, Rantau Panjang, Pengkalan Kubor and Gunong Stone, where the highest waterfall in Southeast Asia is located.

(b) Alternative Concepts of Development – 2006

In February 2006, three alternative concepts with different themes i.e. New Tourism City, Cultural City, Kota Bharu Waterfront City and Suburb of Kota Bharu were presented to the State Government. The Kota Bharu Waterfront city concept was shortlisted and finally selected by the EXCO of Kelantan later in February 2006. The Vision for the Creation of a new Kota Bharu Waterfront City by the EXCO of Kelantan chose a development theme entitled “*Kota Bharu Waterfront City*” (Kota Bharu Waterfront 2007). The development components included Institutional, Administrative, Education, Residential, Commercial, Tourism and Conventional centre. A year later, in Julai 2008, the Kota Bharu Waterfront project was officially launched by the then Menteri Besar Kelantan, the late Datuk Paduka Setia Nik Abdul Aziz Nik Mat.

(c) Naming of the City and Approval of Master Plan – 2007

In late October of 2007, it was formally decided that the city be designated as the Kota Bharu Waterfront City centre. As the planning of the city progressed on a fast track basis and as more information became available, changes to the original Master Plan became necessary. Since precise topographical information was available only after the original Master Plan was completed, it was considered imperative to review design pertaining to earthworks.

(d) Review of Master Plan – 2008

As more survey information was made available by 2008, it was clearly evident that some aspects of the Master Plan required further amendment. The final report of the reviewed Master Plan was produced in June 2008. Many of the overall concepts and important features of the original Master Plan were retained and three main improvements were carried out as follows:

- (i) Efficient and flexible transportation network,
- (ii) Minimization of land destabilization, and
- (iii) Townscape improvement – Extended Boulevard and Esplanade.

i) Transportation Network

Highway network concept and hierarchy have been maintained including the policy assumptions and design standards adapted for the study. The review looks into compatibility of external road links with those inside the Kota Bharu City Centre boundary, the need of consistency in road and junction layout, linkages between main highway network and local access roads and the requirements for phased development of the network.

Specifically, it proposed a number of government funded bridge and highways/road schemes around Kota Bharu City Centre, such as Sultan Yahya Petra 2 bridge (JSYP2), Chinese Village and Palekbang Bridge, and East Coast Expressway 3 (ECE 3). The preliminary alignment of the KTMB system consisted of one line running west-north directions between Kota Bharu City Centre and Wakaf Bharu train station. The review on transportation network aimed towards congestion free, and makes the public transport more efficient.

(ii) Earthworks

The four zones/parcels of land covering the 10 kilometres along both sides of Kelantan River with total land areas of 10,000 acres. The 10 kilometres of land cover Jambatan Sultan Yahya Petra 2 to Pulau Jerami, Kampung Palekbang, Kota Bharu and Tumpat.

(iii) Waterfront and Esplanade

Based on the Original Master Plan, a 4.1 km Waterfront and Esplanade was proposed and covered the entire length of the mixed development zone/parcel D which was located at the southern end of Kampong Sireh area.

The chronology of events in Table 1 summarized the events over the three years from the inception of ideas until the commencement of the construction work on the Kota Bharu City Centre project.

Table 1 Chronology of events – Kota Bharu City Centre development

Year	Events
June 2005	Two Side of Kelantan River from Kota Bharu District – from Lembah Sireh to Pulau Jerami and Tumpat District – from Pasir Pekan to Kampung Laut and Tunjung Area.
February 2006	Two alternative concepts with different themes, i.e. Kota Bharu City Centre and Kota Bharu Water Front City.
June 2006	Kota Bharu City Centre Master Plan approved by the EXCO of Kelantan.
August 2007	Official launch of the Kota Bharu City Centre Project by the Menteri Besar of Kelantan.
April 2008	Review of Kota Bharu Water Front City Master Plan undertaken - Preservation of the natural topography - Minimization of earth cut and fill works
October 2007	First Construction Commenced

Source: Liziz Standaco Sdn. Bhd., 2011

4 Structure Plan and Total Planning Doctrine

The Structure Plan is prepared based on Part III of the provision of the Town and Country Planning Act 1976. It provides basic information and guidance on land use planning, infrastructure and socio-economic development. Kota Bharu City Centre (Waterfront) Structure Plan was prepared in 1995 as a statutory plan and outlined basic framework in terms of efficient and comprehensive strategies to meet Kelantan Government objectives for the new city centre. The Structure plan also provides the regional framework for Kota Bahru city centre in the context of a whole Kota Bharu and Kelantan River basin development which covered a total of 1,000 acre as it was under the jurisdiction of Kota Bharu and Tumpat District Council. The Kota Bharu and Tumpat Structure plan targeted a total of 150,000 persons for the whole area of Tumpat and Kota Bharu city. Out of this total, 50,000 persons were designated for Kota Bharu Water Front centre and 100,000 persons for the Corporatization area and Malay reserve area of Kota Bharu and Tumpat district council area.

Kota Bharu City Centre (Waterfront City) also adopted the Master plan to guide the implementation, land use and infrastructural development and all physical forms for the entire designated area. The original Master plan of Kota Bharu City Centre was started with collaboration between a consortium of master planners and Kelantan Government authorities, comprises mainly the State Department of Town and City Planning planners and Liziz Standaco Sdn Bhd. It was planned with two major themes i.e. “Kota Bharu City Centre” and “Kota Bharu Water Front City”.

The Kota Bharu City Centre concept emphasized the physical aspects such as landform, vegetation, visual quality and water bodies. The Integration of city parks such as Taman Tema and commercial units with other urban and pocket parks will function as greenlung for the city. The planning concept for Kota Bharu City Centre was based on the Total Planning and development Doctrine i.e. three main principles of relationships (FTCPD, 2000).

- (a) Relationship between Human and Creator
- (b) Relationship between Human being
- (c) Relationship between Human and Environment

Kota Bharu City Centre is planned as an water front city with the telecommunication technology and information technology infrastructure to enhance the infrastructure, management activities and societal progress.

The Structure Plan's population target of 150,000 persons was then reviewed to accommodate about 350,000 persons on 1,000 acre of land. The original Master plan had provided for a total of four zones/parcels. A 4km stretch of esplanade forms part of the new Core Area design, a green network connecting on parcel to another is also being planned.

In term of development framework, mixed development concept block is used. Commercial blocks are like planning zones which can be parceled into several neighbourhood units. The entire area is divided into four parcels and each parcel is demarcated by roadways or green spaces. Broadly, the Core Area consists of the four zones/parcels (Zone/Parcel 1 to Zone/Parcel 4) and the remaining development area are located at the Island Area. Each zone/parcels has a neighbourhood commercial site; public facilities include college and complex site. The clear demarcation assists to reinforce the identity of each parceled and also facilitate implementation of the project. All zones/parcels have residential area with the exception of Zones/Parcels D (MPKB administration building) and Zones/Parcels C (Taman Tema and College).

5 Kota Bharu City Centre and Waterfront City

The city is planned to embrace two main themes – Kota Bharu City Centre and Kota Bharu Water Front City. The main land use features of Kota Bharu City Centre include the following: Small proportion of the city area is designated as green open space.

- Water body (recreational facilities and esplanade) created within the city
- 20 km of waterfront area created by the Kelantan river esplanade
- City is divided into four zones/parcels; core employment and commercial zones/parcels located on the riverbank
- Peripheral zones/parcels (residential zones) planned based on the neighbourhood planning concept
- A 4.0 km long esplanade forms the central spine of the city (Zone D only)
- Daytime population of 250,000 persons and Night time population of 150,000 persons

In line with the waterfront city concept, more than a third of the total area (35.0%) is reserved as open space. It was important to introduce nature into the city. It had a total area of 335 acres for open space which included golf field, Urban Park (Dataran) and City parks, wetlands, buffer areas and water bodies. The three main city parks namely Commercial Area (Hypermarket/Hotel), Higher Institutions Areas (Private Colleges), and Transports Terminal (Bus Terminal) not only supported the urban ecology but also provided attraction to local and foreign tourists. The water bodies

consisted of primarily Kelantan River. Water Theme and business area functioned as a natural filtration system for the Kelantan River. The river was designed to cater for multi-functional uses including recreation, fishing, water sports, water transportation and provided opportunities for educational and research activities. The Wetland is about 100 hectares in size and is the natural wetlands in the tropics. The river covered an area of about 800 hectares, creating 20 kilometres of shoreline. Figure 4 shows the overall Master plan with land use distribution and wetland planning. In Kota Bharu Waterfront City, Residential land and commercial use constituted the second largest land use category with 31.5% of the total area, covering a total of more than 1,000 acres which is capable of supplying about 47,000 dwelling units. This residential land is divided into four exclusive residential units in the Periphery (5,321 acres with 47,233 units) with some zones/parcels within the Core area (125.0 acres with 11,151 units). A total of about 32% of the total housing units will be allocated for residential and the remaining 68% for other sector (Hotel and Transportation). Due to premier location of the Core area, the housing density permitted in these areas is all high density housing i.e. Plot Ratio of 3.2 or more than 40 units per acre.

The road and utility reserves covered a total area of approximately 132 acres or 13.2% of the total area. Effective and efficient transportation system is a key element in the planning of Kota Bharu City Centre. Great emphasis had been given to public transport and the promotion of park and ride concept (modal split of 30:70 of private and public transport). Hence the transportation system was developed around the integrated bus and taxis public transportation complemented with six excess road networks. There were eight utilities services planned for Kota Bharu City Centre development. Among the six utilities are water supply, drainage, wastewater, solid waste, electricity and telecommunication.

The range of State Government land use included areas designated for State Government offices, institutional use, VIP retreat, sports/training centre and official residence. All the State Government uses were located in the Core Area. This comprised 137 acres or 5.0% of the total land area. Out of this total, 14 acres of State Government offices or 30.7% of the total State Government land and the balance of 123 acres were reserved for other uses such as hotel, Istana Hinggap, Sport and Training Centre and exhibition centre in the Sport and Recreational Zones.

facilities constituted about 110 acres or 8.7% of the total land area. Public facilities comprises of areas designated for education, religious, health, civic, postal facilities, public market, community halls, information centre, sport and recreational (including a golf course) and cultural uses. These facilities were all planned within easy access of the region’s ring road system and within walking distance of sub neighborhood. The Commercial land area in Kota Bharu City Centre is about 127 acres or 12.7% of the total land area. The Main commercial land use comprising 83 acres is located in Zone D. Out of this total, 224.8 acres were located in the Core area and 58.1 acres located in Zones A and C. A total of 55.9 acres were allocated for neighbourhood commercial area. A local neighbourhood centre has an area of about 4.5 acres to accommodate different type of shops like convenience stores, laundry shops, small cinemas and petrol kiosks. These areas consist of all commercial area in the core area as well as the neighborhood commercial area. Table 2 summarizes the overall land use distribution in Kota Bharu City Centre. It is also important to examine the distribution of the land use in detail by zone to understand the distribution of the development and urban activities. In order to achieve a balanced and coherent development and urban structure, the Core areas (Zone B to Zone D) were predominantly planned with higher density as compared with the Zone A located in the Periphery area. Table 2 shows Land use distribution by zone and category.

Table 2 Land use distribution of Kota Bharu City Centre

Land use	Total area (acres)	Per cent (%)
Zone A	230	23.0
Zone B	50	5.0
Zone C	280	28.0
Zone D	440	44.0
Total	1,000	100%

Beside land use planning outlined in the development plan (structure plan and master plan), there are other planning documents to complement the development control and monitoring of development. The planning guidelines are based on comprehensive policies and guidelines in documents namely; Local Plans, Landscape Master Plan, Lake Use and Navigation Master Plan, Utilities Master Plan, Transportation Master Plan, Irrigation Master Plan, Lighting Master Plan, Urban Design Guidelines, Fencing Design Guidelines, Signage and Advertisement Design Guidelines. Besides the planning guidelines, urban design guidelines were also being prepared by the local planning authority by respecting the Urban Context. Among the planning and urban design considerations were concepts like Form of the City, Scale of the City, Scale of the Waterfront, Local Culture and Tradition, Mixed Uses, Street Level Activities, Entry Points/Gateways and Buildings that form Outside ‘Rooms’.

6 Kota Bharu City Centre: Current Status of Development

The construction of Kota Bharu City Centre commenced in 2007. Almost seven years later, by 2014, Kota Bharu City Centre now has an estimated population of about 30,000 persons enjoying with modern and good public amenities and infrastructure. KBCC is equipped with good inter - and intra-city transport system (including bus and water taxis), broadband network, TESCO hypermarket, AEON and Platinum mall (under constructions), MARA College, Master Skill College, more than 2,000 shophouses, waterfront esplanade and temporary transport terminal (including bus station and taxis).

About 22% of the land is being developed into parkland. KBCC has the 4 km esplanade walkway with a total area of about 400 acre, which is used for recreational activities and leisure.

The KBCC is to be developed in four phases (zones) over a period of 13 years. Zone D/Phase 1 was carried out from years 2007 – 2015 (half completed), Zone B/Phase 2 primarily for leisure, stroll, waterfront walk scheduled development periods 2013 – 2016, Zone C/Phase 3 primarily for residential scheduled development period 2015 – 2019 and Zone A/Phase 4 exclusively for bungalows scheduled development period 2016 – 2020. Liziz Standaco Sdn. Bhd. which was incorporated in Malaysia on 30 May 2001 under the Company Act, 1965 as a private company is the developer of the KBCC. Table 3 shows the current development position of KBCC – an existing population of about 30,000 persons with about 4,000 housing units.

Population growth will depend greatly on the speed of construction of the shophouses, apartment and residential housing, which are the trigger and the multiplier for employment in the city's initial stage of development. By year 2014, more than 300,000 thousand sq.metres or half of the shophouses, apartment and residential building is completed/under construction. About 500 houses are under construction to cater to the demand of the population in KBCC, the majority being apartment and shophouses residents. TESCO Shopping Centre was opened in January 2008 with Retail, Food and Beverage, Hypermarket, Departmental Store and Leisure activity. Other major commercial development included the Pelangi Mall apartment cum condotel, two 3-star hotels with 215 rooms operational since 2008 and 1 four-star hotel.

Even as the city is being developed, an early completed development is the KBCC esplanade and water-front walk, which is at the heart of the city and a critical component of the project. Built to demonstrate the benefits of incorporating the river ecosystem into the urban area, KBCC river (Kelantan River) will be used as a best practice case in sustainability.

Table 3 Existing population and status of completion

Planning Information	Particulars
Resident Population	Shophouses – 2,000 units
Government Office worker	Custom – 5 units
Government Offices	Custom – 4 units
Commercial Spaces	TESCO, Pelangi Mall, AEON Mall and Platinum Mall
Government and Private College	Masterskills and College-Polytech MARA
Housing Units	Apartment – 3 units and Terrace Houses
Roadwork's	3 main excess roads
Facilities	Surau – 2 units Hotel – 4 hotels Health clinic – 1 Bus terminals Restaurants Boat/River club

Source: Liziz Standaco Sdn. Bhd., 2012

7 Neighborhood Planning and Caring City Concept to Achieve Quality Urban Living

In neighbourhood planning concept, each neighbourhood has a centre and an edge or distinctive boundary. The centre as place for congregation consists of public square, public facilities, meeting places or even shops. Planners can influence the scale, density, form and structure of development to create neighbourhood units. This neighbourhood unit is used extensively in KBCC in planning the residential areas in all the periphery residential zones. In addition, it also provides a platform for a broad mix of housing types and shophouses for all sections of society to encourage social integration. These housing and shophouses types ranging from affordable homes and apartments to condominiums and bungalows are planned to foster this integration.

Quality and modern public amenities are also planned on a neighbourhood unit concept, granting residents easy access within the neighbourhood via non-motorized transport – walking or cycling. The other important features found in the city are the importance of human scale, street design and the fostering a sense of community and belonging through design. KBCC represents the first city in Kelantan to provide Fencing Design Guidelines – “permeability”. The latter encourages interaction and community policing. Permeable fencing is preferred with generous use of landscape treatments: hedges, shrubs and trees instead of solid fencing. Permeability translates into the absence of a front fence and this is not at the expense of privacy and security because hedges and shrubs are used as fences instead.

In order to foster a sense of community and belonging, provision of adequate facilities and organization of programmes and activities in the neighbourhood are equally important. As for the caring society objective, barrier-free design to cater for

the disabled are also incorporated in the design of all public buildings. Code of Practice on 'Access for Disabled People to Public Buildings' Malaysian Standard 1184: 1991 and Code of Practice on 'Access for Disabled People Outside Buildings' Malaysian Standard 1331: 1993 are also being used as design guide for some buildings in KBCC.

The planning of circulation system was done with highest regard for pedestrians via proper planning of network of pedestrian walkways and cycle ways. Specific footpath standards are being used throughout KBCC to ensure a comprehensive footway and bicycle route system is carried out by the developers. In addition, supportive urban design and landscape treatments provide shade, comfort, convenience and safety for the users. Road hierarchy is planned to discourage cross traffic but ease of access. Public transportation system i.e. bus, and taxi supported by 'Park-and-ride' facilities – complement the pedestrian networking creating a sustainable transportation system.

8 Townscape – City Image and Character

Urban design and landscape architecture are part of town planning process. Urban design helps to organize and structure the urban realm; strengthen the legibility and image of the city as well as to create visual unity out of a diversity of urban elements. KBCC adopted the traditional spatial qualities in order to achieve the objectives of efficient, coherent and human Scale. The Detailed Urban Design Guideline (DUDG) of KBCC focuses on the following guiding principles based on urban structure, urban form and urban character. The design brief is prepared on a Zoning basis and outlines character and ambience of each development plot.

Design parameters that are used as control includes land use detail, building height, skyline, urban rooms, visual axis and termination, street façade, building massing, building typology, pedestrian linkages, open space coverage and streetscape The planning of the Boulevard and esplanade in KBCC is inspired by the Hong Kong and Singapore waterfront city and esplanade. It is 50 metre wide and 4.0 kilometre long.

In terms of night lighting, lighting character is expected to be achieved through a consistent and regimented hierarchy of lighting quality. This is carefully done in the Core Island Roads, Streets and Buildings. In KBCC, Building Categorization for Lighting Purposes is as follows:

Group Buildings, group of buildings, structures or other elements that form vista termination, landmarks when viewed from major distances, nodal points, or are categorized as landmark buildings in DUDG documents. The majority of group A buildings will be located on the Zone D, Zone B and within Zone C. Group B buildings that form the 'street wall' between Zone D buildings on Central Project, buildings of particular architectural note, structures, landmarks, key buildings in regional centre and

other elements. Zone D and Zone C all remaining buildings, structures and elements that justified lighting for civic, architectural or commercial reasons.

The control on the level of illumination on the building façade facilitated the fostering of the city's image and character via lighting strategies. Night time ambience is deliberately influenced through the various implementations of the architectural lighting criteria. Outdoor space which in the daytime is unpleasantly hot is being transformed into to be vibrant and fun activity areas to be enjoyed by residents and visitors alike. Complementing the architecture and landscaping in KBCC are two distinctive signature bridges [Sultan Yahya Petra 2 bridges (completed) and Palekbang bridges (under planning)]. They only provide communication but also exude aesthetic appeal and enhance the character of the city.

The creation of KBCC 'Water Tema' at Kelantan River set the platform for the development of waterfront city. Major features and opportunities of a waterfront city are the 15 km of Waterfront Promenade and the existence of green corridors, parks, and esplanade at the door step of urban dwellers. In addition, it provides a varied range of water recreation and sports opportunities when completed. KBCC 'Water Tema' is a centre for water sports, recreation and tourism. Apart from passive activities such as fishing, walking and jogging, active sports such as sailing and canoeing are commonly seen on the river.

9 Concluding Remarks – Lessons Learned

Planning of KBCC provides a good benchmark for planner to rethink about the future planning of cities especially the state of Kelantan.

(a) Critical mass

KBCC is a massive State Government and private initiative due to its investment and scale. The 1,000 acres is large enough to house a critical mass population of about 150,000 people (and daytime population of 300 thousand).

(b) Ecological consideration

Since it is a greenfield site, the natural ecology of the site can be used as large tract of greenery to ensure the implementation of the garden city concept where landscaping and water bodies are prominent components of the KBCC.

(c) Cultural heritage

The Government vision is a city that reflects the natural and cultural heritage of the Kelantan and with the technological capacity incorporating the latest amenities to meet the challenges of the next millennium.

(d) Community and neighbourhood concept

KBCC is planned with urban quality of life in mind. The use of neighbourhood planning concept and caring society idea will help to promote community integration and solidarity. A total of 15,000 landed homes, apartments and condominiums are planned, with 0.5 million sq m of State Government and 1.4 million sq m of commercial land uses in four zones provide shorter journey to work as workplaces and homes are located within the vicinity. With comprehensive planning of recreational and open spaces, its residents can look forward to enjoy a diverse range of entertainment, sports, and leisure and recreation activities, both indoor and outdoor when all completed. It is also a city with a clear identity and character rooted in local culture and tradition as evidenced by its local architecture and design.

(e) Incorporation the state of art technology

The planning of the latest ICT provided opportunities for the incorporation of the latest technology including of the concept of an intelligent city. The infrastructure and utility planning also showcased the state of art technology such as the use of Intelligent Transport system, Common Utility Trench and the innovation of creation of water sports on Kelantan River for the KBCC. It shows how the ideas of water front city and intelligent city are translated on ground. KBCC is an excellent showcase for a city for business, education and administrative centre for the new millennium. It is an example of urban development that has adopted the prevailing sustainable development planning doctrine that places emphasis on the relationship between man and environment. Care was given to the preservation of the site's natural topography, trees, and to the control of quality and quantity of flood water, and creation of open space and water body.

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