

# **PERFORMANCE OF PUBLIC SPACES IN THE KUALA LUMPUR METROPOLITAN REGION IN TERMS OF THE TROPICAL CLIMATE**

---

**Marek Kozlowski<sup>1\*</sup>, Norsidah Ujang<sup>2</sup> and Suhardi Maulan<sup>3</sup>**

Faculty of Design and Architecture, Universiti Putra Malaysia, Serdang Malaysia<sup>1\*</sup>

Faculty of Design and Architecture, Universiti Putra Malaysia, Serdang Malaysia<sup>2</sup>

Faculty of Design and Architecture, Universiti Putra Malaysia, Serdang Malaysia<sup>3</sup>

\*Corresponding author: m.kozlowski2008@gmail.com

## **ABSTRACT**

*The Greater Kuala Lumpur Metropolitan Region is one of the fastest growing regions in Malaysia and in the last decade has witnessed a spate of new residential, institutional and commercial development. Much of this development has been mainly market driven and guided by economic and political reasons. Such rapid property led development often neglects the local traditions, the natural settings and the local tropical climate and as a result has a detrimental impact on the surrounding public space. The aim of this study is to analyse the state of existing selected public spaces in the Kuala Lumpur Metropolitan Region against a set of recognised universal evaluative criteria for tropical design followed by identifying a set of measures to remedy existing deficiencies. The nature of this research is predominantly qualitative conducted through intense contact in the real urban life. The research methods include literature review, content analysis, field assessment and visual observations on suitable case study areas. The analysis revealed that a majority of public spaces in the region are not pedestrian friendly and do not reflect the tropical climate, being devoid of trees and vegetation. Future development of public open spaces in appreciation of the local tropical climate, local traditions, identity and character would significantly contribute to a holistic environment, viable economy and social equilibrium.*

## **1. INTRODUCTION**

One of the key challenges facing Malaysia is the rapid urbanisation. The biggest conversion occurs in the Greater Kuala Lumpur Metropolitan Region which is subject to drastic changes resulting from the pressures of global economy. This research provides a deep in-sight analysis into urban physical transformation in Kuala Lumpur Region, and furthermore studies their performance in terms of tropical design principles.

There is an on-going international discourse on the negative side-effects of globalisation on the urban environment in Southeast Asia (Marshall 2003). This study seeks to undertake an analysis of implications of contemporary urban physical transformations in the Greater Kuala Lumpur Region by drawing attention to elements, such as urban form, public realm, tropical design values and outdoor living and local climatic conditions. By following some good examples from other Asian, European American and Australian cities, the identification of local tropical design guidelines for the public space is essential and well timed.

This study is the first phase of the research project aimed at developing local tropical design guidelines for public spaces in the Kuala Lumpur Metropolitan Region. The first phase concentrates on the existing conditions of public spaces in terms of their performance against a set of recognised criteria for tropical urban environments. As part of this phase selected local area plans prepared by local authorities are examined in terms of their responsiveness to the local tropical climate.

## 2. BACKGROUND

Kuala Lumpur emerged as a capital of the new independent Federation of Malayan States in 1957. The city's population at the marking of independence was 316,000. Since the late 1950s large parts of the traditional urban fabric featuring traditional Chinese mansions, shop-houses and Malay kampong houses have been demolished to pave way for new international modernist development. As a result a substantial portion of Kuala Lumpur's history has been erased. A cursory review of archive images of Kuala Lumpur revealed that back in the 1940s and 1950s major streets were lined with deciduous trees providing shade and thermal comfort. Currently the Malaysian tropical interaction with landscape can be traced only along a few streets and within the existing urban kampongs (urban villages). The two Rivers Gombak and Klang which were the main geographical features and transport routes of the early Kuala Lumpur settlement have been reduced to two concreted drains (King 2008).

Contemporary Kuala Lumpur is a major urban centre in Southeast Asia. The city administrative area has a population of 1.7 million and the population of the Kuala Lumpur-Klang-Seremban Metropolitan Region, covering around 5000 sq.km., is 6.5 million (DBKL 2012). In the last decade, the Kuala Lumpur Metropolitan Region has witnessed a surge of residential, institutional and commercial development. This development includes large scale master planned communities, high rise residential condominiums and medium-small-scale developments, attached houses and duplex dwellings, large shopping complexes, high rise office towers, business and technological parks, transportation hubs, university and educational campuses, institutional complexes and international hotels. This clearly implies the immense popularity of Greater Kuala Lumpur Region, not only as a world city and the major administrative centre of Malaysia but as a place to live, to conduct business and as a major tourist destination.

Another important urban centre in the rapidly growing KL-Klang Region is Putrajaya the new administrative capital of Malaysia. In the 1990s Malaysia's federal government commenced the development of Putrajaya, located 25 km south of Kuala Lumpur within the new Multimedia Super Corridor that stretches a further 40km south to the new Kuala Lumpur International Airport. The Corridor was intended to relieve and redirect existing growth pressures on the expansion of the metropolitan area west along the Klang River valley to the Port of Klang. Putrajaya itself, in addition to being a showplace of post-colonial Malaysian identity, was also intended to relieve pressure that federal government agencies themselves were placing on Kuala Lumpur's property market (King 2008). The new city has grown to a population of

80,000, with a predicted population of 350,000 by 2025. Majority of the federal ministries and government departments have already moved to the new administrative capital (Putrajaya Holdings, 2013). Similar to other new capital cities (Canberra, Abuja, Islamabad, Astana, Naypyidaw and Brasilia), Putrajaya reflects the strength and power of the central government and its urban environment is completely different to a typical Malaysian urban model (Kozlowski, 2014).

The rapid development in the Kuala Lumpur Metropolitan Region has opened a discourse on the necessity of imposing tropical and sustainable planning and design requirements on future developments.

In Western Europe, Australia and North America climate responsive urban planning and design has become a priority challenge for professionals' urban planners and designers, architects, landscape architects as well as scholars and academics in urban design and planning (Kozlowski, 2010, Carmona, Taner O.C Heath Tiesdell, 2010). Hundreds of action plans for sustainable development, urban design and planning guidelines, climate responsive streetscape and public space design guidelines, and form based codes have been prepared by local and regional authorities, state agencies and governments, and research institutions in the European Union, North America and Australia (Beatley, 2000, Louisiana Recovery Authority, 2008, Centre for Subtropical Design Queensland University of Technology, 2010, The City of Miami, 2010, Brisbane City Council, 2011)

## 3. METHODOLOGY

The aim of the research is to determine the performance of public spaces in the Greater Kuala Lumpur Metropolitan Region (Kuala Lumpur City Centre and Putrajaya) in terms of responding to local tropical climatic conditions and local traditional values. The question arises is : What is the current state of public spaces and streets in the Greater Kuala Lumpur Metropolitan Region measured against a set of recognised performance design criteria for tropical urban environments? To comprehend the measured performance, the research has outlined the following objectives:

- To identify a list of universal performance design criteria for tropical environment
- To evaluate the state of existing public spaces in Kuala Lumpur Metropolitan Region against a recognised set of universal evaluative performance design criteria for tropical urban environments
- To identify the shortcomings of existing local development plans in achieving local and tropical design outcomes for the public realm.

The nature of this research is predominantly qualitative. Thus, qualitative research methods were adopted to enable a deeper understanding of the complexity of contemporary urban transformations, the responsiveness to local climate and the vulnerability of traditional urban spaces in Kuala Lumpur Metropolitan Region which include streets and public places. The research methods will include literature review, content analysis, field assessment and observations on suitable areas as case studies. This research will evaluate selected public spaces in order to identify the major shortcomings in terms of achieving tropical design criteria and integrating local traditional elements and values.

Field assessment is aimed at aggregating observations and evaluating existing public spaces against a set of internationally recognised design criteria for tropical urban development. Visual observations of the urban environment are an essential tool to portray a perceived image of public spaces. The case study areas include streets such as major avenues, shopping, residential and local streets in central Kuala Lumpur, Putrajaya, Bangi, Serdang and Petaling Jaya while the major public spaces include the Kuala Lumpur City Centre (KLCC) Urban Park and Marina Putrajaya Waterfront. A large portion of this study is based on secondary data sources, such as, planning documents and research papers, and on information from professional literature and journals. Planning documents and conference papers will also be referred to in this analysis.

To synthesise, the condition of existing study areas through primary data gathered from the field assessment and visual observations, are analysed based on simple rating scale format (Zikmund, 2000; Dooley, 1995) In assessing the areas, using a measurement scale with categories ranging from satisfactory (fully reflects the tropical climate) to partially satisfactory (partially reflects the tropical climate) and unsatisfactory (does not reflect the tropical climate) allows for the evaluation to confirm or repudiate each criterion and, if necessary make additional comments.

#### **4. PERFORMANCE DESIGN CRITERIA FOR PUBLIC SPACES IN TROPICAL CLIMATES**

The term 'criterion' is, generally, regarded as '...a principle or standard that a thing is judged by...' (Illustrated Oxford Dictionary, 1986), or '...an established rule or principle for testing anything...' (The Budget Macquarie Dictionary, 2000). On these grounds it seems justified to claim that the tropical design criteria for the urban environment is being developed as a compilation of existing tropical design criteria derived from professional literature and planning documents. Unlike the case of objective indicators, the criteria cannot be easily quantified as they are used to determine individual, subjective

perception and judgements. These vary between cultures and various end-user groups. Therefore the criteria mainly focus on quality and performance and as such are qualitative in nature.

The identified criteria should be credible and reflect the recognisable and realistic image of the examined urban environment. This is essential to justify the needs for the indirect and direct use of urban design and planning tools as a guide for necessary physical transformations

In this study, a comprehensive literature review targeting existing criteria, indicators and strategies for the design and planning of tropical and subtropical urban environments is undertaken. The literature review covers urban design and planning professional literature and relevant planning documents, guidelines and strategies. The first step in the methodology is to identify the most common used criteria or indicators applied for planning and designing of subtropical and tropical urban environments and further evaluate them in terms of their relation to the basic principles of contemporary urban, architectural and landscape design.

A particularly wide range of criteria and standards for sustainable buildings in tropical urban environments is identified by Yeang (2006). The author defines the term eco-design and argues that in tropical climates it is imperative to integrate the design of the built form with the natural environment. He further asserts that ecological linkages between the new building and natural environment should be both horizontal and vertical. Evaluating policies for Green Buildings in Taiwan Te Lin (2006) states that glass box design is not suitable in subtropical and tropical zones. An increase in the glass ratio of the building façade generates an increase in the energy consumption of the building. The author also claims that sun-shading devices for the external facades, the use of light-weight steel and timber structures and permeable floor pavers in the external areas are important contributors in achieving tropical/subtropical climate responsive built environments. Bay, Wang, Lian and Kong (2006) identify the importance of replicating traditional Malay house semi-open verandas (anjung and serambi) in high rise residential complexes in Singapore. The authors argue that creating semi-outdoor common areas within high rise buildings provides places conducive for social gatherings, relaxation and activities such as gardening. Salleh (2006) conducts a thorough research on the thermal performance of urban canyons in tropical Kuala Lumpur. The findings of this study revealed the potential of urban street canyons (with the building height/street width ratio not greater than 3:1) in tropical urban environments to serve as functional and sustainable urban spaces for both commercial and social purposes.

The Subtropical Design for Southeast Queensland contains a list of 12 principles for subtropical design and planning of the region. The 12 principles respond to the key policy aspiring a compact urban structure supported by a network of accessible and convenient centres and transit corridors. Each principle is supported by practical implementation strategies. The twelve guiding principles include: recognising sub-regions, respecting topography, diversity of the built environment, consideration of local character, integrating with nature, acknowledging informality, use of vegetation, ensuring open space diversity, incorporating access to open space, designing for water, developing outdoor centres, and meeting places. The implementation strategies focus on designing streets with respect to local topography, introducing linear neighbourhood parks along natural drainage systems, minimising cutting and filling on slopes, promoting permeable urban and built form, optimising solar access and air movement in building design, encouraging public spaces in large building complexes, promoting urban perimeter blocks with active frontages, use of traditional elements, vernacular structures and local materials in building design, benefiting from natural ventilation, achieving permeability in building by avoiding high fences and blank walls and integrating with the outdoors, allowing shady canopy trees in public and private spaces, promoting semi-outdoor spaces and green roofs, promoting sustainable management of storm-water in public spaces, utilising public open space for various functions and events, providing convenient access for pedestrian and cyclists, acknowledging the presence of water in the design and finally design informal meeting outdoor places (Centre for Subtropical Design, 2010).

The Next Generation Planning a document targeting the Southeast Queensland region is another example of state government guidance for sustainable subtropical development including form based smart codes and water sensitive urban design (Queensland Government and Southeast Queensland Council of Mayors, 2011).

Urban design guidelines conducted as part of master plans and urban studies for the City of Gold Coast and Brisbane include design criteria for streets promoting dense tree planting, extended pedestrian sidewalks, outdoor street activities, active building street interface and providing continuous landscaped build-outs (Gold Coast, 2010, Gold Coast, 2011, Brisbane City Council, 2011)

Strong environmental policy oriented at the beautification of Singapore and creating green zones between settlements as well as along transport routes was one of the foundations of the city's urban design. Intensive tree planting program along major road corridors and residential streets is

conducted jointly by the Urban Redevelopment Authority (URA) and the Highway Department. The systematic streetscape revitalization projects involve widening of sidewalks, floor-scaping, and the provision of quality street furniture. Streetscape revitalization works in Singapore have focused on tourist, historic and cultural districts such as Orchard Road, Chinatown, the Malay Quarter, and waterfront areas along the Singapore River. Special detailing of streetscapes includes promenade railing, paving lighting and street furniture. The Bugis area and the Arab Quarters streets were converted into pedestrian streets, physically lifting the appeal of the areas (URA, 2008). Urban Design Guidelines for Kuala Lumpur City Centre include design criteria for streets and surrounding buildings promoting tropical design including permeable and active building/ street interface, outdoor activities, planting of vegetation and canopy shady trees, climate responsive surface materials and vertical landscapes in new buildings (Dewan Bandaraya Kuala Lumpur, 2014)

In addition substantial research has been conducted to identify local traditions that have influenced the functioning of streets and public spaces in Malaysian urban settlements. Sulaiman and Shamsuddin (2012) identified four traditional elements on the streets that attract the users. They include street activities, physical characteristics, circulation and heritage. The authors emphasise on the strong importance of outdoor eating and informal trading activities as a traditional feature of Malaysian urban streets. The presence of street and night markets in Malaysian cities is observed by Shamsuddin (2011) in her analysis of the historic Malaysian townscape. The author points out that the most noticeable activity of the typical Malaysian townscape is that related to street peddlers and hawking '.....The sense of movement, aroma, sound and colours fill the air with a sense of festivity that dominates the townscape and able to make the place more memorable...' (Shamsuddin 2011: 122) According to Ujang (2014) cities in Malaysia witnessed the reduction of street activities as a result of new indoor shopping centre development. The author further asserts that results of a questionnaire survey revealed that majority of the users feel attached to the place because of a combination of trading, social, cultural and religious activities. Zakaria and Harun (2013) discuss the case of temporary informal market activities as a catalyst to attract visitors to heritage areas within central Kuala Lumpur.

The above findings indicate the significant role of traditional urban elements, street atmosphere and informal method of transaction in sustaining the city's sense of place as observed by previous researchers.

Based on the above review of professional literature and planning documents and additional research on local traditions a list of 43 performance design

criteria (PDC) for tropical urban environments was identified. The compiled criteria become the basis for evaluation of existing public spaces in the Kuala Lumpur Metropolitan Region.

The criteria are listed under the following five following headings:

- Street/Public Space Character, Form and Function
- Landscape Design
- Building/ Street Interface
- Building Design
- Sustainable Planning and Design

The above heading classification is based on literature review targeting the form and functioning of public spaces. The literature review revealed that form of public spaces is largely determined by its size and shape and the scale, bulk and character of surrounding buildings, other elements and activities that have an impact on the functioning and success of public spaces include quality of the pedestrian environment, access, visual and physical connectivity, aesthetic qualities and landscape design, building/street interface and elements of sustainable planning and design (Carmona et al 2010), Lehman (2010) (Carmona and Wunderlich 2012), Farr (2008), (Gehl and Melbourne City Council 2004). Each criterion is supported by a description justifying its final selection and explaining its meaning.

## 5. CASE STUDIES

According to the Urban Design Guidelines for Kuala Lumpur City Centre streets are the multi-functional spaces that create the shape of the built environment, provide opportunities for social activity, and are the pathways for visual and physical movement. The existing street typology includes: city wide connectors, local connectors, main shopping streets, market streets, character streets, residential streets, city boulevards, and local streets (Dewan Bandaraya Kuala Lumpur, 2014).

As part of the research, 32 streets including city-wide and local connectors, main shopping streets, boulevards, character and market streets and residential streets, public spaces including urban parks and waterfronts and building complexes, all located in the Kuala Lumpur Metropolitan Region, are evaluated against the 43 performance design criteria. For the purpose of this particular research paper the evaluation of four streets and one public space in central Kuala Lumpur and one major street in Putrajaya are described in detail. The streets in Kuala Lumpur include Jalan Pudu (Pudu Street - a local connector), Jalan Bukit Bintang (Bukit Bintang Street –the main shopping street), Jalan Alor (Alor Street -both character and market street), Jalan

Lorong Panggung (Lorong Panggung Street- an alley and character street). The selected street in Putrajaya is Persurian Perdana (the main boulevard of the city).

In addition 3 new building complexes in central Kuala Lumpur have been included as part of the evaluation study. They include the Pavilion Complex along Bukit Bintang, St Regis KL residential apartment tower opposite KLCC and Kenanga Wholesale City close to Hang Tuah Transport Station.

The location of studied areas in the KL-Klang region context and the images of selected described case study areas are shown in Figures 1 and 2



Figure 1: Location of Case Study Areas in KL-Klang Region.  
(Source: Authors 2015)



Figure 2: Described Selected Study Areas from above left to right; Jalan Bukit Bintang, Jalan Alor, Jalan Pudu, Jalan Lorong Pangung, KLCC Park, Persiaran Perdana, Putrajaya. (Source: Authors 2015)

## 6. ANALYSIS AND MAJOR FINDINGS

As part of the analysis each street and the KLCC Park are assessed against the list of 43 Performance Design Criteria (PDC) for tropical urban environments. The assessment of each criterion is based on its performance against the characteristics of the tropical climate. A measurement scale is used to evaluate the degree of how each public space reflects the local climatic conditions (fully reflects, partially reflects, and does not reflect).

The selected section of Bukit Bintang performs well in terms of the character, form and functioning of the street. The width is sufficient enough to accommodate flexible movement of vehicles and pedestrians and the extended pedestrian sidewalk is adequate to accommodate outdoor activities such as outdoor dining. The urban enclosure is generally suitable for tropical climates, although the height of some buildings exceeds the width of the street. In terms of climate design the performance is much worse as majority of the surface treatment materials (concrete pavers) are not appropriate for tropical conditions. The street is not lined with canopy shady native trees which has an impact on the thermal comfort for the end-users. In terms of the building street interface, continuous active frontages spilling out into the street are provided along the street frontages. There is a permeable building edge providing a transparent transition between outdoor and indoor spaces. Majority of the buildings along Bukit Bintang are devoid of tropical design elements. There is lack of external shading devices, sufficient building articulation and vertical and horizontal landscapes. Prevalence of building materials such as glass and coated concrete panels do not contribute in creating a tropical ambience. In terms of sense of place and identity the selected section of Bukit Bintang represents a typical 'global urban environment' characterised by brand retail outlets and European and Middle Eastern eating places and cafes. The street lacks any resemblance of traditional Malaysian outdoor environments.

Jalan Alor is a typical character street catering for a pedestrian friendly environment and bustling activities which intensify during the evening hours when the street is temporary transformed in to one big outdoor eating place. In terms of landscape elements the street is mostly devoid of vegetation and canopy trees, however weather and sun protection devices in forms of awnings have been installed along the buildings. The building edges are permeable with semi-outdoor spaces and activities provided at ground level. The buildings along Jalan Alor are a combination of traditional shop-houses and modern buildings of the 1970s and 1980s. The latter lack any tropical design elements and traditional local motifs. In total contrast to Bukit Bintang, Jalan Alor reflects local customs and traditions. The street is characterised by

the presence of outdoor trading activities, some of them operating on a 24/7 basis. In the evening the entire streets is converted into one large dining area with variety of stalls offering a diverse choice of local Malaysian cuisine.

Jalan Pudu is a local connector linking major activity nodes within central parts of Kuala Lumpur. It is the major link connecting the retail centre around Bukit Bintang with older parts of the city including Chinatown and Dataran Merdeka (Merdeka Square). The street has a substantial pedestrian sidewalk especially on the eastern side. However, the street operates as a transition zone lacking in vibrancy and activities of Bukit Bintang and Jalan Alor. In terms of landscaping the street lacks standard street furniture and sufficient street lighting. There are very little vegetation and canopy trees to provide for thermal comfort. There are also a limited number of active street frontages at ground level. The street frontage along the Pudu Transit Station is completely devoid of any active uses spilling put into the street. The majority of building setbacks are utilised only for pedestrian circulation and there are no plazas and pedestrian resting areas. Some of the modern buildings have sun-shade protection devices but lack creative design and do not add visual interest to the streetscape. Although Jalan Pudu serves mainly as a transition area, nevertheless it has great potential to be transformed to a tropical city boulevard lined with canopy trees and active frontages along the ground level (IZM, 2014).

Jalan Lorong Panggung is a typical alley and a character street. It is lined with old traditional buildings and Chinese shophouses. The Chinese lanterns and traditional shop-house building contribute in creating a local sense of place and identity. The height of majority of buildings is larger than width of the street which creates a shallow urban canyon suitable for tropical climatic conditions. The street caters both for pedestrian and vehicular movement. There is a lack of active uses along the ground level of buildings which reduces the level of vibrancy throughout the day and in the evening hours. The landscaping along the street is limited to potted plants and small trees. The traditional buildings in terms of their bulk, character and form correspond to the local climatic conditions. Jalan Lorong Panggung with its unique character and heritage traditional buildings reflects a unique sense of place and identity typical for a traditional Malaysian urban settlement.

KLCC Park is one of the most popular public spaces and one of the few urban parks in the central city of Kuala Lumpur. The public park includes landscaping elements and a series of water features. The soft and hard landscaping design of the public park was the last major work designed by renowned Brazilian landscape architect Roberto Burle Marx. The design

redeployed some mature trees from the former Turf Club and contains large numbers of indigenous plants (Bunnell, 1999). In the centre of the KLCC Park, right in front of the

shopping mall and at the foot of the Petronas Towers, is a 'Symphony Lake' featuring fountains programmed to music, and a freely-accessible wading and splash pool for children. The KLCC Park is flanked by several prestigious high rise residential buildings and luxury hotels. There are active frontages in form of outdoor eating spaces and cafes along the shopping centre (KLCC Suria) side of the park spilling out into the public space. Majority of the surrounding buildings including the KLCC Twin Towers have been designed to address the local climate and include traditional local motifs and features. The KLCC Park is an idealized, thematic construction of a tropical Malaysian landscape for leisure consumption, in a juxtaposition with extremely high-tech, high-rise urban forms.

Persiaran Perdana in Putrajaya is a typical urban boulevard. At some sections the width of the boulevard exceeds 120 metres which is significantly larger than the height of the surrounding buildings. As a result the buildings located along Persiaran Perdana cannot provide necessary shade to wider portions of the street below and therefore large sections of Persiaran Perdana are exposed to direct solar radiation. There is no visual connectivity between the Persiaran Perdana and Lake Putrajaya, which is located 200 metres from the boulevard. Physical connectivity to the Lake is limited and indirect. The landscaping along the boulevard is carefully designed offering a diversity of native trees and vegetation and wide range of floor surface materials. Unified street furniture and street and landscape lighting is provided along the entire boulevard. The extended width of the boulevard allows for the provision of pocket parks, sitting and resting spaces and water fountains. The buildings along Persiaran Perdana are used only as offices and government institutions. Until recently there hardly any active uses along the street frontage which resulted in a low level of vibrancy even during working hours. However, in the last few years a string of new dining places located at the ground level of buildings, food stalls situated at street corners, and occasional live outdoor events are gradually enlivening the previously deserted environment. The building/ street edge is rather fine frequently softened by the provision of transition zones such as colonnades. An audit of the buildings in the western side of Persiaran Perdana (the main boulevard) in Precincts 2 and 3, and the 5 new government office towers in Precinct 4 revealed that all of them have major public access from the boulevard. The rear facades of the buildings facing the lake have secondary importance with minor entrances mainly for the staff. The access for cars and service vehicles is mainly from the side streets. Due to rigid planning and building design requirements imposed by the local authority, the majority of

buildings have provided tropical architectural features including: sun shading devices, double skin facades, and weather protection awnings. Persiaran Perdana is the major urban boulevard of the new Malaysian capital designed to represent an ideal Pan Islamic and Pan Malay urban environment. Its initial design was more focused on the appearance and aesthetic qualities rather than on its merits as a social tropical public space. However, given the scale of the street and its success as a gathering place for festival and events, there is great potential to transform this street into an active and vibrant tropical boulevard.

The three selected building complexes have been assessed against a list of 12 criteria targeting building/street interface and building design. The Pavilion, one of the most popular shopping complexes in the city, comprises a seven level perimeter podium with two residential and one office towers. The major façade of the buildings is located directly along Jalan Bukit Bintang, however the extended setback is utilised only for pedestrian circulation and soft landscaping. The shops along the ground level represent the high end of luxury retail brands and as such do not spill out into the street. The Jalan Raja Chulan side of the building is a featureless façade with access and entry points to the car parking areas. The only active semi-open space is the public arcade which cuts through the building complex and at the northern section connects to the elevated skywalk linking Bukit Bintang with KLCC. The external facades of the complex are generally deprived of tropical and traditional architectural themes representing a typical universal modernist mixed use complex that could fit in any mega-city urban environment. The internal design and layout of the complex portrays a totally different picture. The main pedestrian entry is through a forecourt off Jalan Bukit Bintang level, which leads shoppers into the mall, descending down a grand staircase onto the lower central space of the Bintang Circle. The shopping centre is also identifiable with strong distinguishing design features, which include a skylight roof covering over the entire linear length of the horseshoe-shaped 'spine' of the complex, and a truncated cone, central skylight presiding over Bintang Circle (GDP Architects, 2014). An architectural tour of the Pavilion clearly reveals a much stronger emphasis placed on the internal environment than on the external one.

St Regis One KL residences is also an example of a fully introverted building environment in central part of Kuala Lumpur. The 35 storey tower consists of 94 apartments each equipped with luxury facilities including a private swimming pool. The building/street interface is characterised by a fine edge with no activities and very little interaction between outdoor and indoor spaces. The building facades contain numerous tropical architectural themes such as recessed private terraces. External louvers, vertical rhythms and numerous partitions significantly reduce the mass impact of the building.



On the northern side of the building a neighbourhood public pocket park is located, which serves as a relaxation retreat for the employees of surrounding offices.

In contrast to the two high end complexes described above, Kenanga Wholesale City (KWC) is a low budget building. Malaysia's Kenanga Wholesale City is a wholesale center for fashion, costume jewellery and leather products in the capital of Kuala Lumpur. The complex completed in 2010 is now a landmark hub for Kuala Lumpur's wholesale fashion and apparel business. KWC has 790 retail outlets. The building/street edge is permeable containing eating places and cafes which extend into the street sidewalks. The lower ground floor of the KWC boasts an area filled with light and endowed with vertical planting wall. The street and pedestrian walk ways look into this space whereas the shops on this level similarly look into the surrounding buildings beyond the street. The façade of the building is mostly featureless which is typical for many low-budget developments. The use of concrete perforated panels on the façade reduces the mass impact of the building. Similar to the other case studies in KWC strong emphasis is placed on the internal design and fit-out.

## **7. LOCAL DEVELOPMENT PLANS: RESPONSE TO THE TROPICAL CLIMATE**

The current local area plans do not adequately address tropical design principles with regards to the design of buildings and the public spaces. The Kuala Lumpur City Plan 2020 addresses the challenges facing a global city including innovation, economic growth, sustainable public transport, promoting mixed uses, environmental protection, provision of green open space, improving the riparian amenity, heritage and conservation. However, issues related to climate change and the importance of sustainable and tropical planning and design are not sufficiently articulated. The planning and development controls exhibited in Kuala Lumpur Development Control Plan translate the strategies and initiatives of the Kuala Lumpur City Plan 2020 into spatial and physical development control aspects. The Development Control Plan focuses primarily on issues such as distribution of land uses, densities, plot ratios, building setbacks, gross floor area and site coverage. The information regarding frontage treatment and the addressing the surrounding streets are often superficial and insufficient to achieve sustainable and climate responsive outcomes (DBKL 2012). Recently completed Projects such as, the River of Life Project and the Urban Design Guidelines for Kuala Lumpur City Centre, open a new light by creating a sustainable and climate responsive urban environment (AECOM, 2013; DBKL, 2014). The initial master plan for Putrajaya guided by orthodox planning principles has achieved some

good outcomes in terms of provision of green public space and residential streetscapes. However, ideas regarding sustainable and climate responsive planning and design, provision of vibrant and active public spaces, utilisation of the Lake Putrajaya foreshore for social interaction and sustainable development have only surfaced recently (Perbadanan Putrajaya, 1995, IZM, 2013; Kozlowski, 2014).

## **8. CONCLUSIONS**

The analysis of the streets and public spaces in the Kuala Lumpur Metropolitan Region identified a few distinct stereotypes. Firstly, the streets in the remaining older parts of the city retained some form of sense of place and identity. The ongoing street activities, building form and character fully or partially respond to the local tropical settings. Secondly, there are the transition zones such as Jalan Pudu which cater mainly for vehicular and pedestrian movement and where little attention has been given to the local surrounds and climate. Thirdly there are the globalised spaces (Jalan Bukit Bintang) where the physical design is mainly aimed at creating high-end shopping precincts to attract visitors (international and domestic) and business operators. Tropical design is applied mainly in creating outdoor eating enclaves for the international tourists. And finally there the synthetic environments built to portray a certain image to the rest of the world. These specific environments include KLCC and Persiaran Perdana. KLCC, developed as a joint venture of the private and public sectors, portrays an image of a 'modern and corporate Malaysia' while Persiaran Perdana built by the federal government represents a metaphor of a strong legislative, judicial and executive power giving a boost and popularity to the ruling political establishment. KLCC developed an artificial tropical environment as a backdrop for surrounding luxury buildings and the developers of Persiaran Perdana created a large European style boulevard softened by tropical vegetation and flanked by institutional buildings, many of them with strong resemblance to the Middle Eastern styles.

In all the studied cases there is not one example where majority of Performance Design Criteria for tropical environments is fully addressed. With the exception of Persiaran Perdana, the majority of streets lack in the provision of street furniture including shaded resting areas and benches for sitting. Elements such as water features and public art are also absent from the street environment. Most of the streets do not provide a pedestrian friendly environment and are dominated by the cars and motorcycles. There is often an absence of extended and shaded comfort zones along the pedestrian sidewalks so much needed in a tropical climate.

The major shortcomings are observed in the design of modern buildings where local tropical climate themes are sometimes non-existent. The modern buildings often lack in basic requirements for tropical architectural design including; the provision of physical permeability at ground level, inclusion of transitional spaces linking the indoor and outdoor environments, building articulation, provision of recessed facades in order to protect from direct sunlight, traditional design motifs and ornamentation, and the availability of semi-outdoor spaces and roof gardens.

The study of three cotemporary building complexes revealed a strong emphasis on creating artificial indoor utopias while ignoring the outdoor surrounds. The external parts of the complexes are often in form of blank walls and featureless facades. Multilevel parking and service areas are not sleeved and frequently exposed to the surrounding street environment

The analysis unveiled an urgent need to address the local tropical climate at all scale levels of intervention; the regional, city-wide district, neighbourhood and site levels. Responding to local climate at regional and city wide level with urban design/planning tools is important as it provides long-term strategies, guidance and directions for the region and the city. However, enforcing climate responsive initiatives is also critical at the local and neighbourhood levels including, the street and site level.

Fulfilling this research by developing tropical design guidelines for the Kuala Lumpur Metropolitan Region will fill a noticeable gap in the field of urban studies in Malaysia. It will identify measures that could soften the impact of global economy on the changing urban environment. This proposal offers an innovative contribution in the disciplines of urban planning and design by opening a Malaysian tropical design chapter.

## 8. REFERENCES

- Carmona, M., Heath, T., Taner O.C. & Tiesdell, S. (2010) *Public Spaces-Urban Spaces: The Dimensions of Urban Design* (Oxford, Architectural Press).
- Centre for Sub-Tropical Design, Queensland University of Technology (2010): *Subtropical Design in Southeast Queensland: A Handbook for Planners, Developers and Decision Makers*.  
[http://www.subtropicaldesign.org.au/index.php?option=com\\_content&task=view&id=38&Itemid=41](http://www.subtropicaldesign.org.au/index.php?option=com_content&task=view&id=38&Itemid=41)
- Dooley, D. (1995) *Social Research Methods*, (New Jersey: Prentice Hall).
- Dewan Bandaraya Kuala Lumpur (2012) *City Plan 2020*
- Dewan Bandaraya Kuala Lumpur (2012) *Kuala Lumpur Development Control Plan 2012*
- Dewan Bandaraya Kuala Lumpur (2014) *Urban Design Guidelines for Kuala Lumpur City Centre*
- Farr Douglas (2008) *'Sustainable Urbanism: Urban Design with Nature'* Wiley and Sons: London
- Gehl Architects and Melbourne City Council (2004) *Places for People*
- GDP Architects (2014) *Pavilion KL, Shopping Centre* <http://www.gdparchitects.com/projects/category/retail/pavilion-kl-shopping-centre.html>
- Gold Coast City Council (2010): *Central Southport Master Plan* [www.goldcoast.qld.gov.au](http://www.goldcoast.qld.gov.au)
- Gold Coast City Council (2011) *Gold Coast Rapid Transit Corridor Study Phase 2: Urban Design Framework and Guidelines* [www.goldcoast.qld.gov.au](http://www.goldcoast.qld.gov.au)
- IZM Consult (2013) *'Urban Design Guidelines for Lake Putrajaya and Immediate Surrounds'*
- Hassan, N. and Hanif, N.R. (2010) *'Privatization of Urban Space: The Kuala Lumpur City Centre'* City Innovation case Study Brief [http://umexpert.um.edu.my/file/publication/00001028\\_88992.pdf](http://umexpert.um.edu.my/file/publication/00001028_88992.pdf)
- <http://www.wonderfulmalaysia.com/food/jalan-alor-food-street.html>
- King, R (2008) *Kuala Lumpur and Putrajaya: Negotiating Urban Space in Malaysia*, NIAS Press, Copenhagen.
- Kozlowski, M., (2010) *Urban Design: Shaping Attractiveness of the Urban Environment'*, Saarbrücken: LAP Publishing Company
- Kozlowski, M (2014) *'Revisiting Putrajaya' Architecture Malaysia Volume 26 Issue 3 pp. 72-75*
- Krane, J. (2009) *'Dubai: The Story of the World Fastest City'* (Italy: Adriatic Books)
- Lehmann, S. (2010) *'The Principles of Green Urbanism: Transforming the City for Sustainability'* (Washington: Earthscan)
- Louisiana Recovery Authority (2008). *'Louisiana Speaks: The Pattern Book'*
- Marshal (2003) *Emerging Urbanity: Global Urban Projects in the Asia Pacific Rim* (London and New York: Spon Press)
- Newman, P., Beatley, T., Boyer, H. (2009): *'Resilient Cities: Responding to Peak Oil and Climate Change'* (Washington: Island Press)
- Perbadanan Putrajaya (1997) *'Master Plan for Putrajaya'*
- Putrajaya Holdings Sdn Bhd, Putrajaya (2013) *Facts and Figures*, <http://www.pjh.com.my/corporate/putrajaya-facts/>
- Queensland Government and Southeast Queensland Council of Mayors (2011): *The Next Generation of Planning: Affordable Living, Smart Growth, Form Based Codes and SEQ Place Model* (Brisbane: SEQ Council of Mayors and Queensland Government)

- Salleh, E. (2006) Tropical Urban Street Canyons in (Bay, P.J.H., and Ong, B.L. eds). Tropical Sustainable Architecture: Social and Environmental Dimensions pp. 202-217 (Oxford: Architectural Press)
- Shamsuddin, S. (2011) 'Townscape Revisited: Unravelling the Character of the Historic Townscape in Malaysia' (Kuala Lumpur: UTM Press)
- The Star (2010) 'Preserving Pudu Rich Heritage' <http://www.thestar.com.my/story/?file=%2f2010%2f9%2f23%2fcentral%2f7069124>
- Sulaiman, B.A., and Shamsuddin, S. (2012) Traditional Street Activities in Kuala Lumpur City Centre, International Journal of Multidisciplinary Thoughts pp. 93-105
- Ujang, N. (2014) The Place Meaning and Significance of The Traditional Shopping District in The City Centre of Kuala Lumpur, Malaysia International Journal of Architectural Research Volume 8 Issue 1 pp. 66-77
- Urban Redevelopment Authority (2008) Architecture and Urban Design Excellence [www.ura.gov.sg](http://www.ura.gov.sg)
- Te Lin, H. (2006) 'Policy and Evaluation System for Green Building in Subtropical Taiwan' in (Bay, P.J.H., and Ong, B.L. eds). Tropical Sustainable Architecture: Social and Environmental Dimensions pp. 101-125 (Oxford: Architectural Press)
- The Borneo Post (2011) Petaling Street Still Manages to Charm <http://www.theborneopost.com/2011/09/18/petaling-street-still-manages-to-charm/>
- The City of Miami (2010) Miami 21 Plan [www.Miami21.org](http://www.Miami21.org)
- Yeang, K. (2006) 'Green Design in the Hot Humid Tropical Zone' in (Bay, P.J.H., and Ong, B.L. eds). Tropical Sustainable Architecture: Social and Environmental Dimensions pp. 45-57 (Oxford: Architectural Press)
- Zakariya, K. and Harun, Z. (2013) 'The People's Dataran: Celebrating Historic Square as a potential Temporary Market Space' Social and Behavioural Sciences 85 (2013) pp. 592 – 601
- Zikmund, W. (2000) Business Research Methods (Fort Worth: Harcourt College Publishers).