

CONTEXTUAL INTEGRATION IN WATERFRONT DEVELOPMENT

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DEDICATION

This thesis is dedicated to *my family*

ABSTRACT

The relationship between waterfronts and water in the establishment of many cities is undeniable. Issues as to why many waterfront developments do not respond to their water are often raised. This thesis examines the response of waterfront development towards its water (in particular the urban rivers). This is measured through the level of contextual integration in the city centre of Kuala Lumpur to identify the reason why this situation exists. The research employed the qualitative method using a case study approach. It triangulates several techniques, which include morphological study, field observations (visual survey, direct observation, activity mapping), focus groups and in-depth interviews. The theoretical framework was based on the Integrative Theory of Urban Design, which has five main principles comprising 'good form', 'legibility', 'vitality', 'comfort' and 'meaning' from which thirteen attributes were extracted. The research found a mix of levels in the contextual integration of the KL waterfront for all attributes evaluated. Five attributes that affect the level of contextual integration the most are the 'direct access', 'physical character of urban river', 'seating', 'development that addresses urban river' and 'shade'. This study inferred that the other related attributes borrowed from other public spaces are vital to achieve the response of waterfronts towards the urban river. However, the evaluation criteria have to be suited to the local context. Twenty-one factors were identified that affect the level of contextual integration. Three reoccurring factors in seven out of the thirteen attributes evaluated are 'the existence of highway', 'fenced private property till the edge of the river' and 'building built abutting the river edge'. It also gathered that the contextual integration between the waterfront and the urban river can only be achieved with the interrelation of the physical and functional dimensions. Eight key reasons were established as to why the waterfront is not contextually integrated with the urban river, these are i) lack of planning – policies, laws, guidelines, master plan, ii) limitation of funds, iii) condition of the river, vi) introduction of other transportation systems, v) lack of coordinated management, vi) political will, vii) lack of awareness and viii) market demand. These findings contribute to the gap in many queries and assumptions concerning this issue from the perspective of a city centre in an emerging Asian country.

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LIST OF ABBREVIATIONS

AKLEH	Ampang-Kuala Lumpur Elevated Highway
CBD	Central Business District
KLCH	Kuala Lumpur City Hall
DID	Department of Irrigation and Drainage
DSM	Department of Statistic Malaysia
FMS	Federated Malay State
FRIR	Foundation for Riverfront Improvement and Restoration
KLSP	Kuala Lumpur Structure Plan
PWD	Public Works Department
TCP	Town and Country Planning
TPD	Town Planning Department

LIST OF TERMS

<i>Term in Malay</i>	In English
<i>jalan</i>	road
<i>kampung</i>	village
<i>kapitan</i>	Leader of the Chinese Community
<i>kuala</i>	estuary
<i>masjid</i>	mosque
<i>padang</i>	a turf open space
<i>tongkang</i>	wooden boats for transporting goods

CHAPTER 1

INTRODUCTION

*'We should not forget that the fundamental element of any waterfront area is water'.
(Hata et al., 1991, p.1383)*

1.0 Introduction

This research examines the response of waterfront development towards the water. The responses are measured through the 'contextual integration' in the context of waterfront development in Kuala Lumpur city centre. 'Waterfront development' in this research means the development located within 50m from the waters edge on both riverbanks (DID, 2003). The river refers to the main urban rivers of Klang and Gombak Rivers within the boundary of the city centre. The response of the waterfront development towards the water is directly related to the integration of attributes from the context or contextual integration as referred to in this research (Chapters 2 and 3). Contextual integration in this research means the physical and functional relationship that one development has with its surroundings (Carmona et al., 2003), which in this research is the urban river itself. The main concern of the research is to evaluate why the existing waterfront development in the city centre is not responding or contextually integrated with its urban rivers. This is done through the examination of its level of contextual integration in both the physical and functional dimensions. The research works on the basis that the factors that contribute to 'why' the existing waterfront development does not respond to the urban river can be evaluated through the level of contextual integration as the parameter (Chapter two and Chapter three).

This chapter is divided into four main parts. The first part of the chapter explains the research background and issues that elicited the research. The second part will further detail the aim, the research questions and objectives of the research that were derived from the issues and background of study. The third part will explain the

justification of the research. The final part will elaborate upon the thesis structure and the overall chapter organisation.

1.1 The background

The importance of contextually integrating the waterfront in the city with the water is unquestionable. According to Postel and Richter (2003, p.5), water in the city is needed for various key reasons – practical, aesthetic and spiritual. The role of water is central in the evolution of human societies. Great civilisations sprang up near rivers such as in Mesopotamia on the fertile plains of the Tigris and Euphrates rivers, ancient Egypt in the valley of the Nile and the ancient Chinese in the Yellow Valley, which is also known as the ‘mother’ river. The water is also known as ‘*symbols of purity, renewal timelessness and healing, rivers have shaped human spirituality like few other features of the natural world*’. For example, the Ganges River has become central to the Hindus spiritual life where until today millions of Hindus immerse themselves in the Ganges for ritual cleansing. Water evokes magic, mystery and beauty that has inspired painters, musicians and artists of all kinds and which has added immeasurable experience to humans. It is also the primary source for the most basic needs of humans, such as drinking, cooking, bathing and even for plantations and electrical power generation.

The relationship of water and the city is crucial to people, communities and economies (Postel and Richter, 2003). A classic example of this can be seen in Central Asia’s Aral Sea, which was heavily dammed half a century ago with rivers being diverted from flowing to the sea naturally to irrigate cotton in the desert. Today, the Aral Sea has shrunk to a third of its original volume. This has affected the fishing industry, which hitherto was one of the main job providers and has ruined the livelihood of the locals. The people are also afflicted with diseases related to the salty and toxic landscape that has resulted from the shrinking sea.

In addition, research on the importance of water as part of the natural environment for humans psychological benefit has increased remarkably over the years (Ivarsson and Hagerhall, 2008; Han, 2003; Kaplan, 1995). People often turn to nature as a destination for a restorative opportunity – the chance of getting away (Kaplan, 1995).

However, for people living in the urban context, there is less opportunity to do so. For cities that evolved near the sea, lakes or rivers there is the opportunity to offer this important resource to the people. However, the integration of this natural environment as part of the city planning and waterfront development has to be well preserved (Takahashi, 1998).

Yamashita and Hirano (1995) highlighted that waterfront developments that are contextually integrated with the water will likely be significantly affected by the water quality, the scene at the waterfront and the overall design that provides the sense of well-being. However, the findings of Kawasaki et al. (1995) showed that many projects that are built in the waterfront area do not have much relationship with the water and that the water is not even incorporated within the scheme of the development. Fagence and Craig-Smith (1995) assumed that perhaps this situation occurred because the significance of the water dependency for the waterfront development projects was not fully appreciated. However, this is still an assumption by Fagence and although this is an important area that has been discussed by many it has not yet been researched. This research will fill the gap.

1.1.1 Statement of Issues

a) The International Concerns

The relationship between waterfront development in a city and its water is a historic one. This is because earlier modes of transportation relied much on the waterways. It is a place where people experience the bustling of a commercial place while enjoying the serene views it offers. Over the years, many changes that have occurred to the waterfront areas throughout the world have left the waterfront as a dilapidated area and detracted from the connection of the city with its water. Waterfront issues have become an important topic worldwide because almost all cities in the world have water as an element of the city upon which the morphological development of the city evolved. Today, many of the cities that have any form of water (lake, sea, river, canal or others), especially in developed countries, are making some effort to redevelop and reconnect their waterfront areas (Hoyle, 2000) to their respective water (Figure 1).

The relationship of waterfront development and the water is a very important matter in the waterfront redevelopment because the idea of redeveloping it is to bring the water back to the city (Halprin, 1972; Minnesota Planning, 2002). Recent development realised the importance of integrating the city with the water in order to create a breathing space and relief area in the middle of a congested city (City Hall Officer's (LA3) interview, 2008). Sadly, many of the developments were done without proper response to the water (Kawasaki et al., 1995; Yamashita and Hirano, 1995; Fagence and Craig-Smith, 1995).

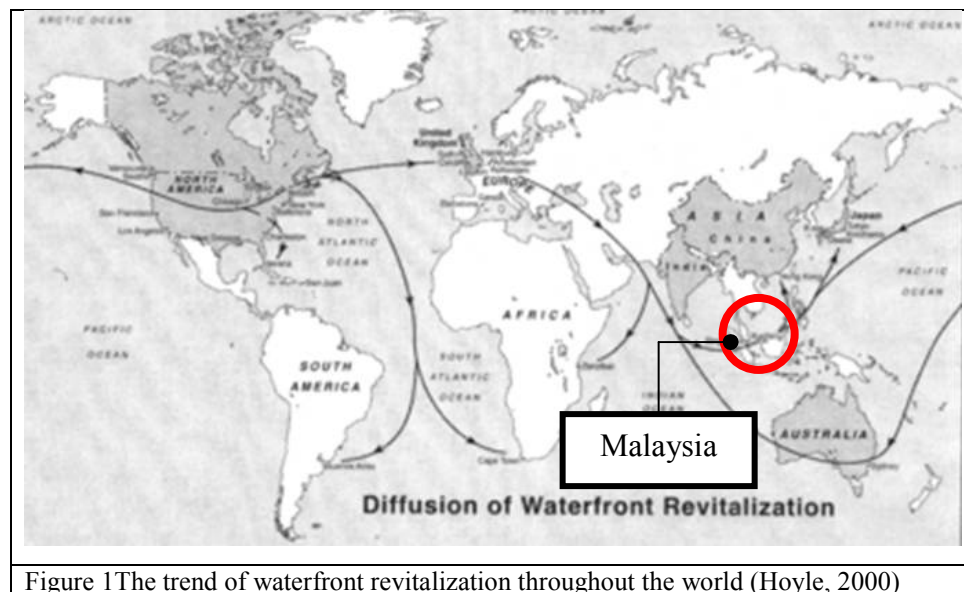


Figure 1 The trend of waterfront revitalization throughout the world (Hoyle, 2000)

Research on waterfront development is widely debated and discussed in the international arena. Research on modern waterfront development, which encompasses multi-disciplinary areas, started in the 1960s (Forward, 1969 in Hoyle, 1999; Kenyon, 1968). The research continued to grow in the 1980s and 1990s in other areas such as transport geography, politics and urban planning (Fainstein, 2001; Gordon, 1996), architecture (Malone, 1996), landscape and ecology (May, 2006), and engineering and urban design (White K.N et al., 1993). Many studies on waterfront development that discussed the relationship of the waterfront development and the water concentrated on the interface of cities and their ports from the geographical and planning point of view (Meyer, 1999; Hoyle, 1989). One of the focuses, although minimal studies have been done on it, concerns the contextual integration of the waterfront towards the water. Although pursued by some (Stevens and Dovey, 2004; Moughtin, 2003; Campo, 2002; Owen, 1993; Trancik, 1986;

Wrenn et al., 1983 and Lynch et al., 1976), these studies only discussed one or two principles related to urban design (which is mentioned as an important concern in waterfront development) (Hoyle, 2001). Moreover, they did not trace the reasons why the situation existed. This is where the research gap lies. Furthermore, although research on waterfront development in developed western countries is widely recorded it is still minimal in the developing countries (Hoyle, 2002), hence, the contribution of this research will address this gap.

b) The Local Concerns

Malaysia comprises of thirteen states and federal territories (Kuala Lumpur, Putrajaya and Labuan) (Figure 2). Most of the major towns in the states and federal territories originated at the waterfront. This is because water was previously the main transportation mode. However, many of the waterfronts have declined over the years. Efforts to raise peoples' awareness concerning the importance of and instil love for the rivers started with the 'Love Our River' campaign in 1992 by the Department of Irrigation and Drainage (Nurris and Sabanayagam, 2006). The redevelopment of waterfronts in the national context has taken place in many places in Malaysia.



Figure 2 Map of Malaysia: The thirteen states and Federal Territory of Kuala Lumpur

Almost all towns in Malaysia that have water have made some effort to redevelop them. One of the most renowned and earliest of the waterfront redevelopments was the Kuching Waterfront, which was later followed by Malacca. The redevelopment of the Kuching Waterfront provides much consideration concerning the contextual integration of the waterfront redevelopment in order to return the water to the city. It has gained much recognition for its efforts, which took into consideration its context,

culture and the needs of the community. As a result, the community has even voluntarily cleaned up the waterfront every Sunday morning.

However, many towns have not contextually integrated with the river (Shamsuddin et al., 2008) in their effort to revitalize the waterfront. Redevelopments were done insensitively such as in Johore, which has ‘improved’ the river by covering the river and turning it into a culvert with a pedestrian plaza on top. This ‘effort’ has totally blocked the visual and physical connection with the river. Interestingly, after realising the mistake, new proposal is on the way to revived the river (Tan, 2010). Terengganu’s waterfront development, although fronting the river, had blocked the historical town from the river. Ipoh built the waterfront without any visual or physical connection with the river. This is also obvious in Kota Bharu where the waterfront area backs on to the Kelantan River, which was once a significant historical element in the city’s fabric (Wan Abdullah, 2009). Now, it is barely integrated in the city centre (Shamsuddin et al., 2008).

Kuala Lumpur, the capital city of Malaysia, also originated at the waterfront area. Statements made by Shamsuddin and Sulaiman (2004) and Salim (1993) claimed that unfortunately the city development is still not responding or being contextually integrated with the river. Based on the survey done by Salim (1993), in his research on the image and identity of the built form in Kuala Lumpur, the public in general have not noticed or recognized the importance of the rivers in the city. In the forum titled ‘My Tropical Architecture’, organised by City Hall of Kuala Lumpur and held on 28-29th August 2008, the character and identity of Kuala Lumpur was discussed. One of the international speakers highlighted that the name of Kuala Lumpur originated from its river. However, the river is nearly ‘non-existent’ to outsiders both visually and in terms of its activity. According to the Anon. (2003a) most of the residents of Kuala Lumpur perceived it as just another monsoon drain and some did not even realise its existence.

“MENTION that we have two rivers flowing through the heart of Kuala Lumpur and most people would, after some thought, reply: “Oh, you mean those huge monsoon drains.” (Anon., 2003a)

Based on the previous studies, it shows that many of the waterfronts in Malaysia were redeveloped without responding to the water, including the capital city of Malaysia – Kuala Lumpur. This study is inspired to identify why the waterfront development is not responding or contextually integrated with the water (urban river) in the context of Kuala Lumpur. According to Marshall (2001b) it is very important to understand the underlying factors that make a built form. He added that much of the literature has focussed on the end product but ignored the process that enables it to learn and make improvements in the future. That is why this research is very important because it seeks to establish the reasons concerning the non-contextual integration of the waterfront development with the urban river as claimed by many. It is hoped that the findings will provide a reference for the development of the Kuala Lumpur waterfront in the future.

1.2 The Research Aims and objectives

1.2.1 Research Aims

To evaluate the level of contextual integration and establish the key reasons that influence the level of contextual integration of the waterfront with the urban river.

1.2.2 Main Research question

Why is the waterfront development of Kuala Lumpur not contextually integrated with the urban rivers?

1.2.3 The objectives and sub-research questions

The objectives and the sub-research questions are shown in Table 1.

Table 1 The objectives and sub-research questions	
Objectives	Sub-research questions
1. To examine the physical dimensions of the waterfront concerning its level of contextual integration with the urban river and the factors that affect this level	What are the factors that affect the level of contextual integration between the waterfront and the urban river in terms of its physical dimensions? Why?

2. To investigate the functional dimensions at the waterfront concerning its level of contextual integration with the urban river and the factors that affect this level	What are the factors that affect the level of contextual integration between the waterfront and the urban river in terms of its functional dimensions? Why?
3. To establish the key reasons for the existence of factors that affect the non-contextual integration between the waterfront and the urban river	What are the key reasons that affect the non-contextual integration between the waterfront and the urban river? Why?

1.2.4 Research scope

The scope of the research is as follows:

- i) For the purpose of this research, the scope of the study will be on the contextual integration of the waterfront with the urban river itself. It will not cover the visual coherence between the buildings as conducted by many contextual studies in urban design (Tugnutt and Robertson, 1987; Stamps, 1993; Groat, 1994; Childs, 2009).
- ii) There are many types of urban pattern and layout of urban waterfront areas. The analysis is designed and tailored for waterfronts that have building development in close vicinity (within the 50m distance from both sides of the river edge) with the water edge, as in the context of Kuala Lumpur.
- iii) The study concentrates on evaluating the physical and functional dimensions of the waterfront concerning its level of contextual integration with the urban rivers. The Integrative Theory of Urban Design by Sternberg (2000), which has five main principles (good form, legibility, vitality, comfort and meaning) is used as a basis to extract the related attributes to be evaluated from the literature. It was found that the context of 'comfort' is vast and include the *environmental factors (such as relief from sun and wind), physical comfort (seating, universal design and lighting) that provides social and psychological comfort* (Carmona et al., 2003, p.165) (Chapter 3). The author acknowledged the importance of the social and psychological comfort but it will have to be covered in other research. This research will only cover the physical comfort in relation to functional dimension.

This is also the case for the context of ‘meaning’, which is wide and involves the cultural and social components. Due to the huge scope of work needed in the in-depth study of this principle, in this research, ‘meaning’ was analysed through the perception of the user to identify the factors that affect the contextual integration between the waterfront and the urban river (Chapter 3). Thus, the cultural and social dimensions are not fully explored in this research and are seen as a limitation in the findings of the research.

iv) In the search to establish the reasons why the waterfront is not contextually integrated with the urban river, the key decision makers were interviewed. The decision makers include the authority, the related government agencies and the producers (architects and developers- see Chapter 5). A study by Rowley (1998) found that the importance of urban design consideration by developers is higher compared to occupiers or investors. Due to the nature of the research, only the authority, the related government agencies and the producers (architects and developers) were selected for focused interviews, as they are the ones that are directly related to urban design (see Chapter 5). The focused interviews will only involve the decision makers and will not include public opinion in establishing the reasons behind the non-responses of the waterfront towards the urban river. This is because public participation was not previously sought in decision making concerning these developments (City Hall Officer’s (LA12) interview, 2009).

1.3 Justification of Research

a) International context

Since the 1960s, waterfronts have been an interesting topic for academics and professionals. This follows the success of the regeneration projects for the Inner Harbour in Baltimore, which spurred the rest of the world in their efforts to regenerate waterfronts (Marshall, 2001a). Waterfront issues are global issues. Many studies have been conducted around the world and each may contribute as references for the current and future projects that are going to take off in some other area. It is important to learn from each other’s experience to avoid repeating mistakes but also

not to create unnecessary emulation because each city has its own conditions and constraints to consider. There are also common things that can be distinguished and benefit the many (Fagence and Craig-Smith, 1995). This is why specific research is needed for every city, as this research has endeavoured to do in the context of Kuala Lumpur.

Meyer (1999, p.13) in Marshall (2001a, p.5) notes that academics and professionals all over the world are continuously communicating with one another concerning the latest development of waterfronts through the '*international waterfront networks*'. This is evident through the annual conference that is held by the Waterfront Center, which is located in Washington D.C. (Waterfront Centre, 2010). Academics and professionals congregate at these conferences for updates on the latest waterfront redevelopments around the world. This is similar to the annual conferences held by the Waterfront Expo since 2003, which have been hosted by several European cities including Glasgow, Amsterdam, Liverpool, Lisbon and Riga. It has become one of the key events for sustainable urban waterfront regeneration (Anon., 2010a). Centro Internazionale Citta d'Acqua in Venice and the Association Internationale Villes et Ports in Le Havre are also very active associations that concentrate on the redevelopment of waterfronts by publishing works on waterfronts and holding conferences.

Marshall (2001a, p.6) also highlighted that the '*competitiveness*' of the waterfront industry is indicated by the number of conferences held. In October 1999, there were three conferences in North America alone – the “Waterfronts in Post-Industrial Cities,” held by the Harvard Graduate School of Design in Cambridge, “Urban Waterfront 17”, held by the Waterfront Centre in Charleston and “Worldwide Urban Waterfronts”, held by the Baltic Conventions from the United Kingdom in Vancouver.

Concern for the waterfront issue is also growing in the Asian region with a conference held in Singapore in 2005, in a collaboration between the Urban Land Institute and the Urban Redevelopment Authority of Singapore. This is also seen in the Middle East where a tremendous redevelopment of waterfront is happening in Dubai. Also in 2005, a conference was held to discuss the future waterfront

redevelopment in the country. However, with the continuing interest in waterfront redevelopment, there are still minimal studies concerning waterfronts in developing countries (Hoyle, 2002). Therefore, it is timely for this research to take place. This research will contribute to further understanding concerning the reasons that may contribute to the non-contextual integration of the waterfront redevelopments with the urban rivers, from the perspective of a capital city in an emerging Asian country.

b) National level

National interest is observed with the recent funding granted by the Ministry of Science, Technology and Innovations (MOSTI) in 2008 to produce urban design guidelines for waterfront regeneration in Malaysian cities. There is an acknowledgement from the government for a more positive approach towards waterfront redevelopment (Government of Malaysia, 2010) compared to the past where the focus was on the management of the water issues only (Government agency officer's interview (OA1), 2009). Mainly, the concentration was on the water quality and from the engineering perspective of the river. This is where the gap of knowledge lies in the context of the national level.

The concern for the river has been in the minds of the government since the early days of the planning of Kuala Lumpur, however, it mostly concerned the flood and pollution problem. Much effort can be seen in the drawing up of policies and guidelines. The importance of rivers was highlighted in Chapter 18, Agenda 21 as 'High National Priority' in the early 1990s. It was followed by the 10 year nationwide campaign 'Love our river' by the Department of Drainage and Irrigation, which was launched in 1992. Sadly, in 2007, the campaign was declared a failure by the Natural Resources and Environment Minister Datuk Seri Azmi Khalid (Anon., 2007), and RM5 million is still being spent annually for cleaning up rivers (Ngah and Roslan, 2008).

In addition, another campaign was launched to continue the efforts called the 'One State One River Campaign' (DID, 2010). The government allocation amounted to RM510 million under the Ninth Malaysia Plan 2006-2010. This was for the purpose

of the maintenance and beautification of rivers to achieve sustainability and balance between environmental sustainability and development (Government of Malaysia, 2006). In 2006, the Ministry of Housing and Local Government formulated the National Urbanization Policy, which emphasized the importance of the conservation of the natural heritage sites (river, lakes, and others) and heritage buildings, as part of achieving sustainability and improving the quality of urban life. The area of focus in the policy complements the conservation of the natural and built heritage in the National Heritage Act 2005. Recently, the announcement of the Tenth Malaysia Plan (2011-2015) by the Prime Minister, specifically highlighted in Thrust no. 5 that waterfronts are an important public space for the improvement of the quality of life in urban areas (Government of Malaysia, 2010). In addition, the revitalization of Klang River into a heritage and commercial centre was also announced as one of the Entry Point Projects (EPP) in the new Economic Transformation Plan. It aims to spur *additional business opportunities within Greater KL/ Klang Valley (KV) that will continue to enhance Greater KL/ KV's livability and generate incremental Gross National Income (Anon., 2010b, p.1)*. With the growing concern in this area, this research aims to look into the integration of both the natural urban river and the waterfront development along it, which affects the sustainability of the natural heritage and architecturally significant buildings.

Furthermore, the urban design research in the local context, which is still in its infancy (Wan Abdullah, 2009; Mijan, 2000; Wan Ismail, 2009; Ujang, 2007; Lamit, 2003; Sulaiman, 2000; Shamsuddin, 1999; Salim, 1993) did not cover any research concerning the contextual integration of the waterfront environment. To date, there is only one concerning contextual issues, i.e. by Sulaiman (2000), which looked at the design method used by architects in producing urban design. It reveals that the contextual consideration is not an important factor in the design approach used by architects in Malaysia. Research on waterfronts can only be found in an ongoing research by Shamsuddin et al. (2008), which focuses on the waterfront regeneration in historical cities in Malaysia and Md Yassin et al. (2010) which emphasis on the policy at waterfront development in Malaysia. Thus, this research is significant because it is the first PhD research to discuss the issue of waterfront development from a contextual integration perspective in the context of Malaysia.

c) Local level

Although this is a widely discussed and debated issue globally, studies at the local level cannot be ignored because the issue has to be treated on a case by case and locality basis (Riley and Shumer-Smith, 1988). This study is imperative for the urban development of Kuala Lumpur, which is the largest city in Malaysia and has the longest waterfront area (along urban rivers) within the city centre. As mentioned by Worskett (1969), the essence and character of the other smaller towns can usually be found in the city centre (Worpole, 1992 in Shamsuddin, 1999). The magnitude of the problems involved in the city centre of a capital city may also be larger compared to other towns. Therefore, it is hoped that by studying the city centre of the capital city, the findings can be of relevance for the future study of the smaller towns in Malaysia.

In 2004, the importance of attracting people to return and live in the city was highlighted in the Kuala Lumpur Structure Plan 2020 (KLCH, 2004a), and the waterfront was seen as the potential public area in making the city a better quality living environment. In August 2008, the Kuala Lumpur Draft Local Plan (KLCH, 2008), which was recently displayed for public comment, underlined the guidelines for waterfront development for the Kuala Lumpur city centre. Even with all the policies and guidelines in place all these years, the water quality index in the Klang River is still Class III- polluted (Table 1, Chapter 6). The previous Prime Minister of Malaysia made the following comment in 2006 concerning the river:

"God gave us such a beautiful gift. Why are we destroying it?" Citing the Gombak-Klang River as another example, he said *"Malaysia is fortunate to have a river that ran through the city as it was a beautiful sight. He said, however, the river was now too polluted. "If you throw a crocodile into the river, the crocodile will die."* (Anon., 2006)

Because of these concerns, this study is vital and urgent to establish the reasons that lead to the non-contextual integration of the waterfront development with the urban river. With the lack of local literature concerning this area, this research is designed to make available the insights gained from the vantage point of the international

perspectives in the local context. It is hoped that the findings will be useful for the local authorities in developing policies, as well as in helping developers and other professionals in developing the urban waterfront in the future.

1.4 Thesis Structure and Chapter Organisation

The thesis is divided into eight chapters. The summary of the thesis structure is as shown in Figure 3. It is arranged and organized in four parts as follows:

Part 1: Background study

Chapter One

Chapter One outlines the research background and issues that elicited the research. It states the aim, research questions and objectives of the research. It also includes the research scope, justification of research, the thesis structure and overall organisation of the chapters.

Chapter Two

This chapter presents the background study, which provides the definition of waterfronts in this research context and an overview of the concept of the responses of waterfront development with the water.

Chapter Three

This chapter builds the theoretical framework. It discusses the relationship of the responses of waterfronts with contextual integration. Finally, this chapter will identify the related attributes and prepare the framework of study to evaluate the contextual integration in the context of Kuala Lumpur.

Chapter Four

This chapter discusses in detail the methodology, techniques and procedures employed for the research in order to identify the answers for the research questions. It also explains the choice of methodology for the research and the way the data collection was conducted and analysed.

Part 2: Case study

Chapter Five

This chapter provides an introduction to the case study selected for the research, which is the city centre, Kuala Lumpur, with a focus on its waterfront and the main urban rivers (Klang and Gombak River). It provides insights into the physical characteristics, morphological evolution, decision makers involved, laws and regulations and policies related to the waterfront.

Part 3: Analysis and synthesis: Establishing the factors

Chapter Six

This chapter discusses the findings of the evaluation concerning the level of contextual integration between the waterfront and the two main urban rivers (Klang and Gombak River) from the physical dimension perspective. This was based on the fieldwork observations concerning the physical dimensions and cross-related with the functional aspects of the waterfront. The evaluations done were based on the theoretical framework stated in Chapter 3. This chapter discusses the findings for objective 1 and objective 3, which include the identification of the physical factors that affect the contextual integration and establishes the reasons why they exist.

Chapter Seven

This chapter discusses the findings of the evaluation concerning the level of contextual integration between the waterfront and the two main urban rivers (Klang and Gombak River) from the functional dimension perspective. This is based on the fieldwork observations concerning the functional dimensions and cross-related with the physical aspects of the waterfront. The evaluations are based on the theoretical framework stated in Chapter 3. This chapter discusses the findings for objective 2 and objective 3, which include the identification of the physical factors that affect the contextual integration and establishes the reasons why they exist.

Part 4: Conclusion and recommendations

Chapter Eight

Chapter 8 concludes the overall research and the research findings. It also states the limitations of the research, its significance and the implication of the findings. Finally, it highlights the contribution to knowledge that this research has made to the

enrichment of waterfront research. The chapter ends with the recommendations and suggestions for future research.

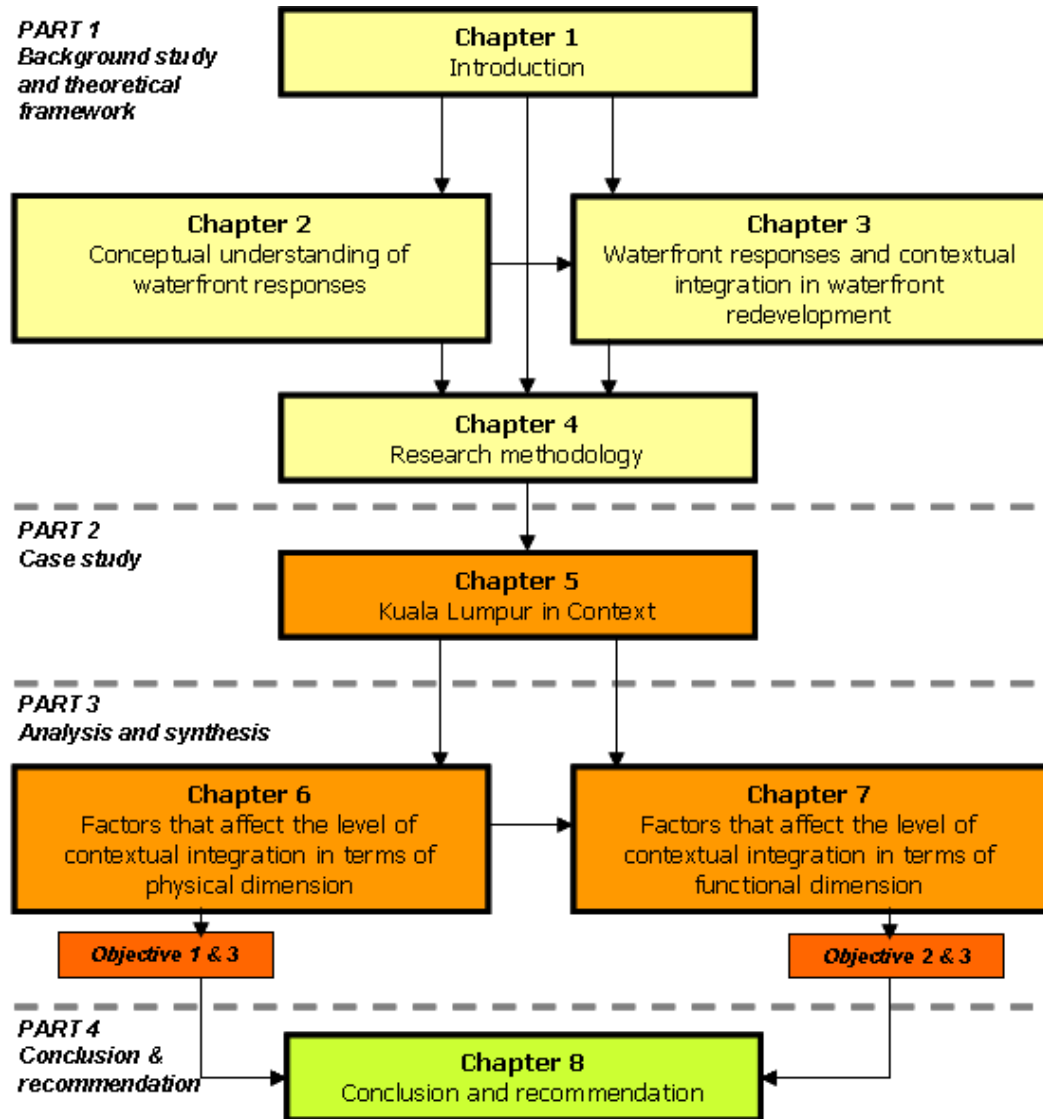


Figure 3 Summary of thesis structure

CHAPTER 2

RESPONSE OF WATERFRONT DEVELOPMENT TOWARDS WATER: THE CONCEPT

Water is still the 'principle attraction' which was understood in the redevelopment process to have 'profound quality. The changing light on the water and the varying pattern of reflection are a source of pleasure, whatever the weather'- Pidwill (1993, p. 96).

2.0 Introduction

This chapter provides an overview of the concept of the response of waterfront development towards water in the global context. It is important to understand the response through the transformation at the waterfront in the global context and how this may relate to the situation in the local context. This is because nearly all cities that have waterfronts have gone through or are going through a transformation phase. This chapter is divided into three parts. The first part defines the term waterfront used in this research. The second part discusses the concept of the response of the waterfront towards the water based on the waterfront transformation phases in the global context and identifies the gap in the body of knowledge. The third part concludes the chapter with the identification of attributes and dimensions related to the concept.

1.1 Working definition

The working definition of 'waterfront' in this research is in the context of 'urban waterfront' or waterfronts located in urban areas. There are those that define it through its spatial areas, such as Trancik (1986, p.105), who categorised it as one of the types of urban voids which are a '*linear open space system*' that cross through districts, create edges and link one place to another. Furthermore, Hoyle (1994, p.24) described it as a specific space in a city which is not elastic, *it can't be stretched, there's only so much of it. It is a linear thing, and very finite*'. The Wehmeier (2010) defines the waterfront as the part of a town adjoining a river, lake, harbour, etc.

There are also those who defined it through the function of the waterfront, such as Glazer and Delaporte (1980, p.9) who defined waterfronts as *'port areas of large developments that are located on the coasts, along rivers, at the terminus of shipping channels or alongside bays leading inland from the ocean. Small resort towns with busy harbours, commercial fishing towns, many medium-sized cities, as well as communities located on bays or channels miles from the ocean, should be included'*.

Breen and Rigby (1994, p.10) gave the definition of urban waterfronts based on visual or other responses to the water: *'By urban waterfront we mean the water's edge in cities and towns of all sizes. The water may be a river, lake, ocean, bay, creek or canal but then a waterfront we include everything from a wildlife sanctuary to a container port and the full spectrum of uses in between which may be planned as a unified undertaking or it may be a haphazard development overtime with multiple owners and participants. Waterfront projects may include buildings that are not directly on the water but tied to it visually or historically or are linked to it as part of a larger scheme'*. Their definition was argued as being too broad by Cau (1999, p.44) and non-applicable to cities which *'rise sharply from the water'*, this example can be seen in Genoa where more than fifty percent of the city has a view of the sea.

Another definition by Kenyon (1968, p.156) termed the waterfront district as land which is: *'(i) adjacent to actively-used general cargo terminals; (ii) lies within 1000 feet of the shoreline; (iii) lies landward of the main rail corridor, which normally parallels the shore and; (iv) is platted in the normal city block pattern. He excluded four criteria of the waterfront: (a) does not have block-type development within 1000 feet of the shore; (b) the ancient waterfront in central portions of many port cities because it is no longer used; (c) the waterfront near bulk-handling; and (d) other specialised cargo terminals'*. His definition is significantly specific to a working port-city rather than a definition of an urban waterfront in general, and Hoyle (1994, p.19) pointed out that urban waterfront development is not, of course, confined exclusively to port cities but is found in most places where settlements and water are juxtaposed, whether or not commercial port activity is or was present.

Hoyle (1989, p.429) focussed on the discussion of the interaction between the port and the city centres, which concentrated upon the concept of the port city interface. He defined the interface of a port-city as a geographical line of demarcation between the port-owned land and urban land uses and later conceptualised it as an interactive economic system, especially in terms of employment structure, or as an area of integration in transport terms or of conflict in policy formulation and implementation. This definition and its conceptualisation clearly explains the situation and factors involved in a port city interface due to the direct effect of the port's function on the city's economy. The DID (2003) defined the urban waterfront corridor to be the area within fifty metres on both sides from the edge of the river or within two building lots.

The condition of the urban development in Kuala Lumpur is very dense, within the fifty metre distance is also the limit that one can view (Breen and Rigby, 1994) the river. For the purpose of this research, which is conducted in Kuala Lumpur City Centre precinct, the definition used by the DID is found to be the most suitable to be employed. This is because the definition by DID corresponds with the situation in Kuala Lumpur, which has buildings at the waterfront very close to the river. The definition concentrates more on the spatial aspect and view rather than its function. This is because the waterfront in KL does not have a specific function such as a resort or port. The definition of a waterfront for port cities, as defined by Kenyon (1968) and Hoyle (1989), is not applicable in the Kuala Lumpur context, which only used to be a small trading post in its early days of settlement. The definition of Glazer and Delaporte (1980) is too general for the overall type of waterfront. Therefore, the DID's definition best represents the waterfront in the Kuala Lumpur context and will be used in this research. From here, the concept of the response between the waterfront and the water will be discussed by examining the factors that influence the transformation of waterfronts in many cities.

1.2 The concept of the response of waterfront development towards water

Aside from the definition of a waterfront, it is also vital to understand the concept of the response of the waterfront that is employed in this research. The direct definition of 'response' in Wehmeier (2010) is *'an action that is done as an answer to a*

request, event or situation'. If one relates this to the situation at the waterfront, this shows that the way the waterfront is developed will have to answer the 'request' of the situation, which, in this case is the water.

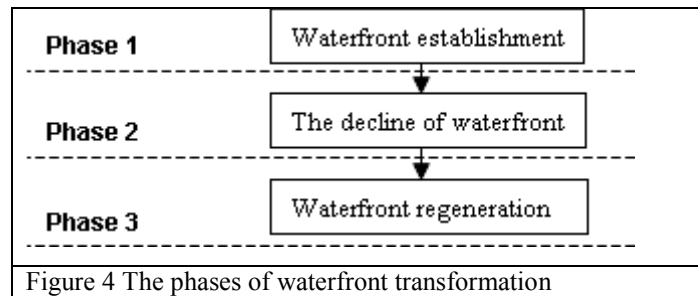
Why is it important to answer to the 'request' of the water? Halprin (1972, p.134) highlighted its importance towards psychology, '*...water is positive and life-giving – the element from which we all have come. The wilderness and exuberance of water stirs us with its qualities of non-conformity and vigour*'. Water is a part of nature that we all come from. Being able to answer to the 'request' will create a good symbiosis between the developed environment and the nature. A study done by the Department of Environment (DoE)(1994) showed that having a good environment can also stimulate a better working and living environment. Therefore, the opportunity of having water in cities should be taken advantage of to create a better environment for the city community (Kotval and Mullin, 2001).

According to Minnesota Planning (2002), to answer the 'request' it is vital to connect or respond towards the water, '*If there is no connection to the river, there is no need for a riverfront location*'. The term 'connect' means '*to join two things or places together. When two things are connected there is a 'relationship' or 'link' between them*' (Wehmeier, 2010). What are the connections or responses that the waterfront and the water had? This concept will be further explored through the phases of waterfront transformation.

2.2.1 Response (connection) of waterfront towards the water in waterfront transformation phases

In order to understand the responses between the waterfront developments towards the water, it is important to understand it through the waterfront transformation phases in the global context to give a better understanding concerning the situation in the local context. This is because most of the waterfronts in the world underwent these phases (Figure 4) (Takahashi, 1998; Hayuth, 1988). According to Hoyle, (1993, p.3) there is a significant amount of interest between different places and authorities although there is huge diversity of local conditions. He further added that the '*experience of one location can inform the common body and that each authority*

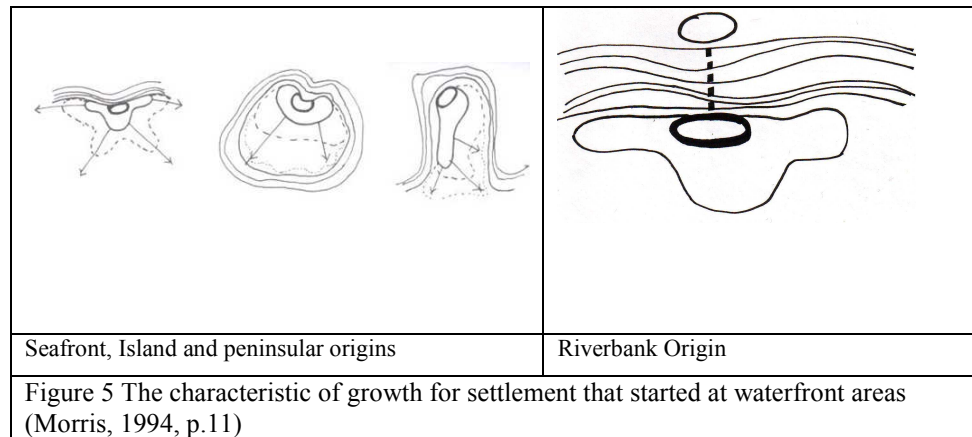
can learn from the policies, achievements and shortcomings associated with similar or contrasted places'. This shows the importance of learning from others to find the possibilities of solutions for similar problems in the local context. The concept of the response of the waterfront towards the water will be discussed based on these phases (Figure 4).



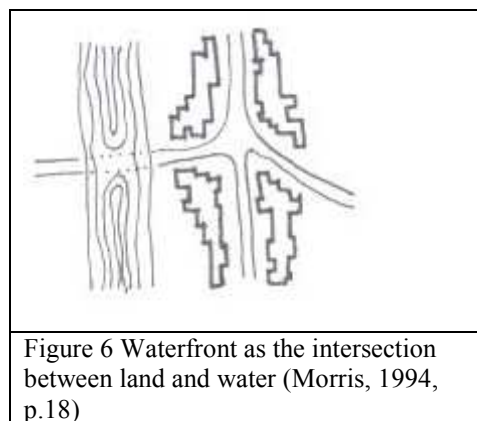
a) First Phase: Waterfront establishment

Five attributes concerning the response of waterfronts towards the water were identified in the first phase. In no particular order or importance, these are the physical character of the water, accessibility, function of the waterfront, activities and building form. The identified attributes related to the concept are written in bold in the following discussion.

According to Takahashi (1998, p.147), *'one cannot think of rivers, canals, watercourses in the urban space and the birth of cities separately'*. This shows that waterfronts have a very strong link with the water in the early settlement of many cities. It is also one of the four determinants (waterfront, hilltop and ridge; and the flat, open prairie) of urban form (Morris, 1994; Hoyle, 2000). Morris highlighted two types of topographical characteristic for cities established at the waterfront area, namely, i) seafront, island and peninsular origins, and ii) riverbank origin (Figure 5). The former is also recognised by Kostof (1991) as the natural harbour and the latter as the riverine settlement. This type of settlement will have the direction of growth away from the nucleus. From here, it can be seen that the first type of response between the waterfront and the water depends on the topographical condition of a certain place, which is **the physical character of the water** itself. Physically, the water has to be in the area for the waterfront development to respond to.



Consequently, the relationship of the waterfront and the water is also important as one of the determinants for a city to grow (Mann, 1973 and Hoyle, 1994). This is because during the early days water was the main mode of transportation. The strategic location of the waterfront situated at an intersection between the land and the water provides high accessibility to the traders and also their customers (Morris, 1994 and May, 2006) (Figure 6). Trading activity boosts the economic function of a place and providing the economic climate is good, the other factors will probably follow (Morris, 1994).



It can be seen that from the early days, the second type of response between the waterfront and the water lies very much on its **accessibility between land and water**. This has also managed to open up various opportunities for the city to grow, which include trading and networking (Kenyon, 1968; Morris, 1994). In the UK, when the canal system was introduced during the Industrial Revolution to connect the unreachable towns by water transportation, it turned cities such as Manchester from a '*landlocked city into a major port*' (Wikipedia Encyclopedia, 2007).

Cities usually have a very strong relationship with their waterfront because of their port activities, commercial activities and cultural concentration (Hayuth, 1988; Mann, 1988; Pinder and Rosing, 1988; Hoyle, 1992; May, 2006). These phenomena are common in North America, European countries and also many Asian and Middle Eastern countries (Rafferty and Holst, 2004; Hoyle, 2001 and Morris, 1994). Due to the immediacy to the water since ancient times, many cities use waterfront as ports and also their '*window on the world*' and the city's '*front door*' in the competition for commerce and trading (Hoyle, 2000, p.397). An example can be seen in the '*piazza*' in Venice, which starts at the St. Mark's Square to '*the most glittering of all the world's belvederes*' near the Adriatic (Hoyle, 2000, p.9). Hoyle (1989, p.432) illustrated how the waterfront in the primitive city port '*unites the maritime world with that of the city in many Mediterranean ports and this area between land and sea is interpreted as a hallmark of the traditional port city, with the town crowding around the harbour upon which its prosperity depends*'.

Hence, this explains the third and fourth types of response between the waterfront and water, which lies in the **function** of the waterfront and **activities** at the waterfront itself.

The waterfront also acted as a node in many western cities and is also the place where the community socialises. This is obvious when those who are not involved with fishing or the port industry set up commercial areas such as offices, shops, warehouses and hotels in the area (Rafferty and Holst, 2004). In some European cities such as Venice and Amsterdam the relationship to water are manifest through the reliance on the rivers and canal as '*main streets*'. For example in Amsterdam, the canal is also the open space for the Dutch. The '*blend of buildings and open waterside spaces*' is a traditional urban scene. Every building at the waterfront, which fronts the canals, has full access to the quayside and waterways. The street, which fronts the canal or other houses, is an extension of the building space just like a large room that belongs to all the community in the area. It is here where they '*played, sat in or worked on it*' (Morris, 1994, p.141).

In some places, the water is connected to the people through their spiritual activities such as in Ujjain, India (Samant, 2004). The ghats (the linear stepped platforms along the river) in Ujjain were designed in response to the spiritual activities that

requires thousands of people to access the water at certain time of the year. In light of the point above, the response between the waterfront and water again lies in the **activity** at the waterfront. The fifth type of response concerns how the **building form** is designed or organised with the water to allow activity to happen. However, the response between the waterfront and the water does not last long, as many of the cities soon experience the decline of this response. The attributes behind the concept of the response of the waterfront towards the water extracted from phase one are shown in Table 2.

	Table 2 Attributes behind the concept of the response of the waterfront extracted from phase one
	Phase One
1	Physical character of water
2	Accessibility
3	Function of waterfront
4	Activities
5	Building form

b) Second Phase: The decline of waterfronts

Four additional attributes relating to the concept of the response of the waterfront towards the water are identified in this phase. These are visual access, comfort, perception of people and awareness of the place. The identified attributes related to the concept are written in bold in the following discussion.

In this second phase, the relationship of the waterfront towards the water in many cities goes into decline for various reasons – the industrial revolution, technological changes, introduction of another transportation system, deindustrialisation or flooding. It is a worldwide phenomenon that occurs in most port cities.

Industrial Revolution

In many western cities the link between the cities and the water was totally changed during the Industrial Revolution, this led to the dilapidation of the waterfront, which also occurred in certain Asian (Jinnai, 2001) and African cities during this same period (Hoyle, 2001). Part of the essence of the response of the waterfront towards the water, depends on the importance of the **building form** and **accessibility**, which was strengthened in this context. This is illustrated by Takahashi (1998) and Jinnai

(2001) who explained that many industrial buildings that were built near the waterfront restricted the **access** and **view** towards the water. In addition, this highlights the sixth attribute in relation to responses, which is **visual access**. Kenyon (1968, p.152) added that much of the industry along the urban waterfront makes no direct use of the waterfront for either navigation or water supply. This situation has created a '*boundary*' between the city and the water. This indicates the importance of **building use** as the seventh type of response of the waterfront towards the water. The change of building use into one that does not use the water may also sever the response with the water.

Kenyon added that due to the incredibly hazardous work of industrialisation at the waterfront, people started to retreat from this area. According to Jinnai (2001, p.61) this area that had once been regarded as a highly active social area had transformed to become sociably unacceptable and unfortunately unsightly for many communities. From another angle, this also revealed the eighth type of response, which includes the **perception of people towards the use** of the place. The hazardous industrial work also affects their **comfort**, which makes people stay away from the water, and this is the ninth type of response that was uncovered. This situation is becoming worse with the technological changes.

Technological changes

Apart from the Industrial Revolution, technological changes in containerisation systems in the shipping industry were also identified as further reducing the response of the city towards the water. The use of containerisation, which requires larger vessels, was opted for because it can transport more goods and shorten the time of docking at the harbour for unloading. Many ports were moved to a deeper area to allow the access of larger vessels. Ports that do not have these advantages have become redundant. Many agreed (Wood, 1965; Hayuth, 1988; Pinder et al., 1988; Breen and Rigby, 1996; Tunbridge, 1988) that this resulted in the abandonment of most of the earlier waterfronts from the mid 1960s onwards. Due to the lack of activities at the harbour areas, other businesses and commercial space started to retreat to other places (Hayuth, 1988). These areas began to decline and were later abandoned, which created a gap between the city and its water. In this situation, it is not the change of building use as previously mentioned in the result of industrial

revolution but the retreat of the activity from this area to other places that severed the responses. Again, the importance of **activity** is highlighted to achieve responses of the waterfront towards the water. The responses of the waterfront towards the water were also affected by the introduction of other transportation systems.

Introduction of other transportation systems (railways, highways and aircraft)

The introduction of the railway system maximised the integration between the water and land network in the late nineteenth and early twentieth centuries, which provided an advantage to those ports that had undeveloped space within their boundary to accommodate the construction of the railway line. Unfortunately, for those cities that relied on the river as the main transportation mode, this reduced the role of the river and those ports that did not have enough space to allow for the construction of a railway line suffered (Rafferty and Holst, 2004, p.5). The development of railroads, brought with it other development such as heavy industry to the waterfront area and prevented other development taking place by *'acquiring waterfront rights and holding them so that others could not use them...'* (Keating, 2005, p.138). Similarly, with the introduction of highways along the waterfront, many waterfronts were *'stripped and sliced apart'* to allow space for massive highway projects for motor and trucking systems (Breen and Rigby, 1996, p.13.). According to Keating (2005, p.130), *'Unfortunately, these roadways resulted in numerous cities being severed from their water bodies ... the highways built at this time reflected an anti-urban attitude as well as gross insensitivity to rivers and other water bodies...'*

West (1989, p.463) stated that many of these expressways were built during the late 1960s and 1970s, especially in the US, in the name of urban-renewal. Investments of the federal funds were spent not to improve the waterfront but to improve transportation. He presumed that this was because the transportation planners perceived the waterfront as an area of *'minimal social and economic resistance'*. An example of this can be seen in Philadelphia where the construction of the highway totally cut the Penn Landing Waterfront from the city's historical area. The waterfront in Louisville, Kentucky also suffered from a similar development of the expressway. Based on this, **direct access** is again highlighted as important to attain responses towards the water. Similarly, the tenth type of response lies in the **function**

of the river. When the function of the river changes the response towards the water are also seen to have loosened.

Similarly, the introduction of aircraft in the 1950s allowed goods and passengers to be transported faster over long distances, which diminished the passenger traffic on water in most places. Rafferty and Holst (2004) mentioned that, consequently, many of the waterways became irrelevant and the waterfront areas became derelict. The Civic Trust (1972, p.43) mentioned that it not only changes the function but it changes the character of some of these waterways when they are filled up or turned into car parks and loosens the response towards the water *'...not so many places in this country have that natural advantage, surprising number have a canal, or as in my own constituency, an old dock and harbour coming right into the centre of the town. But, I am sad to say, some authorities neglect this great potential advantage. If they see a glint of water, the natural thing, it seems to them, is to concrete it over for car parks'*. This again reveals that when the **function of the river** changes the **awareness** of and **association** with the river also changes. It can be seen that these contextual aspects are interrelated. People's value for the river becomes less and this lead to negative changes to the waterways. At the end of the industrial revolution era, the effects of deindustrialisation also had an impact on the waterfront and water.

Deindustrialisation

According to Pinder et al. (1988), deindustrialisation, which occurred towards the end of the 1960s due to the global economic crisis, affected many countries and caused them to move from manufacturing industries to service industries. Many of the port industries were directly or indirectly linked to the manufacturing industries that were situated in the inner urban area. When the factory's infrastructures were outmoded it was difficult to do an effective in situ restructuring and it too became dilapidated. Due to the close link with the waterfront area, activities and the nature of the industries, the inner-urban areas were also affected by the global pressure and caused a far wider loss in integration between the water and the city (Pinder et al., 1988). This indicates that activities in the cities that are related and connected to the activity at the waterfront may also be affected when the activity at the waterfront decreases. Again, the importance of the **activity** is related to the responses of the waterfront towards the water.

Hayuth (1988) and Keating (2005) highlighted that due to the decaying state of the waterfront, the pollution at the waterfront area reduced the value of much of the waterfront land in the eyes of the public. Furthermore, many cities end up *'throwing away'* their waterfronts by filling them up, or draining them or even building an express highway on top of them (Chang and Cervero, 2008). This may also show that the change in character of the water will affect the people's value of the use and their awareness of the place. Here, people's value on the **use** and **awareness** of the place and **character of water** are highlighted as being important to achieve responses towards the water.

Flooding

The final factor that affects the waterfront transformation, which is important to highlight, is flooding. Naturally, the river will overflow at certain times of the year within its floodplain. Much urbanisation took place within these floodplains, hence, considerable damage and devastation results when it floods. Consequently, many changes and actions have been taken to mitigate flooding. Straightening the river and river channelisation to make the water flow faster was a trend during the early twentieth century, which started in America and, at that time, was accepted as the best solution. However, later it was found to be detrimental and unsustainable in the long run by Burby et.al. (in Bechtol and Laurian, 2005, p.7). Some had even gone to the extent of covering the river, thus, cutting off the link between the water and the city. This again demonstrated that the change of **character of the water** had affected the response to it.

For many years, the prospect of the abandoned waterfront looked grim and, according to West (1989) and Pidwill (1993), the adaptive reuse of these potentially very valuable waterfront properties did not take place for several years. According to Breen and Rigby (1996, p.8), only in the 1960s did the *'resurgence of the urban waterfront begun'*. From here, the concept of waterfront responses will be further discussed through the next phase of waterfront transformation – waterfront redevelopment. The attributes behind the concept of waterfront responses towards the water extracted from phase two are shown in Table 3.

	Table 3 Additional attributes behind the concept of the response of the waterfront
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	extracted from phase two (in bold)
	Phase One
1	Physical character of water
2	Function of waterfront
3	Activities
4	Building form
5	Accessibility/direct access
	Phase two
6	Function of water
7	Visual access
8	Comfort
9	Perception of people towards use of place
10	Awareness of the place
11	Association with the water

c) Third Phase: Waterfront redevelopment

Repetitive attributes in relation to the response of waterfronts towards the water mentioned in phase one and two can also be found in the third phase. These are waterfront use, visual access and direct access (written in bold). In this part, the gap in the knowledge concerning the studies relating to the response of the waterfront towards the water is also established.

Waterfront redevelopment has started with the effort of urban regeneration. In the US, the decline of the waterfront coincided with the massive urban-regeneration efforts undertaken in numerous older cities throughout the country that were affected by the deindustrialisation. The emphasis concerns the central part of the cities (West, 1989). One of the earliest efforts of urban regeneration started in San Francisco in the 1950s. However, the real potential of waterfront redevelopment only gained recognition in Boston and Baltimore, USA (Jones, 1998). Since then many more waterfront redevelopment projects followed in North America and other countries (Pinder et al., 1988) over the past forty years (Mann, 1988; Breen and Rigby, 1996; Jones, 1998, p.434).

The main aim of waterfront redevelopment is about providing new opportunities for urban space in the twenty-first century and, perhaps, most importantly, is to reintegrate with the waterfront that the city has grown away from (Falk, 1992, p.120). Falk mentioned that due to the successful design idea for both Boston and Baltimore, which is based on the concept of '*festival market place*' that was promoted by Jim Rouse, it became a '*pre-packaged*' template all over the world.

However, he argued that *'copying ideas in inappropriate circumstances can often lead to development scheme which lacked in character and failed to attract the necessary range of activities'*. Consequently, although some thrive (Breen and Rigby, 1996; Malone, 1996), many projects in the US that duplicated the earlier success generally failed, which led to a lack of interest by private developers to redevelop such projects in the late 1980s (Breen and Rigby, 1996, p.). Inevitably, some developers went bankrupt simply through *'market ignorance'*.

Hagerman (2007) further argued, that in trying to relate the waterfront redevelopment to the environmental concern, many of them had done little to enhance it, and, most of the time, further damaged the integration of the natural system in the urban area. This suggests that **access** to nature is acknowledged to have an important contribution to the community well-being (de Vries in Wakefield, 2007, p.5). The importance of access is a repetitive attribute mentioned in the earlier phase. The insertion of 'nature' in the urban planning or the waterfront is not aligned with the needs of the locality (Cowell and Thomas, 2002). They opined that most of the time, redevelopment failed to prevent the impact of the city to the key areas of the physical environment such as the water. Yamashita and Hirano (1995) and Kawasaki et al. (1995) also argued that most of the waterfront redevelopments do not take into consideration the relationship with the water. Why is this so?

Several studies looked into the relationship of the waterfront and the water. For example, Lynch et al. (1976) evaluated the **use of the waterfront** based on its degree of integration between the waterfront and the water as part of a bigger study for the rehabilitation programme of the Parramatta River in Australia. Due to the variety of land use available along the river, they divided the category into three different waterfront uses (living, working and leisure areas) and three main levels of integration, which is high, medium and low. They found that only a little over half of the residents along the waterfront made use or acknowledged their waterfront setting. Most did not pay any attention or access the water. However, their study did not trace why the situation existed.

As for Campo (2002), in his study of the vernacular Brooklyn waterfront, the focus of the study was to understand the **use** and **access**, i.e. the level of the available

interaction with the water (above water, touch water, see water). He divided the access into formal and informal access and found that there are both types of access at the waterfront. However, his study focussed on the access and use of the left over waterfront places through the approach of ethnography and he did not trace the factors that influence the existing situation. Finally, Stevens and Dovey (2004), explored in detail and analysed the relationship of the 'structure, symbolism and behaviour', which are available at Melbourne waterfront. The discussion relates to the behaviour of people and the meaning of the space in relation to the available waterfront space. However, the focus was not to understand the relationship between the existing waterfront and the water.

According to Petrillo (1985), designer's who designed waterfront areas before this concentrated on the structure and the components part but gave insufficient thought to the **scenic view**, the **access** for the public to the water edge and the ecologically sensitive areas. Recently, realizing these issues, many cities have introduced guidelines or design parameters to control the situation from becoming worse. More and more of the recent redevelopments of urban waterfronts have sought to '*capture the magic*' in integrating water with the development (Petrillo, 1985, p.21). However, studies on this are still limited.

A year later, Trancik (1986) used some case studies relating to the waterfront to illustrate the three theories of urban spatial design (figure-ground theory, linkage theory and place theory). Interestingly, through the theories, the importance of the underlying principles, i.e. 'relationship of the city to the water' was highlighted. His study is related to this research as he traced the history of the place to understand the existing situation. However, the discussions concentrated on the theories of urban spatial design as a whole and only used the waterfronts as case studies to illustrate the theories. The findings did not focus on why the waterfront did not respond to the water.

Though studies on it are minimal, many other gradual improvements have occurred, including the change of perception towards the preferred inner city built environment. This eventually influenced the removal of the transportation barriers between the city and the waterfront such as the elevated highways and freeways that

were developed in the 1950s and 60s. The demolition of the highways was implemented in Portland, Oregon on its Harbour Drive (Tunbridge, 1988, p.69) and depressing the Fitzgerald Expressway, also known as the Central Artery in Boston underground, was also completed. The Central Artery project, which was well known as the 'Big Dig', now provided **direct access** above ground to the waterfront area (Tajima, 2003).

Mann (1973 in Fagence, 1995, p.20), Jinnai (2001) and Marshall (2001b) highlighted that waterfronts have a potential role as new public places and nodes for the urban centres. McNulty and Hunter (1985, p.91) opined that the public have had a change of attitude and perception towards the waterfront in the last decade. Through this, we can understand that waterfront redevelopment concentrates on profit making or '*personal aggrandisement*' as well as providing more benefit for the communities and the planet. Therefore, many cities are finding their form through the vision of a city on the waterfront.

According to Boyko et al. (2005), a sustainable approach to redevelop waterfronts is growing. Sustainability through urban design is acknowledged to be important in the redevelopment process (Hoyle, 2001; Porta and Renne, 2005). Urban design initiatives were seen as vital ways to draw economic investment in city redevelopment (Harvey, 1989; Gospodini, 2002; Manadipour, 2006). They recognise the relationship between the natural environment and human activity, and cover the diverse impacts of '*environmental health, degradation on economic and social activity*' (Laidley, 2007, p.260). Since the early 1990s sustainable development agendas are being promoted and adopted through the policies of many governments, such as in the UK and Europe, to ensure that sustainability can be achieved in the urban areas.

Craig-Smith (1995, p.8) argued that, undoubtedly, developing waterfronts with the purpose of tourism and recreation can be a catalyst to redevelopment projects. However, it is not enough to sustain the project – the locals and the context have to be taken into consideration. Hoyle (2000, p.413) mentioned that although there are universal processes that all waterfront developments share, recognition must be given to the significance of the principles being based on the local environment. This is

similar to Falk (1992, p.135) who suggested that the example shown by the Baltimore projects was successful not because of the ‘product’, which was widely emulated, but because of the underlying development process that people had overlooked. This shows how redundant waterfront areas can be brought back to life through a ‘*balanced incremental approach*’ of development where each project should be a comprehensive scheme that ‘*meets comprehensive needs of the community*’ around so that it can be an asset that is appreciated by all. **The locals’ sense of belonging towards the development is imperative in ensuring that the redevelopment is sustainable.**

Generally, there is growing concern regarding the importance of connecting back to the water to achieve a better quality urban environment. There is a clear gap in the knowledge pertaining to the understanding of why there are still many new waterfronts being developed that are not responding **to their water** (Lynch et al., 1976; Wrenn et al., 1983; Trancik, 1986; Campo, 2002 and Stevens and Dovey, 2004). From the discussions, it can be summarised that the concept of responses of waterfront towards the water consists of several attributes from the context. These can be categorised into physical and functional dimensions and user responses (Table 4).

Table 4 Related attributes in relation to the concept of the response of the waterfront towards the water		
Related attributes from the context		Related user responses
Physical character of water	Physical dimension	Perception on use of the place
Building/Form		
Accessibility/Direct access		
Visual Access		
Activity	Functional dimension	Awareness of the water
Comfort		
Function of waterfront		Association with the water
Function of water		
Building use		

1.3 Conclusion

There are three main aims of this chapter, namely, to define the term ‘waterfront’, to discuss the concept of the response of the waterfront towards the water and to identify the gaps in the body of knowledge. From the discussion, the definition adopted for the waterfront in Kuala Lumpur is based on the DID’s definition because it is the most suitable to describe the condition of Kuala Lumpur. This is in comparison to the definitions given by other authors, which are considered too general or not relevant to the context of Kuala Lumpur. Furthermore, the definition clearly guides the demarcation of fieldwork areas for research. The discussion of the concept of the waterfront and the water that crosses between three different phases of waterfront transformation (waterfront establishment, the decline of waterfront and the waterfront redevelopment) has helped to understand the concept in a more holistic manner. There are two main findings unveiled from this discussion. First, each of the phases helped identify relevant attributes from the context that can be categorised into three main aspects of the concept of response of the waterfront towards the water. These are physical, functional dimensions and the user experience of the area. This shows that the integration of these three aspects must be taken into consideration to achieve good response of the waterfront towards the water. It is also acknowledged that some of the activities are closely related to the local culture’s spiritual activities such as those observed in Ujjain, India. This shows that cultural aspect may be an important consideration in the concept of the waterfront’s response towards the water. However, due to the scope of this research, the cultural dimension of the responses has to be limited.

Second, although an increasing number of authors had shown concern that many waterfront developments are not responding to the water and also the increasing concern of the importance of urban design to achieve this, there is still a clear gap in the body of knowledge on why this happened. Hence the next chapter will explore the theories and approaches in identifying the attributes and specific tool for evaluating the responses of the waterfront towards the urban river in Kuala Lumpur in order to develop the theoretical framework for this research.

CHAPTER 3

RESPONSE OF WATERFRONT AND CONTEXTUAL INTEGRATION OF WATERFRONT DEVELOPMENT

‘...more than any other catalyst, riversides hold the greatest hope for beginning a revival of confidence in the urban physical environment’- (Mann, 1973,p.20)

1.4 3.0 Introduction

Chapter two discussed the many waterfront developments taking place all over the world that do not respond to their water. It also identified that the concept of the response of waterfronts towards the water includes the integration of several attributes from the context. Based on this concept, this chapter will continue to examine the relevant principles and theories that can be used to develop the theoretical framework for the research in evaluating the conditions of the Kuala Lumpur waterfront. This chapter is divided into three parts. The first part aims to find the possible principles and theory that can be the basis for the theoretical framework. The second part will identify the related attributes for the theoretical framework. The final section will conclude the chapter.

1.5 3.1 Relationship between the concept of the response of the waterfront and contextual integration in urban design

Based on the discussion in Chapter 2, the response of the waterfront towards the water can be obtained from the integration of several attributes in the context. Several urban design theories have been explored to capture the concept behind the response of waterfronts to the water. Since it has to be an integration of the attributes from the context to achieve the response of the waterfront towards the water it can be related to urban design, which promotes contextual integration as one of its key factors (Carmona et al., 2003) to create a public realm (Lloyd-Jones, 1998, p.15).

Tibbalds (1992), in his article 'Places Matter Most', also highlighted that the main component in a successful urban design is the context.

Similarly, Buchanan (1988) stated that urban design was '*essentially about place making, where places are not just specific space, but all activities and events that make it possible*'. According to Manley (1998, p.153), in the quest to achieve a quality environment, the agenda of urban design has increasingly shifted from the '*traditional concentration on the visual and functional aspects of design, to a position which reflects a concern for the social and environmental consequences of design decision*'. Urban design factors are taken into consideration in many cities as a tool to create a better public realm at the waterfront areas in terms of sustainable development (Hoyle, 2001). There is growing interest in urban design from many quarters due to various concerns '*in making places and improving the quality of the urban environment*' in the public realm (Cuthbert in Carmona and Tiesdell, 2007 p.22). Furthermore the integration of one space to another depends much on the activity generated between (Carmona et al., 2003). This shows that the response of waterfronts (one space) to the water (another urban 'space') is about having a good sense of place so that the users are encouraged to stay longer and are able to enjoy the water.

Buchanan (1988, p.36) mentioned that the concept of context covers the '*immediate surrounding*' and includes the '*whole city and perhaps its surrounding region*'. Furthermore, Tugnutt and Robertson (1987, p.22) highlighted that for one to understand a local context it is important to look at the wider context that influenced the town character such as the '*geographical setting, the reasons for its originating there, the buildings and activities related to them*'. In short, Carmona et al. (2003, p.36) defined context as the physical and functional relationship of a development/building with its surroundings, which includes not only the site of the development but also the surrounding area in its immediacy. This corresponds to the findings in Chapter two, which highlighted the attribute from both the physical and functional dimension. However, Pinder et al. (1988) claimed that to achieve a good sense of place at the waterfront, it has to include the contextual aspect, which comprises the political, economic and social aspects of the location and its distinctive character.

The findings in Chapters six and seven will elaborate upon whether this claim is applicable in the context of Kuala Lumpur.

In seeking the related theory to be adopted, the attributes are then categorised into related urban design principles. Although urban design promotes contextual integration, most principles of urban design are discussed separately by the primary urban design authors (e.g. Lynch (1960) – Legibility; Norberg-schulz (1980) – Meaning; Jacobs (1961)(1992) – Vitality; Sitte (1965) – Good Form). However, these principles are discussed together as a whole by Sternberg (2000). In his attempt to find a theory that best represents urban design, he suggested the Integrative Theory that encompasses five main principles – ‘good form’, ‘legibility’, ‘vitality’, ‘meaning’ and ‘comfort’. This can be related to the concept of the response of waterfronts towards the water, as in Table 5.

Sternberg (2000, p.266) stressed that urban design is a practice that crosses between property lines and the theory must be able to fulfil the five main attributes of urban design, which are : *‘a) it should not simply advocate one set of design approach but should rather reveal the principles that underlie several of them b) it has to be substantive rather than procedural theory c) it should make us aware of the constituents of human experience of built form d) it should recognise the sources of urban form in both markets and plans; it should answer both the economic and architectural streams of planning thought and e) finally it should be able to direct our attention to pertinent features of reality – experiential features of space and built form and thereby to help guide practice’.*

Sternberg’s work draws upon Polanyi’s theory (Sternberg, 1993 in Sternberg, 2000, p.266) who founded the concept that the realms of human experience cannot be extended from the market economy because it is non-commodifiable. He opined that the most important contribution Polanyi made that can be related to urban design is when he mentioned that humans and nature are *‘resistant to commodification’*. Making it commodifiable will only degrade them. This can be seen through a forest that is made commodifiable; it can only be done by the cutting of the trees, which will diminish the biological relationship among the species in the forest. He opined that nature and human beings, including the built environment, cannot be effectively

commodified other than by degrading them. For example, urban land, which is being divided by the private owners and functional bureaucracies for commodification, are degraded due to the fragmentation between them and which has affected the human experience that moves in the built urban form. The missing cohesiveness, coherence between spaces, comfort and security are evident in the commodified urban land and it is here, that the social role of urban design is distinct.

Table 5 Relationship of the concept of the response of the waterfront with the principles in the integrative theory of urban design				
Related attributes of the response of waterfronts	Related Principles	Dimensions	Result of the response of waterfronts in relation to human experience	Related Principle
Topography/ Physical character of water Building Form	Good Form	Physical	Perception on use of the place	Meaning
Direct access Visual Access	Legibility		Awareness of the water	
Comfort Activity Function of waterfront Function of water Building use	Comfort Vitality	Functional	Association with water	

In the context of planning, the non-commodifiability can be related to the concept of ‘organic’ by Geddes (1915)(1968) and Mumford (1964) (from Sternberg, 2000, p.267) in the early twentieth-century. Based on their observations the ‘*modern society atomized city, nature and community*’. They tried to amalgamate all these aspects into one and created a theory, which is rather ambiguous and encompasses both planning and the market without clearly distinguishing between the two. The theory was rejected by the orthodox economists in the early twentieth-century, as they could not relate the theory to the debate on the economic system and democracy. The theories of market by the orthodox economists suggest that the non-commodifiable element is only the spillover of the commodified factors, however, this theory is not able to appreciate the ‘*organic*’ relationship that exists between the building and its surroundings. Sternberg (2000), in referring to Polanyi’s theory of non-commodifiable factors and the organicist theory, which crosses property boundaries, argued that it can be related to the primary writings on urban design

including Sitte (1965), Bacon (1974), Lynch (1960) and Jacobs (1961)(1992). Each one of the principal authors of urban design has written about the principle of urban design that crosses property boundaries and non-commodifiability. They stressed the importance of creating the urban experience across the property boundaries to reintegrate the urban form with the surrounding (context).

In this research, the urban experience (user response) created is the result of the integration of the urban form (which comprises the waterfront) with the surrounding context (water). Carmona et al. (2003, p. 36) highlighted that each area of different characters will need a different degree of ‘contextual’ response. Those areas that have a ‘*highly unified character*’ will need a higher ‘*respectful response*’. This statement may be true for the surrounding buildings, however, because this study focuses on the response towards the urban river, it is important to highlight that with the acceptance of the contextual importance in the urban development in the aftermath of modernism (Greed and Roberts, 1998), there is a change of attitude towards the urban river that had been neglected in many cities. It is now widely acknowledged that the water (river, lake, sea) are important elements of the city context that must be highly respected because they give character to the city (Tweed and Sutherland, 2007; Shamsuddin and Sulaiman, 2004; Mann, 1988).

As Kotval and Mullin (2001) mentioned in their book, the ‘*Redevelopment of the downtown of America*’, it is lucky for those cities that have water in their city because they can always exploit it for the benefit of the community. That is the difference in waterfront development compared to any other development in the city centre.

From the discussion above, it can be inferred that the response of waterfronts to the water, which comprises the integration of several attributes from the context, can be evaluated through the level of contextual integration, which is based on the five main principles from the integrative theory of urban design.

1.6 3.2 Integrative theory and attributes at the waterfront development

Further exploration was done to extract other possible related attributes that are important to contextually integrate the waterfront development and the water. A matrix is drawn from the literature (Appendix 01) on waterfront developments with reference to the concept of the response of waterfronts (Table 3 in Chapter 2, p.33) and the integrative theory. The third phase of waterfront transformation (Chapter 2) is explored further due to the recent development that many cities have undergone or are still going through (Hoyle, 2002).

In choosing or extracting the attributes to evaluate the contextual integration of the Kuala Lumpur waterfront with its urban river, it is understood that each waterfront is unique in its own place. However, according to Fagence and Craig-Smith (1995, p.137) there are attributes that are still shared by many, they stressed the importance to avoid ‘cloning’ or ‘disneyfication’ of waterfront schemes but argued that in acknowledging the differences that each of the locations have, it is also important to understand that there are *‘some degree of similarity at least in design through careful appraisal to produce outcomes that meet the images of successful schemes implemented elsewhere’*. The matrix looks into these similarities. The attributes extracted are discussed according to the principles in the integrative theory of urban design, as they are categorised.

Physical dimension

3.2.1 Good form

Sternberg (2000) explained that good form is an important principle in the integrative theory of urban design citing the work of Camillio Sitte in his book ‘City Planning according to Artistic Principle’, which was first published in 1889 in Vienna (1965 in Sternberg, 2000, p.32) and Edmund Bacon’s ‘The Design of Cities’. Sitte’s work was written in response to the situation of the nineteenth-century cities, which were built without consideration of the surrounding area. Most of the developments were built to maximise the saleability of the property through the land subdivision. He

questioned, in disagreement with the situation at that time, *'should one be satisfied then to place this mechanically, produced project, conceived to fit any situation, into the middle of an empty place without organic relation to its surroundings or to the dimensions of any particular building?* Many of the practices at that time had been creating public places that were isolated and detached from the organic fabric of the surrounding area. Is this the situation experienced by the Kuala Lumpur waterfront and the affect of the response to the waterfront? This will be discussed in Chapters 6 and 7.

Bacon (1974), in Stenberg (2000, p.36), stated that *'good urban design was to be based on artistic principles of good form'*. He mentioned that *'good design should interlock and inter-relate buildings across space'*. Although the interrelation of spaces that he mentioned concerns spaces within an architect's control of buildings or development with only one client, it can also be related to the urban design practice that deals with the spaces outside the buildings. The challenge is that urban designers have to deal with various clients of different properties and in a *'politicised environment'* to achieve a good relationship with the surrounding area. Good form is also related to the proportions of buildings. He mentioned that the proportion meant here need not be related with the *'mystical Pythagoras formulas'* but more of the *'beholder's experience of space'*. This is similar to the importance of the users' responses mentioned in the concept of the response of waterfronts to the water. The interesting part is how do we relate the principle of good form in integrating the waterfront development with the urban river to evaluate the level of integration of the Kuala Lumpur waterfront?

According to Owen (1993, p.16), it is important to look at the three main aspects in order to understand the variety of waterfront forms, these are *'i) historical palette of form used; ii) the reason for their use, and iii) their advantages and disadvantages'*. He also pointed out that there are several different types of form in the physical aspects of the waterfront. This depends much on the *'i) shape and size of the water areas, ii) different form of buildings and structures, and iii) different treatments to the water edge'* (Owen, 1993, p.15). The final factor is believed to be the most crucial part that differentiates the development with any other urban site. He opined that large differences in the treatment of the water edge would affect the quality of

space and the relationship of the buildings and water. They can be seen through these variables; *'i) different widths of space between building and water, ii) different height of building and dock edge, iii) different uses of the space, and iv) different width of water body'* (Owen, 1993, p.15). It can be gathered from Moughtin (2003) and Owen (1993) that there are nine types of waterfront forms (Table 6).

Table 6 Types of waterfront form	
Waterfront form	Descriptions of buildings
Moughtin (2003)	
Vertical cliff edge	<ul style="list-style-type: none"> ▪ Rise sheer from the water edge. ▪ Use land to the maximum. ▪ Associated with sheer faces multi-storied warehouse – privately owned and has its frontage open towards canal to load or unload goods. ▪ No public access to waterside throughout the length of warehouse.
Fishing village	<ul style="list-style-type: none"> • sheltered to avoid strong wind from the open sea. • has access to the waterside that follows 'narrow ginnels or passageways'. • called 'perforated edge' by Owen (1993). • turning its back to the sea but in a real sense it is '<i>in respect of the nature of sea</i>' due to the knowledge of the danger of strong wind. • higher 'permeability' (Bentley et al., 1985, p.3).
Beach or bank where 'the water meets a soft, natural bank or gentle slope'	<ul style="list-style-type: none"> • can be seen most in country areas but increasingly found in the urban area more recently where it has become a move towards sustainability and environmental management in 'naturalising' the river (FRIRJ, 2004). • has access to the waterside that follows 'narrow ginnels or passageways'.
hard formal constructed edge of the dockside quay'	<ul style="list-style-type: none"> • building lined at its edge for the port settlement, which is usually situated in a sheltered location. • has a 'seawall surmounted by a quay' which lines the edge of the sea (Meyer, 1999).
envelops and encloses the water in the form of a bay or open square	<ul style="list-style-type: none"> • e.g. the city at the bay is enclosed by the mountain in the background. • e.g. water acts like a square being enclosed by arcaded buildings surrounding it.
'pier jutting out into the water and building floating on the water'	<ul style="list-style-type: none"> • Pier – fundamentally used to design waterfront structures (Thorburn, 1990). • Floating – high maintenance and less practical, the floating building is recently quite popular – e.g Dubai lilypad (Anon., 2010c) • usually built to be floating according to the water tide for convenient access to the water at any time of the day.
'convenient tradition of turning a	<ul style="list-style-type: none"> • buildings turned their back on to and used as a

back' to the water	dumping ground for a long time in many cities – treating it as a sewer or a concrete culvert' - an engineering tradition to solve the problem of sanitation and improve the public health.
Owen(1993, p.16)	
'set back building'	<ul style="list-style-type: none"> • one of the most common forms of waterfront treatment. • has space in between the building and the water – in the form of a passage or quay (Sometimes if the quay is too wide the relationship of the building and the water is lost). • in many cargo handling ports and also many cities that have a passage or road between the building and water.
bridge	<ul style="list-style-type: none"> • to connect between two banks but some waterfronts use the bridge as a structure built wide enough for loading and unloading of goods from vessels (e.g. Ponte Vecchio in Florence, Italy built in 1350 (Mallovy, 1986). • one of the most common forms of waterfront treatment.

It can be seen that all the types of forms mentioned above have a positive relationship with the water in terms of the functional or physical aspect except for the 'setback building', which has a quay or passageway that is too wide between the building and water and also the 'convenient tradition of turning its back to the water'. Owen (1993) added that although it is possible to discuss in terms of the use of the buildings or the space, or the intensity of that use or the material use, all these aspects change through time making it difficult to investigate. It is only sensible to examine the form in their current situation with reference to history. Therefore, in reference to the above point, the existing context of Kuala Lumpur and its relation to history is also examined through the morphological study (Chapter 5 and Appendix 02) to identify the treatment of the waterfront form.

However, to extract the other possible attributes to evaluate the condition in Kuala Lumpur, a matrix of the literature was done cross referencing the earlier attributes mentioned in Chapter 2, Owen (1993), Moughtin (2003) and also the types of waterfront in Kuala Lumpur, which are mostly the 'setback building type of waterfront' (Chapter 5, p.130). The identified attributes in relation to *good form* are: i) physical character of the water ii) the building form that is oriented towards the river (fronting or backing the river); iii) difference of width between the building and

water, and iv) the proportion: the height of building and its relation to the space between the river. Factors (iii) and (iv) will be discussed together due to their strong relationship with each other.

a) The physical character of the water

As discussed in Chapter 2, the physical character of the water is an important attribute in the concept of the response of the waterfront towards the urban river. It is from its natural appearance of the edge treatment that people are able to recognise that it is a river, canal, lake or the sea. Many studies have repeatedly found that the natural condition is probably the most preferred environment for the response by humans towards their environment (Kaplan and Kaplan, 1989; Nasar, 1998), which includes the waterfront area. Carr et al. (1992, p.225) mentioned that the natural setting seems to provide a '*restorative experience, refreshing people and sharpening their value*'. Hoyle (2000) explained in his article on 'Global and Local Change on the Port-City Waterfront', which discussed the underpinning factors of a popular successful waterfront development, that it is the '*magic of water*' itself. It is able to draw people together for various activities and attract the visitors and citizens to enjoy the water. This is strengthened by Stefanovic's (2002) study of Lake Ontario, which mentioned that when the public walked along the route at the lake, if the route moves a bit further from the water's edge, they would be counting their steps and peering between the trees and hedges to obtain a view of the water again. It is the water that attracted them, which he described as a sign of the '*continuing vitality of cities*'.

The findings above are consistent with the example given by May (2006, p.483) who stressed that one of the ways to bring people to the Rouge River waterfront is to '*restore relationships between the Rouge and its natural and social systems through renaturalising the river banks*' by removing the existing concrete channel. This shows the importance of the natural look of the river channel/banks/edge treatment in attracting people to the river. Is there any other aspect that is important in relation to the physical character of the water? Pinder and Smith (1999, p.869) added that it is not only the water itself but also the water-related activities, visual appeal and

cultural association with water. They added that ‘it *can create value for the abandoned area which can later attract developers and investors to develop them*’. Water-related activities will be detailed further in the discussion of the principle of vitality (refer 3.2.3). However, although cultural association is acknowledged to be important, it will not be discussed in detail because it is beyond the scope of this research.

Wood (1965) and Pidwill (1993) pointed out that the visual appeal not only lies in the natural appearance of the physical character of the water but also in the quality of water. It is an important aspect in attracting new markets for redevelopment projects such as residential or recreational uses. It is also one of the key aspects in attracting the developers and public alike to the place (Pidwill, 1993; Syms, 1993; Cruikshank and Bouchier in, Wakefield, 2007; Tunbridge, 1988). The public want a waterfront area to be ‘*an inviting natural oasis, where they can rest or enjoy strolling, boating, fishing and even swimming*’ (Wakefield, 2007, p.5). This may indicate that the quality of water is important and that it should be suitable for people to touch and swim. In Malaysia, the quality of water is measured through the Water Quality Index below (Table 7).

No	Class	Intended use	Status	Treatment method
1	I	Conservation of natural environment, water supply I and Fishery I - very sensitive aquatic species	Clean	Practically no treatment necessary
2	II	Water supply II, Fishery II - sensitive aquatic species and recreational use with body contact	Slightly Polluted	Conventional treatment required
3	III	Water supply III, Fishery III - common, of economic value and tolerant species livestock drinking	Polluted	Extensive treatment required
4	IV	Irrigation	Polluted	Advanced treatment methods required
5	V	None of the above	Very Polluted	Must undergo waste water treatment

Table 7 Water quality index and its suggested treatment. (Source: DoE, 2008)

Samant (2004) claimed that the success of many waterfront developments depends much on its unpolluted water and it is a major concern that should be given a priority. However, this statement was debated by an architect (AR5) interviewed in 2008 who expressed that in the redevelopment of the Kuching waterfront; ‘*when the*

project was executed, we did not wait for the Sarawak River to be cleaned'. They could not wait until the river was cleaned because the river is a very long river and the part crossing the city centre is limited in length. For them, the project was *the* initiative to create awareness of the river, which, fortunately, received strong government support.

'I won't say it's clean; it has a lot of siltation even now. There are two polluting elements, one is siltation, which means the silt that runs off from the mountain down into the river, and the second one is the e-coli, the bacteria,...there is nothing we can do to change the polluting content of our Sarawak river. It is less relevant because we cannot do much with the pollution of the river – the project still goes ahead.' [Architect (AR5)]

His argument is paralleled in the enquiries made concerning the perception of users regarding the importance of the quality of the water by West (1989), which suggested that it depends largely on the intended function by the end users. Different users, such as the residents living in the area, bathers and tourists, would give a different perception compared to others like fishermen or boaters. He found that there are significant discrepancies between the users' perception of the water quality and the scientifically rated ones. His questioning of how much the impact of water quality has on the urban waterfront development is very relevant for future research.

Although some have reservations, much of the literature mentioned the importance of restoring the physical character of the water (natural edge treatment and non-polluted) to contextually integrate the waterfront to the water. Therefore, this attribute is still going to be taken into consideration as an attribute to evaluate the situation in Kuala Lumpur, because of the major concern of the matter worldwide. It would be interesting to know whether this attribute influences the level of integration between the Kuala Lumpur waterfront developments and its urban river.

b) Development oriented towards the water

Sternberg (2000) accorded to Bacon (1974), the principle of good form in the theory of integration that '*good design should interlock and inter relate buildings across space*'. This can be related to Tugnutt and Robertson (1987) in his discussion of a contextual approach. He mentioned that the relationship of many cities that are connected to canals or rivers is now vague. This is due to the industrialisation period that built warehouses backing onto the waterways, which resulted in many of the

areas becoming redundant. Stevens and Dovey (2004) also commented that development, which was backing onto the river, created a passive area at the waterfront. This might indicate that developments that are not oriented towards the water may loosen the relationship with the water. Does this mean that all kinds of development at the waterfront should orientate towards the water?

Kotval and Mullin (2001) stressed that it is crucial to design the development, comprising buildings, a series of complexes or even parks and recreational areas at the waterfront, as part of the water as a whole and oriented towards the water. This is because, according to Scoffham (1993), the benefits are already widely known – that a water frontage can be a catalyst to development. Will it bring people to the area? Many agree that it is important to strengthen the attraction at the waterfront area and this is also one of the strategies to bring people to the waterfront area (Pinder and Rosing, 1988; Tunbridge, 1988; Bosselmann, 2002; Samant, 2004). May (2006, p.480) added that buildings that are designed to orientate and have a view towards the river, could create awareness in the public. She opined that it could create a *‘symbolic link between the power of human creativity and engineering prowess and the majesty of the river’*. Bosselmann (2002) stressed that it should be highlighted as a guide for design decisions. From here, it was highlighted that developments that oriented towards the water can be achieved by facing the building/ development and view towards the water. Are there any other aspects that need to be considered in orientating towards the water?

Pidwill (1993, p.103-105), drawing from his various experience in waterfront projects strongly suggested the importance of having buildings built overlooking the waterside and to take full advantage of the natural resources on site to achieve a *‘close relationship between buildings and water’*. Buildings that are oriented towards water should also have ground floor activity that allow them to be connected to the public (Pidwill, 1993; Anon., 2009; Strand and Smith, 2009). Zyl (2005, p.15) claimed that the developments should be designed in response to the *‘shape and character of the water space’*. This can avoid a thematic style of waterfront development. If not, its existence at the waterfront will not contribute anything to the place making of the area. Does it have to be directly facing the water? The situation is a bit different in Lamu, Africa, in the way the waterfront development relates to

the water, as some of the waterfront buildings are oriented perpendicular to the water towards the urban mosaic for security and safety reasons. However, this kind of arrangement allows wide accessibility to the water and they maximize the space between the buildings and the water for other commercial and water-related activities (Hoyle, 2001). This shows that if it is not directly fronting the river, some space that allows ground floor activity to happen between the building and the river may be vital. This discussion illustrates that development oriented towards the water is acknowledged to be a significant factor in good form in creating integration with the water. It highlights a few significant aspects concerning orienting development towards the water. These are: i) orientating the building/development and view towards the water, ii) take full advantage of the natural resources, i.e. shape and character of the water space, iii) ground floor activity, which allows it to be connected to the public and the water. Whether these aspects are relevant to contextually integrate the Kuala Lumpur waterfront with its urban river will be discussed in Chapters six and seven.

c) Building enclosure towards water

Owen (1993) identified the importance of building height and waterfront space in evaluating the relationship of waterfronts with the water. However, literature concerning building height and width of space in relation to the water is minimal. Therefore, similar studies in reference to the context of streets are referred to. This is because streets are also a public place (Burton and Mitchell, 2006; Moughtin, 2003; Moudon, 1987) just like waterfronts (Jinnai, 2001; Tibbalds, 1992). Furthermore, most of the waterfront forms in Kuala Lumpur are the 'setback type', which has a street between the waterfront and the water (Chapter 5, p.130). The relationship of height and width of space of the development is related to the term 'enclosure'. Based on Ewing et al. (2006, p.226), enclosure is *'the degree to which streets and other public spaces are visually defined by buildings, walls, trees and other elements'*. In these spaces, *'the heights of the vertical elements are proportionally related to the width of the space between them that gave a room-like quality'*.

Similarly, the Design Guideline of the Southampton City Council: City Development and Economy (Southampton City Council, p.44), also defined 'enclosure' as the ratio of the building height with the street width. The degree of continuity of buildings

along the street will be able to strengthen the sense of enclosure. They highlighted why it is important to have a sufficient sense of enclosure in a street area: '*a) strongly enclosed routes are easier for people to visualise and remember, b) degree of enclosure is also a way of expressing the importance of each street, c) continuous frontages avoid the gaps, which can make places seem unsafe*'. However, compared to a street, which has a 'wall' on both sides, waterfronts have only one side of the 'wall' and the other side is the edge of the water. Can a sense of enclosure be achieved at the waterfront?

According to Trancik (1986) and Samant (2004), enclosure can still be achieved in the context of waterfronts. Trancik opined in his discussion of place theory that many waterfront places are designed without continuity and enclosure. He gave the example of Boston Waterfront, which does not establish a frontage to define open space and creates a vast space between the buildings as the development of the buildings are placed individually. The spatial structure was further broken because no link was made to the important connection towards and along the harbour area. He claimed that it is almost impossible to create a positive and coherent urban space if the urban form is vertical, such as the point block towers and the skyscrapers, compared to the horizontal form. Various attempts on placing towers over vast open spaces have resulted in spaces that are unused and seldom enjoyed. This is because a vertical object cannot give spatial structure to the environment due to inadequate ground coverage. He suggested that enclosure could be achieved through the perimeter spaces if they are articulated to create outdoor rooms that consist of niches, corners or pockets. The easiest way to achieve this is by using horizontal blocks that may create a better continuous space and activities. Is there any possible measurement to achieve this?

Most of the literature describes the important characteristics to create a sense of enclosure but it does not give any indication of a possible measurement for measuring the ratio of height and width. The study by Greenbie (1981) explains this matter in detail. According to Greenbie (1981), people like to feel as if they are in a room-like area, although they are outdoors, without a feeling of claustrophobia. He added that the sense of enclosure of space could be measured by the ratio of the height of the building and the width of the street/open space that lies between. The

‘wall’, going upwards, should be at least one-quarter of the width of the ‘floor’. If the height of the wall extends to twice the width of the floor it will make the people feel as if they are walking in a canyon and if it is four times higher it will lose the sense of enclosure. This shows that there is a possible measurement that can be considered to measure the Kuala Lumpur waterfront.

The above indicates that aside from the height of buildings, the width of the street and the continuity of the buildings along it are also important for a sense of enclosure. Although this attribute is considered important to achieve the response of waterfronts towards the water in the western countries, it will still need to be evaluated as to whether it is important in Kuala Lumpur.

3.2.2 Legibility

Legibility is also one of the principles in integrative theory that was highlighted by Sternberg (2000). This significant principle, which was established by Kevin Lynch, is explained as being related to the cities that are easily understood by the user as a *quality that makes a place* graspable (Bentley et al., 1985, p.42). It is important for the environment of the city to be distinctive in order for a person to understand and be able to orient themselves. This will also allow the person to piece different parts of the city into a ‘*coherent category*’ and at the same time give them a sense of security of knowing where they are in the city area.

Lynch and Hack (1984, p.182) further clarified that the city should be made ‘*imageable*’ for the observer to be able to form a mental picture. This is done through the projection of ‘*distinction and relationship*’ that the observer would be able to comprehend. Stenberg highlights that the elements of nodes, paths, landmarks, districts and edges clarified by Lynch are only references to the design elements for the professionals to achieve an ‘*interrelation of parts into a whole*’. It is usually very difficult to achieve when designing in cities without using the elements to link the urban fabric as a ‘*total visible form*’. This relates to the importance of access or permeability mentioned by Bentley et al. (1985). Lynch and Hack (1984, p.193) in their book, Site Planning, highlighted the importance of access in space usage. It explains how a space will not have any value even though it is ‘*rich in resources*’ if

it does not have access. Can this be related to the waterfront context, which has rich resources in the water?

Carmona et al. (2003, p.9) highlighted that Kevin Lynch has identified access as one of urban design's main performance attributes, he defined '*access as the ability to reach other persons, activities, resources, services, information or places including the quantity and diversity of elements that can be reached*'. Legibility in the contextual integration of the waterfront development with the water can be related to the people's clarity of the city structure concerning how to get near to the water's edge. As mentioned in Table 5 and Chapter two, this principle can be related to two significant attributes: i) direct access and ii) visual accessibility. However, from the matrix of literature (Appendix 01), another two related attributes are revealed: iii) the continuous pedestrian linkage along the water and iv) linking the city to the water's edge.

a) Direct Access and Visual accessibility to the water

One of the most frequent issues raised concerning the development of waterfronts is direct access and visual access to the water's edge. This is a huge issue brought forward by the public for the purpose of preservation and also recreation at the waterfront's open space (Wakefield, 2007; Desfor and Jorgensen, 2004; Hoyle, 2000; Meyer, 1999; Hoyle, 1994; Fainstein, 2001; Hayuth, 1988). This is due to the private development that has taken place at the waterfront area, which has denied both direct and visual access. This is also consistent with the study conducted by Buit (in Knaap and Pinder, 1992, p.165), which analysed the impact of twenty-eight major renewal developments throughout Europe that include waterfront projects. He found that there were more disappointments compared to those that had a positive impact. One major factor that is apparent is the lack of consideration concerning the accessibility of the residential environment with the river. Tibbalds (1992) highlighted that in making a particular place responsive for activities to happen it must allow clarity in the accessibility to the area, event or facilities. According to Boyd (1985, p.39), and agreed by Laidley (2007), in many cities the public accessibility to the water's edge has succumbed to the value of the land that is exclusive for private development due to the waterfront locations. Boyd opined that there would be no impact in the process

of design review if the public access is provided just to fulfil the requirement set legally and that can be satisfied with any '*uninviting*' pathway without giving it sufficient thought. He further added that if the regulation goal is '*to 'maximise public access to and along the coast'*', the physical and visual accessibility preservation have to become *the* site planning principle. How can this be achieved?

An example of the preservation of the direct access and visual accessibility design review was provided by the Coastal Commission of California (Boyd, 1985, p.22). They highlighted two main aspects: '*i) public access is a central feature of all major projects*'. This is similar to Lynch's idea on 'designing the paths' and '*sense of the whole*'. This allows the public to reach the sea from the city through direct access and with the visual accessibility of the nodes and landmarks that link one point to the other in reaching the waterfront area (Meyer, 1999); and '*ii) Major public views of the coast are precisely defined and protected through specific project development standards*'. This application was also agreed by Carr et al. (1962) in their proposal on the 'Walk to the sea' at the Boston Waterfront, which involved design regulations of public space and buildings that formed a 'route line' with visual and functional diversity and at the same time '*radiating the sense of uniformity and coherence*' (Meyer, 1999, p.20). By drawing from his varied experience of waterfront projects Pidwill (1993, p.98) added that direct access to the water can be achieved by three levels: '*i) close to water, ii) original quay level, and iii) bridge level, which provide a different experience at each level*' and manage to establish a variety and attract the interest of the public to the water. This shows that there should be alternative or various types of access to provide a different experience to the user towards the water. How do we measure access?

Most of the literature on the waterfront study discussed the characteristics of access and almost none mentioned the minimal distance that is desirable for pedestrian access to the water. Research related to the study of street accessibility is referred to, to understand this aspect better. Jacobs (1992) opined the need for small blocks in the city development, especially on the streets to allow for better interaction between the people in different streets. Long intervals and monotonous stretches of street contribute to the failure of a city and result in isolated and socially helpless neighbourhoods. More streets between the block provide more alternative routes,

increase the interaction between the people in different streets and also allow the neighbourhood to be more open to them (Figure 7).

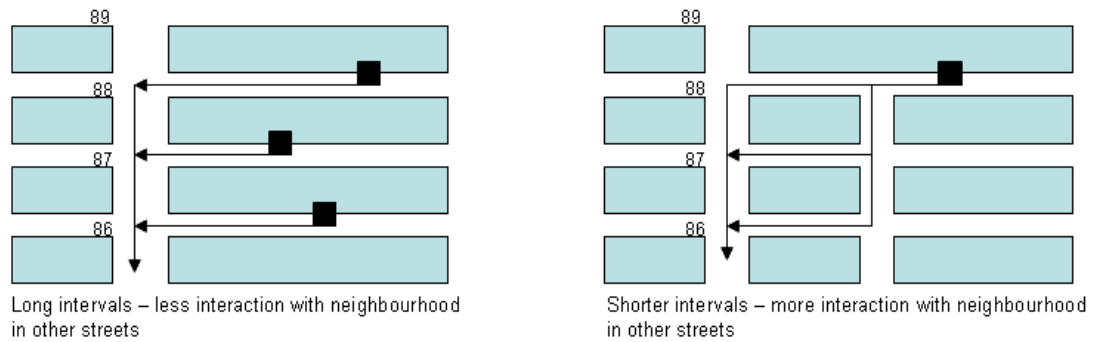


Figure 7 The difference in possible interaction between long and short intervals in streets. (Jacobs, 1992. Redrawn by author)

In relating this concept to the context of the waterfront, in order to have more accessibility to the water, it may be suggested that shorter intervals are needed along the waterfront for people to access the water. The study by Siksna (1997) highlighted that a desirable pedestrian circulation mesh that may be used to evaluate the performance of a block are: i) 60-70m: very fine mesh – optimal for pedestrians; ii) 100m: fine mesh – very convenient for pedestrians; iii) 200m: very course meshed – inconvenient for pedestrians (Figure 8).

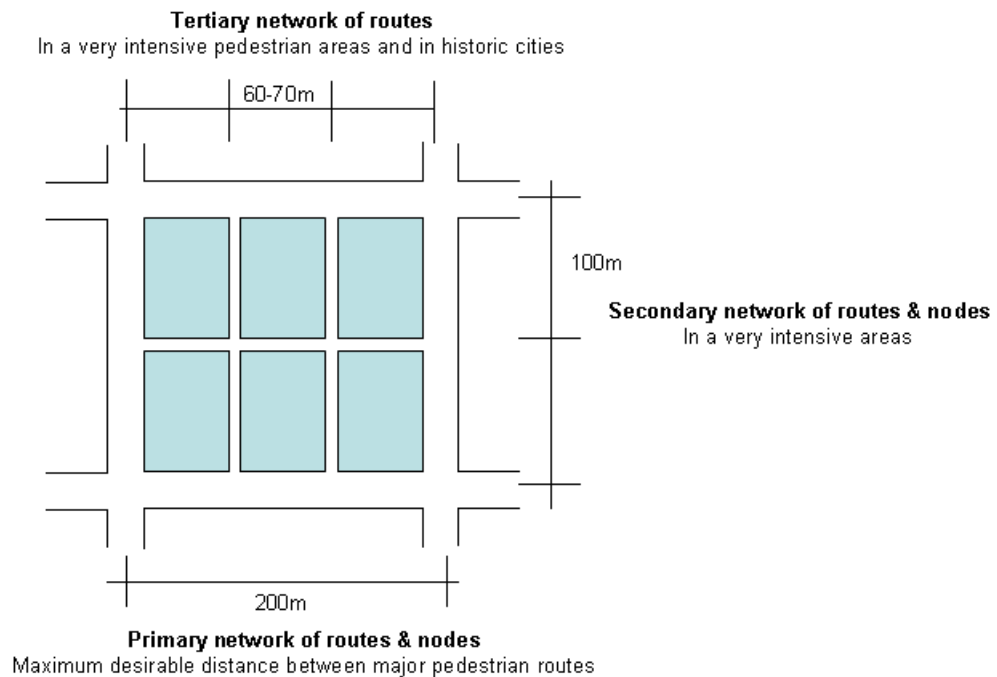


Figure 8 Desirable pedestrian circulation mesh (Siksna, 1997 based on Maitland, 1984; Panerai et al., (1980, p.156) and Tonuma (1981, 317-319). Redrawn by author.

Generally, there are various aspects that are important concerning this attribute: i) public access is central in waterfront development, ii) public views should be defined and protected, and iii) there should be alternative access to the water. The relevance of this attribute in the context of Kuala Lumpur will be evaluated in a later chapter. However, the parameters suggested by Siksna (1997, Figure 8) may be adopted.

b) Link the waterfront to the city

The attribute, 'Linking the waterfront to the city', was mentioned repeatedly in articles relating to waterfront development (Chang and Cervero, 2008; Malone, 1996; Craig-Smith, 1995; Tunbridge and Ashworth, 1992; Hayuth, 1988; Pinder et al., 1988; Mann, 1988). Many projects had not worked well due to the development of the waterfront area that did not link it to the city. One example can be seen in the earlier development of the London Docklands, which was far from the main financial area of the city and not connected with public transportation. The project suffered for many years because of the lack of this attribute (Malone, 1996). Craig-Smith (1995) stressed that the location of the site to the CBD is important for a successful project, especially compared to projects that are in peripheral areas. He gave an example of the Liverpool Garden Festival, which suffered because of this particular reason. Although the project was successful when it was first opened, the situation deteriorated due the lack of this attribute. It was different with the Baltimore waterfront project, where the importance of this attribute was realised and the initiative was taken to have a direct link to the city. A '*First-floor-level walkway*' was used to connect the commercial area in the city centre to the harbour side to allow ease of movement and high accessibility for pedestrians (Craig-Smith, 1995).

Hayuth (1988) considered that a link to the city from the waterfront is a major asset to the city and urban community, and has proved a catalyst in the efforts to revitalise the waterfront. However, the importance of this attribute was questioned by Pinder et al. (1988) who were looking from the market point of view as to whether having a city-oriented waterfront development is necessary when its potential is likely to be much less compared to other development efforts that can tap external investment. Tunbridge and Ashworth (1992) further argued from the business point of view concerning the necessity to link the waterfront to the city. They opined that it does

not ensure that the development of the business at the waterfront area can be rapid. Although it may not yet be proven in economic terms, the importance of the attribute 'linking the waterfront to the city' to ensure that people are able to access the waterside and allow the integration with the water has been stated by many (Chang and Cervero, 2008; Samant, 2004; Mann, 1988; Kotval and Mullin, 2001; Tunbridge and Ashworth, 1992)

Mann (1988) in his discussion concerning the Ten Trends in the Continuing Renaissance of Urban Waterfronts demonstrated the extent of the efforts that cities make to link the water to the cities. One of the main trends happening all over the world is the taming of highways to improve the accessibility from the city to the waterside. This can be seen in many parts of the world, such as in Portland Oregon where the public voted to demolish the Harbor Drive Freeway, and which has since been replaced by a 37-acre waterfront park. This was also the case in San Francisco, which replaced the double-deck freeways that ran parallel to the waterfront with an exciting landscaped boulevard. Boston, Oslo and Norway, also concealed their highway in road tunnels to re-establish a direct connection from the waterfront to the city. This trend is not only pertinent to western countries, as it can also be seen in Asia where the elevated highway in Seoul was demolished to connect the city to the long filled Cheong Gye Cheon River (Chang and Cervero, 2008).

The benefits of linking the water to the city were identified by Kotval and Mullin (2001) in their discussion on the Waterfront Planning as Strategic Incentives. They stated that it is important for a waterfront area to be integrated with the urban fabric and its community because it will add value to the community. Activities from the urban fabric will flow into the waterfront and the continuity will bring people closer to the waterside. Samant (2004) added that a direct linkage to the city from the waterfront will allow easy accessibility for the urban community to cross between these two places. However, some of the cities encountered problems in doing so. Tunbridge and Ashworth (1992) highlighted that some of the problems were due to the earlier constructions of railways and main roads, which usually took advantage of the linear land along the waterfront and, therefore, created a barrier between the city and the waterfront area.

Based on the discussion above, two main perspectives have been highlighted. Some highlighted disagreements concerning the importance of this attribute, especially from the economic point of view. However, many stressed the importance of this attribute in bringing people to the waterfront and water. In considering the contextual point of view, this point is necessary to allow the flow of activity from the city to the water's edge and to integrate the water with the city, otherwise they may continue to be the backyard of the city. The importance of this attribute in the contextual integration of the waterfront development with the water will be evaluated in Kuala Lumpur. Based on the discussion above, there are two ways to link the waterfront to the city – transportation or allowing pedestrians to walk directly from the waterfront to the city. In order to evaluate this dimension in the context of Kuala Lumpur, as the waterfront is within walking distance of the city centre, the crucial aspect that has to be considered is the pedestrian. Therefore, the method of evaluation using the pedestrian mesh recommended by Siksna (1997) may be adopted and modified to evaluate this attribute in Kuala Lumpur.

c) Continuous pedestrian linkage along water

A continuous pedestrian linkage is another attribute extracted from the literature that was found to be one of the important aspects to contextually integrate the waterfront and the urban river. First, it can enhance the polluted waters and bring people back to the water. How can this be achieved? Kotval and Mullin (2001) highlighted that by providing continuous walkways and cleaning up long forgotten rivers, naturally makes the buildings along them re-orientate their entrances, thereby providing a double frontage to both the city and the river at the same time. This effort allows the public to have access and appreciate the river. Mann (1988) explained that the success of San Antonio, Texas is due to the same approach, which transformed a polluted river into a vital element that was successfully integrated into the city fabric by introducing the pedestrian path along the river level. Furthermore, the Coastal Commission of California (Boyd, 1985, p.22) stressed that to achieve this it is important that *'new access areas are linked with already existing or proposed public access ways to provide continuous walkways to and along the coast areas buffered from vehicular intrusion'*.

According to Lynch and Hack (1984, p.205), a continuous pathway will allow the user to experience '*the sequence of space and form*' and will allow them to be able to understand the order clearly, while at the same time being able to compose a functional and natural expressive image of the site. This theory supports the importance of this dimension in order to allow the public to experience the spaces and form of the place, which includes the waterfront and the urban river.

Second, it may enhance the quality of life and safety aspects of the area (Wakefield, 2007) by allowing the community to connect to their past. Furthermore it may give ample chances for leisure activities and at the same time allow people to be closer to nature. May (2006) highlighted, that recently, many restoration projects have shown a change in the mindset of the Americans concerning their response towards the river. This can be seen when neighbourhoods realise that severing the connection between the neighbourhood, the city amenities and the river had made the neighbourhood unsafe. Linking the neighbourhood, the city and the river through continuous pedestrian linkage along the waterfront enhances both the amenities and the safety aspects of the area thereby bringing people back to the water.

Third, many revitalisation efforts improve living quality in their cities when they exploit environmental amenities by allowing accessibility to the water using promenades along the water (Hoyle, 2001). In Hoyle's discussion of the revitalisation of the waterfront in the East African Port-City in Lamu he described that the activity spaces are connected in many ways- along, over and on the water'. This finding is consistent with Tunbridge and Ashworth (1992, p.181) who summarised the types of relationship between waterfronts and the water as: '*a) accessibility, over both land and water, b) environmental amenity, resulting directly from the contact of land and water, and c) particular types of activity space along, over and on the water (such as promenades)*'. Attributes (a) and (c), as highlighted above, are related to the principle of legibility that was discussed previously. In the eastern part of the world, this attribute is also considered important. In some cities, the continuous pedestrian linkage is also manifested in the continuous steps of the Ghats in Ujjain, India which line the whole stretch of the waterfront along both banks of the city. Although in a different form, the concept of having a public pathway and steps throughout the length of the river is still evident in a different context (Samant,

2004), without which, Falk (1992) stressed, it may contribute to the lack of a public realm. In his article, 'Turning the Tide: British Experience in Regenerating Urban Docklands', he included the comments of an American expert concerning the London Docklands development, who highlighted that the development is lacking in the public realm because of minimal accessibility to the water and the lack of continuation of the pedestrian pathway at the riverside area. This indicates the importance of this attribute in bringing people to the water.

In addition, there are also those that discussed the aspect of traffic barriers disrupting the continuous pedestrian linkage or access along the waterfront. Although it is very much related to the streets, it is also related to the waterfront because many waterfronts do have streets or roads in their vicinity, which can sometimes be an obstacle for people to reach the waterfront. Moughtin (2003, p.132) stressed the necessity of separating high-speed traffic from pedestrians, which can be done by providing wide pedestrian walkways with trees that separate them from the road. This is because he acknowledged that a '*total separation of vehicles and pedestrians*' may be detrimental to the development of streets that are active and lively. Although this work suggests the importance of tamed traffic in order to have 'walkable streets' it does not provide an assurance of the vitality (Owens, 1993, p.117).

The impact of automobiles on pedestrian life in the street is undeniable (Appleyard and Lintell, 1972). This is very much related to the street design. Untermann (1987, p.128) stated that after nearly twenty-five years of residential streets being designed to cater for the comfort of the automobile and the safety of the drivers it results in a less inviting street for the pedestrians to walk. Consequently, there is increasing concern regarding the traffic barrier issues to city residents. That is the basis of the *woonerf* ('living yard') concept for modern traffic calming, which originated in the city of Delft, the Netherlands in the 1960s, and spread rapidly throughout Europe, New Zealand, Japan Australia and other developed countries (Stillings and Lockwood, 1999). However, this may indicate that waterfronts that have heavy traffic barriers too close to the water may prevent easy access to the water. Based on the discussion, continuous pedestrian linkage along the waterfront is considered an important attribute to contextually integrate the waterfront with the water. This may be an important aspect that needs to be considered in the evaluation of the Kuala

Lumpur waterfront because, based on the morphological analysis; eleven out of eighteen of the waterfront treatments in Kuala Lumpur are governed by streets or roads (Chapter five).

Functional Dimension

3.2.3 Vitality

To understand the contextual integration further, it is important to look at the functional aspects highlighted by Carmona et al. (2003) in relation to the activity and uses at the waterfront area. In the integrative theory by Sternberg (2000) this can be related to the principle of *vitality*. This principle is advocated by Jane Jacobs in her valuable book *Death and Life of Great American Cities* (1992). Jacobs criticised the planning of the mid-century, which neglected the importance of the diversity of urban life through the creation of dead vacant zones, ‘clearing’ the city through the urban ‘renewal’ programme and planning to separate uses through the concept of zoning.

In achieving balance, cities should have bustling streets with a mixed use of activities, as well as quieter streets for residential areas (Jacobs, 1992). Through vitality her ideas promote integration across the property lines and relate well to the integrative theory (Sternberg, 2000). This is also accorded by Browser (in Nasar, 1998, p.78), who highlighted that people do not really want to see sameness in all parts of the city. They prefer some areas to be restful and others to be full of excitement. In reference to this principle to choose the related attributes for the integration of the waterfront development and the urban river, two main attributes are extracted from the literature: i) continuous activities at the buildings along the waterfront and ii) the diversity of activities in the area that allow the user to stay longer at the water edge. Further discussions on these attributes follow.

a) Continuous activities along the waterfront

The importance of continuous activities along the waterfront to connect the waterfront to the water are agreed by many (May, 2006; Wakefield, 2007; Anon.,

2009; Mann, 1988). Its importance is similar to other public spaces and closely related to the 'building enclosure' [refer 3.2.1 (c)]. However, continuous activities along the waterfront focus on the functional dimension instead of the physical dimension.

Trancik (1986, p.220) mentioned that it is important to have a continuous wall as the frontage of a public place to create an enclosure of space and provide a setting for activities to happen at the ground floor area. With activities happening at ground level, people can interact with both the waterfront and the water. Trancik further explained that the frontage's character and the continuous wall are the most important factors in determining the public place's success or failure. In relation to the waterfront, 'continuous activities along the waterfront area' is a representation of continuous walls. As mentioned by Petrillo (1985, p.20), it is the variety of the activities in different '*shape, scale and locations*' that makes one's journey become meaningful and pleasurable.

Owens (1993, p.126) opined that buildings that are closely spaced would transform the sidewalk or street into a '*strong spatial enclosure*'. This is especially so if the buildings are a '*mixed use commercial area*', as the buildings create an edge to the street rather than '*a free standing object in a space*', whereas, if the buildings are spread apart from one another the definition of the street is weakened. Jacobs (1992, p.40) opined that having continuous activities along the streets will provide a natural surveillance and feeling of safety for the user, '*there must be eyes upon the street, eyes belonging to those we might call the natural proprietors of the street...and....the sidewalks must have users on it fairly continuously, both to add to the number of effective eyes on the street and to induce the people in buildings along the street to watch the sidewalks in sufficient numbers*'. Is this applicable to the waterfront context? This will be looked at in the evaluation in chapters six and seven.

Continuous activities in the urban space can be experienced through dynamic and static space. McCluskey (1992) suggested that the urban environment comprises a system of places that are connected by routes. The dynamic spaces are mostly linear in shape that can be related to 'route'. However, static space may be in the shape of a square or circle and can be related to 'place'. A clear example in the urban area can

be seen in the terraced buildings that create a 'route' and clustered layout of buildings that form a 'place'. The static space provides a '*sense of completeness and rest*'. The dynamic space implicates the sense of '*change and movement*'. He opined that a good townscape, which is primarily concerned with creating a sense of place, should aim at increasing the static and reducing the dynamic aspects of space. This attribute relates much to the activities of the pedestrian user.

Therefore, in order to understand this attribute further it is important to understand the concept behind pedestrian activities. As there are limited studies concerning the users at the waterfront area, the research is oriented to look at the literature concerning pedestrian activity in street life and public places as waterfront areas fall in the same category. It is very important to first define the meaning of pedestrian activity. According to Owens (1993, p.117), pedestrian activity refers to 'travel mode'. The word 'pedestrian' refers to '*one who travels on foot*'.

According to Rapoport (1987), the pedestrian activity can be divided into two main principle types, which are '*dynamic*' and '*static*'. Activities that can be categorized in the dynamic activities are running, strolling and walking, or, if there are children in the area, it also comprises crawling, hopping, dancing and others. Activities that can be categorized in the static activities are standing, leaning, working, sitting, talking, pottering and squatting. This is consistent with the significant study by Gehl (1986) on the '*coming and going*' activities and also '*staying*' activities'. He argued that the pedestrian activities vary according to the quality of the environment. There are three categories of activities highlighted – '*necessary*', '*optional*' and '*social/resultant*'.

The necessary activities are those that will happen and that are not dependent on the environment, such as walking to work or to school, which do not depend so much on the quality of the environment because they need to be done regardless. However, optional activities are those activities that result from the situation and are highly sensitive to the surrounding environment such as sitting and strolling. These are more likely to happen if the environment is more inviting. The social or resultant activities are activities that happen when other people are around in the same area. The

optional and resultant/social activities ensuing from the integration of the waterfront area with the water are the ones that are going to be investigated in this research.

Gehl (1986) emphasised the importance of having a strong physical and psychological link between the indoor areas with the outdoor areas. The aspects that can influence the link are the arrangement of the interior activities, the distance between the sidewalk and the house itself and the 'quality and comfort' of the spaces between. This can be referred to as the space between the waterfront development and the urban river. If the space is too little or does not have any setback, it will not allow any activity to happen. However, he stressed that if the distance is too wide (beyond 18ft), it will discourage the link between the house and the street. This concept is similar to the waterfront form described earlier by Owen (1993) concerning setback buildings, if the passage or quay is too wide, the presence of water will not be felt. An edge that is monotonous will increase a person's perceived distance and this can also discourage walking. In the same light, Gehl (1986) stressed that both the quality of the route and its length are important to encourage walking. This again shows the importance of having continuous activities.

Rapoport (1987) stated that other than the physical environment, variables that will also affect pedestrian street life are perceptual and cultural variables. Different traditions from different social and cultural groups, as well as their customs and habits will also affect the activities of people in the street. An activity that is acceptable in India may not be acceptable in America and vice-a-versa. For the purpose of this study, although the perceptual and cultural aspect is acknowledged as important it will only be included to understand the context and will not be considered in detail because it is not within the scope of this research (Chapter 1).

To understand the concept of pedestrian activities it is important to appreciate why continuous activities along the waterfront are imperative. May (2006) and Wakefield (2007) opined that having continuous activities along the waterfront will create balance between the built environment and natural environment and encourage sustainability through an attractive and lively urban river. This is also consistent with the opinion of the Project for Public Spaces Team (www.pps.org), who has more than thirty years of experience in designing public places including waterfronts. They

suggested the importance of having continuous activities for pedestrians and that a wide variety of activities is vital for positive integration between the waterfront and the water. These activities would entice people to come to the water's edge either on foot or by bicycle. They also provide the opportunity for the visitors and residents alike to experience the river closer (Mann, 1988). It is apparent that continuous activities along the river is one of the key attributes that may contribute to the integration between the waterfront and the urban river; the importance of this attribute in the context of Kuala Lumpur will be discussed in Chapter seven.

b) Diversity of use

The final attribute extracted from the literature in relation to vitality is diversity of use. Concerning diversity of use, Hoyle (1994, p.24) stressed the importance of a '*careful blending of land and water use*'. This is because water is an amenity – the right of everyone. The integration of both land and water is significant to allow for a '*more dynamic opening onto the water*' and vibrant waterfront area (Mann, 1988, p.184). This mix of activities makes the waterfront and its water an inseparable entity (Samant, 2004). A public place in a city can also become lively if it maintains its sense of place and reinforces its uniqueness that originates from the diversity of uses (Balsas, 2007). This is similar to streets, according to Schumacher (from, Moughtin 2003) the liveliness of the street depends on the variety of activity and attraction it can offer and will make the user stay longer. This is because human activity can enhance the waterfront area and add to the natural setting (Petrillo, 1985). This indicates the importance of this attribute to integrate the waterfront and the water.

Furthermore, according to Luymes and Tamminga (1995, p.399), '*the use of public space tends to lead to more use*. Activity will invite people to the area and with other people around, it will attract more people because they feel safe in the presence of other people. They opined that the existence of activities in a place may be of more importance than the physical design of the place in giving the sense of safety. The importance of this attribute is further strengthened through Handy's (1993) study, which found that the older mixed neighbourhoods have a higher number of monthly pedestrian walking trips compared to the newer segregated neighbourhoods. This

finding is important in relation to this research because it shows that a neighbourhood, which has mixed uses, can promote more activity compared to a neighbourhood that has segregated uses.

According to (Wrenn et al., 1983, p.28), waterfront use can be defined by two parameters, which are the type of land use and water dependency. Land use in this context refers to whether the waterfront is mainly used for industry, commercially dominated, resort areas, working waterfronts or has a mix of commercial, residential, transportation and recreational. A significant difference between waterfronts can be identified in terms of the water dependency of the uses. These can be categorized into three categories, as shown in Table 8 .

Table 8 Three categories of waterfront dependency (Wrenn et al., 1983)		
Type	Function	Example
Water dependent	activity that depends on the water without which it cannot function	port, marine construction and repair, ferry and passenger service, marina and moorage and tug and barrage company
Water related	activities that have the advantage of being close to the water but can also function in other areas	lumber mills, seafood processing plants, resorts, park, restaurant and aquariums
Water independent	activities that can function equally in other areas of the city without the water	hotels, apartment buildings, warehouses, residential and retail

The degree of waterfront dependency also depends on the constituency of the uses, that is, the perspective and the purpose of the user (Wrenn et al., 1983, p.28). The constituency can be defined into two categories. The first category is the primary constituency, which consists of *‘people who use the waterside area for residence, place of work or recreational’* and, thus, related to the waterfront for *‘housing, industry, commerce, transport and leisure activities’*. The second category of constituency is *‘those who view river areas as public resources’*. They are more concerned about *‘the quality and use of waterside areas even if they themselves may not directly use the resources’*.

Most of the literature stresses the importance of preserving or introducing water-enhancement/related and water-dependent activities at the waterfront area to allow the public to be closer to the water (Wakefield, 2007; May, 2006; Samant, 2004;

Kotval and Mullin, 2001; Hoyle, 2001; Fagence and Craig-Smith, 1995; Falk, 1992; Pinder and Rosing, 1988; Mann, 1988; Tunbridge, 1988; West, 1989; Wood, 1965). Since the early efforts of waterfront redevelopment in the 1960s, activities that enhance/relate or are dependent on the water have been encouraged. Wood (1965) stressed that new developments at the waterfront should not reduce the opportunity of the general public to enjoy the water. The Coastal Commission of California (Boyd, 1985, p.22) highlighted that *'public use areas should be made inviting in terms of size and location and private structures are set back from public areas to avoid any sense that public uses intrude into private areas'*. This is similar to Tibbalds (1992) who stressed the importance of prioritising the public use at the waterfront.

Offering another point of view, Kotval and Mullin, (2001) stressed the importance of planning waterfront developments to be part of the water as a whole to maximise the potential, and emphasised the water dependent and enhancement type of activities. They urged that water-dependent activities should be considered in the earlier part of the redevelopment before any other activity takes place. Petrillo (1985) opined that it is also important to consider the existing surrounding activities in making sure that the new construction of the urban waterfront will be compatible with the type of use of the existing surrounding. This is to avoid introducing something that is out of place or not acceptable to the locals themselves.

Some cities increase the waterfront attachment through commercial investment by having a diversity of uses through their public water transportation such as ferry services and waterbuses. Waterfront transportation is also very much related to recreational appeal (Tunbridge, 1988). However, West (1989) stated that in North America, many of the renewal efforts concentrated on waterfront enhancement/related activity, which has a higher benefit, both environmentally and economically, compared to waterfront dependent activities. This is because waterfront dependent activities are considered low-profit operations. The work of Abbas (in West, 1989, p.465) raises that they are only operated because they are perceived to be more related to the waterside activity than for profit-making motives.

This may be one of the reasons why many of the waterfront development schemes do not have a high degree of water dependency (Wrenn et al., 1983). They opined that maybe the importance of the water dependency is not fully appreciated. They highlighted, as mentioned by Lynch et al. (1976), that even the degrees of integration of the waterfront use with water are rarely evident. Most of the waterfront development does not take full advantage of being at the waterfront location. Whereas, Falk (1992) stressed that one of the key factors of the success of waterfront development is because of its proximity to the waterside. These open up new opportunities for recreational activity and, at the same time, integrate with the water space. Fagence and Craig-Smith (1995) highlighted that some waterfront developments, despite having a conspicuous location near the water and a close distance to the CBD area of the city, do not take advantage of having water dependency activities and are more reliant on the close proximity to the CBD. Therefore, they opined that it could almost be transferred to any other part of the city. This shows that waterfront development should not only reflect the location and aesthetic advantage of the water frontage but at the same time should also show the same concern for a variety of uses, including water-dependent use.

However, it is not only important to have a variety of activities but it is also very important to determine the waterfront uses (Wood, 1965). One of the objectives is to minimise the pollution of the water. This is imperative because pollution will lead the public to distance themselves from the waterside (Cruikshank and Bouchier in Wakefield, 2007; Pidwill, 1993; Syms, 1993; Tunbridge, 1988).

The discussion above suggests the importance of diversity of use and the importance to avoid building use which can pollute the water in order to integrate the waterfront development with the water. The significance of this attribute to the Kuala Lumpur waterfront will be evaluated in a later chapter.

3.2.4 Comfort

Sternberg (2000) highlighted comfort as one of the principles that advocates integrative theory. The attributes to evaluate the level of comfort in relation to the integration of the waterfront and the urban river are drawn from literature. Literature

that specifically discusses comfort at the waterfront area is minimal. Therefore, for the purpose of this research, resources that discuss comfort for streets and public areas are used as references due to their similarities in the category of public place. The attributes chosen are those relating to the condition and climate of Kuala Lumpur. They include those that promote the optional and social/resultant activities (refer 3.2.3a) and allow the users to stay longer at the waterfront area. According to Carr et al. (1992) there are five major reasons why people go to public places, these are for '*comfort, relaxation, passive engagement with the environment, active engagement with the environment and discovery*'. He identified comfort as the most basic of needs.

According to Slater (in Sakar, 2002, p.3), the definition of comfort comprises '*a pleasant state of physiological, psychological and physical harmony between a human being and the environment*'. The three factors are interrelated with each other and a good mix of all will provide overall satisfaction to the user. However, for this research the definition of comfort is the '*level of comfort*' of the user, which will promote the integration between the waterfront and the urban river.

Slater viewed that comfort in relation to the functional dimensions can be enhanced by an attractive and comfortable environment. This includes shade (in hot weather areas) or access to sun (in cold weather countries)(Gill et al., 2007; Chronopolous-Sereli et al., 1999; Sakar, 2002; Luymes and Tamminga, 1995; Carr et al., 1992), seating area (Porta and Renne, 2005; Carr et al., 1992; Whyte, 1980) and lighting (Liebl and Korth, 2000; Marcus and Francis, 1998; Luymes and Tamminga, 1995; Carr et al., 1992; Peters, 1983). 'Universal design' is also outlined as an aspect that is part of comfort which may create integration to a place (Dai, 2009; Gaik Bee, 2009; Sternberg, 2000; Manley, 1998; Carmona, 1996a and Carmona, 1996b). The lack of these attributes will eventually evoke an image that is negative and result in a psychological reluctance to use the area (Carr et al., 1992). However, are these attributes important to create the contextual integration between the waterfront and the urban river in Kuala Lumpur? Further discussion on the attributes will be discussed in the following sections.

a) Seating

Seating plays a role on how people interact with the space. Carr et al. (1992, p.89) provided the example of the Boston City Hall Plaza and how the benches are located at the western part of the plaza, which does not encourage people to sit in the area because as critics once described *'they are immovable, uncomfortable and oriented inwards, away from any activity that might be occurring on the plaza'*.

The orientation of seating that responds to the surroundings plays an important role for the public to enjoy the view such as orienting seating to face the river (Carr et al., 1992, p.94). It is also important to have *'comfortable and sufficient'* seating in a public place (Carr et al., 1992, p.92). This is in accordance with the findings of Whyte (1980, p.28), who, after some years of research, also confirmed the need for *'sittable space'*, which is properly oriented and comfortable. He further stressed the need to provide a choice of *'sitting up front, in back, to the side, in the sun, in the shade, in groups and off alone'*. The water presents a view for people's enjoyment, and to create integration with the water many seating areas can be arranged to face the water accordingly. These examples can be seen in many waterfronts such as the Battery Park City, Circular Quay, in Sydney and many others. Burton and Mitchell (2006, p.113), in referring to street design in their book *'Street for Life'*, highlighted the importance of seating and suggested that it should be provided at every 100m to 125m along a street. This measurement may be considered for use along waterfronts as they are also a public place.

Generally, there are several aspects that need to be taken into consideration in this attribute. These are: i) the seating should be oriented towards the water, ii) choices of immovable and movable, iii) comfortable, iv) sufficient, v) shaded, and vi) various choices for groups or individuals. The importance of which has been stressed by many. However, it still needs to be evaluated for Kuala Lumpur to ascertain its relevance in that context.

b) Shade

One of the major factors concerning comfort, as highlighted by Carr et al. (1992, p.92) is *'relief from or access'* to the sun. Based on the study done by the Chicago

First National Bank (see Rutledge in Carr et al. 1992, p.93) this has been found to be an important factor relating to the people's satisfaction with an area. In the context of Kuala Lumpur, relief from the sun is important as the climate is hot and humid.

Urban greenspace functionality is growing in importance in this changing climate. Based on the climate change scenarios in the UK (Gill et al., 2007, p.116) it has been suggested that there will be a possible increase in temperature from one degree to five degrees by 2080. Gill et al. (2007, p.127) suggested a strategy to adapt to the rising temperature by preserving the greenspace and at the same time enhancing it in areas like streets, public areas and private gardens. Based on Chronopolous-Sereli et al. (1999), an area covered by vegetation will have a lower temperature compared to an area which is not. They also found that the presence of vegetation at the periphery of a square may disperse pollutants from reaching to the inner part of a square. Based on the study by Gill et al. (2007), it was suggested that a mature tree can provide a cooler surface by 15.6° Celsius. The role of trees in cooling the area and providing shade has tremendously increased in importance. This attribute will be evaluated to ascertain whether it is important for contextually integrating the waterfront and the urban river in Kuala Lumpur.

c) Lighting

Another attribute concerning comfort that is identified as being important in promoting contextual integration between the waterfront and the water is lighting. According to Peters (1983, p.1), lighting is decisively important in experiencing public places. *The making of places means the interplay of light and space, light and form, light and surface, light and texture, light and pattern, light and color and most important, light and human activity*'. This situation can also be related to the waterfront environment because it is also a form of public place.

In outdoor environments, such as waterfronts, lighting can provide a '*symbolic meaning*' to the public through its capability to create significant spaces and forms by being a directive force for our visual awareness (Peters, 1983, p.5). This is important because the lighting design should be able to provide the '*maximum sense of identification to form the place itself*'. It also has the strength to stimulate activity

and attract people from other areas to the area. This is very closely related to the integrative theory promoted by Sternberg (2000) in connecting across property boundaries. Mann (1998, p.196) pointed out that through lighting the various environmental arts created at the waterfront area also provide a strong memorable experience to the visitor. He gave an example of the Detroit River, '*it is the total fabric of lighting, permanent and ephemeral, which defines the magic of the river by night*'. This gives an indication of the importance of lighting at the waterfront to integrate with the water.

Liebl and Korth (2000) stressed that the lighting at the waterfront is crucial because it will allow the public to continue to have night-time activities at the waterfront. This is not possible or safe under normal night-time conditions without any lighting. However, Liebl and Korth (2000) argued that although it is important to provide lighting along the waterfront to guide boaters or other water activities, sensible lighting is essential to avoid glare because water can reflect light causing glare, which can be a dangerous hazard to boaters, cyclists and drivers. Peters (1983) stressed that lighting should provide excitement, providing emphasis and interest to an area, while at the same time providing a sense of comfort, and satisfying the psychological and physical needs. Although this is agreed by many, it is different for beach type waterfronts that have turtles nesting. Murray and Robus (2007) argued that the excess of artificial lighting from waterfront developments could create lighting pollution. It can be detrimental to turtles that depend on natural night lighting for their bearing to go back to the sea, and can prove fatal to the turtles (Knowles, 2007). For this kind of waterfront the lighting must '*follow the three Golden Rules of correcting lighting problems: keep it low, keep it shielded, keep it long (wavelength)*' (Knowles, 2007, p.6). This shows that the provision of lighting depends on the needs of each waterfront.

However, the importance of lighting in providing psychological comfort in terms of security and safety has also been stressed by many (Farrington and Welsh, 2002; Pain and Townshend, 2002; Painter, 1996; Luymes and Tamminga, 1995). This is vital as part of the perception of danger is darkness and if the place is considered unsafe it will be avoided, especially by women (Luymes and Tamminga, 1995). Hence, people will not come or stay longer in the area to be connected to the water.

Thus, this will reduce the contextual integration between the waterfront and the water. Therefore, lighting is an important attribute that has to be considered in enhancing the integration between the waterfront and the water. However, the provision depends on the needs of each waterfront. The importance of it to the Kuala Lumpur waterfront will be evaluated in a later chapter.

d) Universal design environment

The universal design environment is highlighted as being another important attribute to achieve comfort. The definition of universal design is usually inappropriately considered as being similar to barrier free. According to Ostroff (in Saito, 2006, p.463) barrier free is defined as *'a design concept to make a built environment accessible to people with physical disabilities and/or older people by removing architectural barriers present in existing buildings'*. However, universal design was viewed by Mace (1988 from Preiser and Ostroff, 2001, p.1.5) as *'an approach to design that incorporates product as well as building features which to greater extent possible can be used by everyone'*. The focus of universal design is on all types of people in the society and not only disabled people (see Ostroff in Saito, 2006, p.463).

According to Manley (1998, p.155), who frequently interchanged the term 'barrier free' and 'universal design', areas that adopt the universal design may increase the percentage of people using an area. With the barriers still in the environment, disabled people will seldom go to the outside environment (Dai, 2009). In relation to the waterfront area, having a universal design environment is an important attribute to invite various types of people to the area, thus, allowing them to enjoy the river. It can be related to the integrative theory by Sternberg (2000) because it allows for the integration across the property boundaries.

Manley (1998) stated that achieving a real quality environment is only possible if it is accessible to all. She opined that a universal approach that considers the needs of all users is an important consideration for every urban design project that involves the activity of people. Although this aspect is becoming more acceptable to urban designers, there are still some who do not concur with these attributes and refuse to

consider it as a basic requirement in the design (Manley, 1996; Wilkoff and Abed, 1994 in Manley, 1998). Manley (1998) questioned that as the list involves nearly all categories of people, including pregnant women, people who are temporarily impaired and children, it is a wonder why universal design is still of little interest to many. She opined that the role of the authorities and decision makers in drawing the policies and implementing them is also found to be an integral aspect in fulfilling the basic civilized human needs of future urban design. The aspects relating to decision makers will be discussed in Chapter 5. However, Dai (2009) stressed that universal design in public facilities is a non-ending solution and a process, which is lasting. If that is the situation, how best do we evaluate a universal design environment?

According to Dai (2009), currently there are no widely accepted standards to evaluate this attribute because as social life progresses there will be various solutions for every problem and the universal design will keep on continuing to develop. However, Manley (1998) drew up a possible checklist to evaluate the universal design in an area (Figure 9). This guideline may be adopted and modified to evaluate the waterfront in the Kuala Lumpur context. Manley (1998) stressed that although universal design is only one of the attributes mentioned as part of the Health Check Indicators (URBED 1994 in Manley, 1998), its inclusion plays a significant part in achieving vitality and viability of a more sustainable city in the future. This is because it will not only benefit the minority groups, who are in need, but rather the whole city community. The importance of the attribute to contextually integrate the waterfront and urban river in Kuala Lumpur will be evaluated in a later chapter.

Parameters	Condition
Disorientation - lack of indication of direction/ structure of routes	
Dead end - no perceived exits	
Dangerous corners	
Threatening fringe area: potential ambush	
Threatening area: e.g from groups of people	Night
	Day
Dark/light area	Night
	Day
Exposed area: need for shelter	
Desire line not to follow pathway	
Area too distant from bus stop	
Pedestrian/ vehicle conflict	
Blank, alienating walls at street level	
Lack of safety barrier	
Lack of seating	
Obstructed footway	Permanent fixtures
	Temporary fixtures
Uneven surface (footway)	
Slippery surface (footway)	Wet & icy conditions
	All weather
Ramp too steep	
Steps barrier: no alternative change of level	
Kerb barrier	
Threshold barrier	
Narrow doorway/corridor/passage	
Doors difficult to open or close	
Noise nuisance	Intermittent
	Frequent
Fumes/ smell nuisance	Intermittent
	Frequent
Pedestrian Crossing Safety	Score 1:poor - 5 excellent
Adverse slope	
Bicycle/ pedestrian conflict	
Signage inadequate	
Dangerous edge	
Tactile ramp too steep or dangerously laid	
Eye level hazard	
Narrow footway	
Street furniture causing obstruction	

Figure 9 Parameters to evaluate a barrier free environment. (Manley, 1998, p.165)

3.2.5 Meaning

The discussion in Chapter 2 shows that the response of waterfronts to the water can be understood through the human responses towards the place. In Table 5, the three attributes (perception on the use of place, awareness and association of place) are related to the principle of meaning in the integrative theory of urban design. This is because, according to Carmona et al. (2003), meaning and connection can only exist through the people in the area because it is their judgement that defines the site's significance and its connection to the wider surrounding. The importance of meaning has recently been identified as an important aspect in the practice of urban development (Norberg-schulz, 1980). Sternberg (2000, p.38) identified it as an important principle that explains the integrative theory. He stated that meaning lies in the capability of an urban environment to portray '*history, tradition, nature, nationality or other themes which solidify identity*' of the place. He stressed that design with meaning must originate from the '*indigenous character*', which includes '*local land form, local history and local culture*' of the place. This principle is significant to avoid the practice of thematisation or McDonaldisation (Mann, 1988.) in many types of development in every part of the world including the waterfront. Trancik (1986, p.112) opined that only when a space is given a contextual meaning does it become a place that can come from the regional and cultural content.

In short, Steinitz (1968) stressed that it is important to have an understanding of the interaction between the physical and functional dimension of the built environment in order to have a meaningful environment. He added that an expressive place, which is very aesthetic, is not meaningful without any activity. This is parallel with Carr et al. (1992) who explained that in order for a space to be meaningful and for people to feel connected to it, a few fundamental requirements are important. Interestingly, these include both the physical and functional dimensions, which can be related to the four principles discussed earlier (good form, legibility, comfort and vitality). First, it has to be 'legible', having clear cues that the users can understand (refer to 3.2.2). Cues that are able to communicate the kind of place that is offered and provide a sense of welcoming to the user.

Second, users must be able to create a bond with the space and through sharing it with others heighten the meaning further. This can be related to the statement by Norberg-schulz (1980, in Sternberg, 2000, p.10) who mentioned that '*nature forms a comprehensive totality, a 'place' which according to local circumstances has a particular identity*'. This shows that the natural form is important to provide meaning to a place. This can also be related to the statement by Carmona et al. (2003, p.260) who highlighted that a respectful urban design is a design '*that builds on established patterns of development and association with place*'. They provided an example of a park that does not have any opportunities for activities that are relevant to a person. Consequently, the person may not be able to associate with the place. The three writers mentioned human responses towards form (nature and built form), space and activity, which can be related to the principle of good form and vitality (refer 3.2.1 and 3.2.3) discussed earlier. This is similar to the quality of 'variety' promoted by Bentley et al. (1985), which has an interrelation between built form, uses and meaning to the user. In addition, Carmona et al. (2003) highlighted another important attribute of meaning, which is 'the association to the place'.

Other related qualities such as comfort and sense of safety are considered important for a positively meaningful place compared to places that are dominated by dangerous and unfriendly people, such as drug dealers who will give a negative meaning to the users (Carr et al., 1992). This can also be related to the earlier discussion on the principle of comfort.

According to Sternberg (2000), meaning can be sought across property boundaries but it does not mean that we have to necessarily imitate the indigenous character. Meaning may come from its history or may refer to the contemporary situation, because in order to relate the development to its meaning it does not mean that we have to dress it up in history (Sternberg 1999 in Sternberg, 2000, p.275), we can always express it in the contemporary way. It is the contemporary meaning of the contextual integration between the waterfront and the urban rivers of Kuala Lumpur that this research seeks. It is essential to note that many of the developments that respond to the market have the tendency to fragment the meaning of the place. This is avoidable with the awareness of the designers, who can be creative in preserving or enhancing the meaning of the place with the development (Sternberg, 2000) and

also the awareness of the decision makers involved (Hoyle, 2002). Further discussion on the decision makers involved will be included in Chapter 5.

1.7 3.3 The theoretical framework based on the integrative theory of urban design

Based on the earlier discussions the theoretical framework can be summarised in Figure 10 below. The attributes that are categorized in the principles of good form, legibility, vitality and comfort (that belong to both the physical and functional dimensions) are important to achieve contextual integration between the waterfront and water. The result of contextual integration (which relates to the concept of the response of the waterfront to the water) can be known through the human response, i.e. meaning (through the three attributes, which consist of use of place, awareness and place association). Therefore, the interrelations of these aspects are important to achieve contextual integration between the waterfront and water.

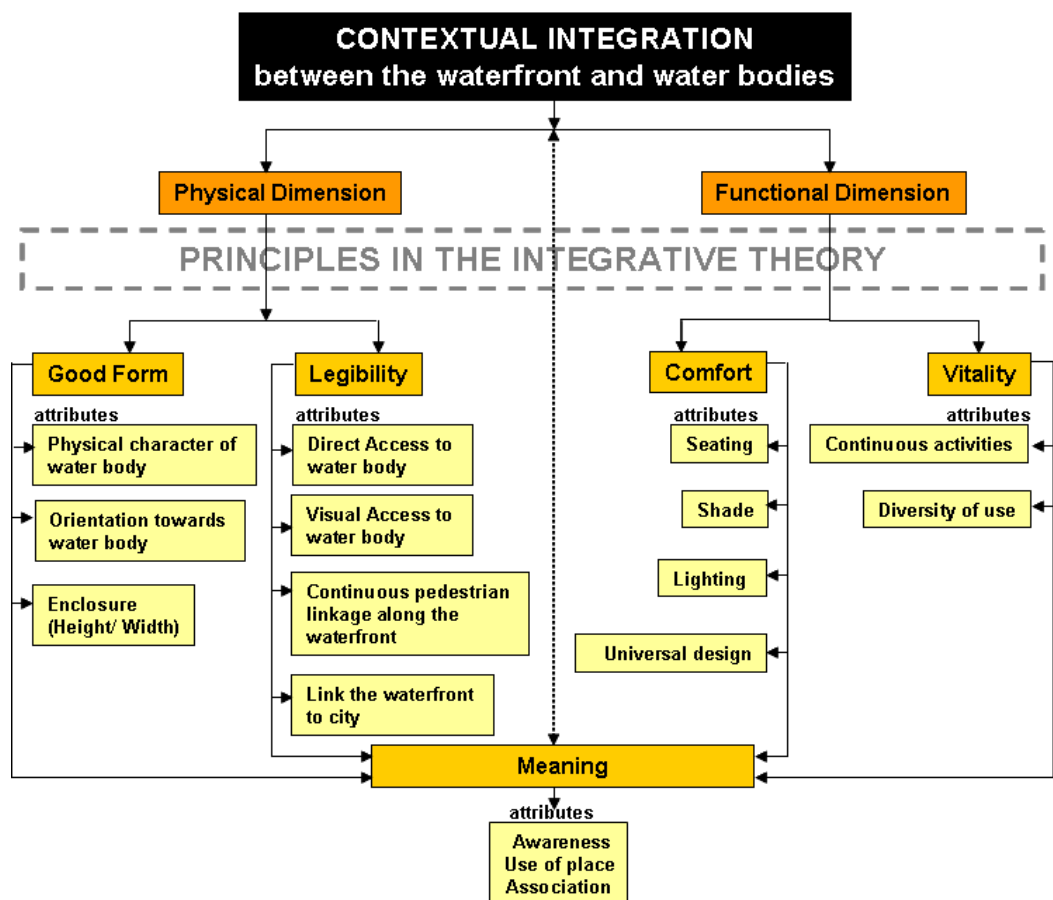


Figure 10 Theoretical framework for the fieldwork in the context of Kuala Lumpur

3.4 Conclusion

The main aim of this chapter is to examine the relevant principles and theories that can be used to develop the theoretical framework for this research. The discussions show that there is similarity between the concepts of waterfronts' response to the water with the concept of urban design. It comprises several attributes (of the physical, functional dimension) from the context and the user experience, which promotes contextual integration as one of its key factors. All the authors that discuss urban design have stressed the importance of contextual integration. This shows that the response of the waterfront to the water can be evaluated through the level of the contextual integration of the relevant attributes from the context.

Adopting this concept and relating it to the urban design, integrates several key principles of urban design. Therefore, the Integrative Theory of Urban Design attempted by Ernest Sternberg is found to be more relevant to explain the concept as a whole compared to other authors who discussed each principle separately. This allows the relevant attributes to be categorised into the related principles (good form, legibility, vitality, comfort and meaning). Furthermore, through these principles several additional attributes that have been found relevant to achieve the contextual integration have been extracted for the overall framework for the research; this makes thirteen attributes altogether. The attributes identified are chosen based on the condition of Kuala Lumpur waterfront. Some attributes had to be omitted because it is not relevant to local conditions. There are also attributes that were chosen because majority stressed on its importance despite having some reservations by a few scholars. However, whether they influence the contextual integration in Kuala Lumpur waterfront, are yet to be examined.

Some of the attributes, which have been identified as being important to achieve contextual integration between the waterfront and the water have been minimally discussed and researched in the context of waterfronts. This creates a problem in determining the possible measurement to evaluate the attributes later. Therefore, reference has been made to the context of other public places as waterfronts are also categorised under public places. These include seven attributes – 'enclosure', 'direct access to the water', 'link the waterfront to the city', 'seating areas', 'shade',

‘universal design’ and continuous activities’. The appropriateness concerning the use of the similar measurement in the context of the waterfront will be assessed in Chapters 6 and 7. The theoretical framework developed will be used to evaluate the waterfront in Kuala Lumpur and become the basis for the formulation of research findings.

CHAPTER 4

RESEARCH METHODOLOGY

4.0 Introduction

This chapter discusses the methodology, procedures and techniques employed to answer the research questions. It is divided into five main parts. The first part begins with the scope of the study, which concentrates on the research focus and main enquiries made by the research. The second part discusses the methodology chosen that is based on the reviews of the previous methodologies employed in similar studies. It also addresses the research problem that was raised earlier in the research. It then explains the choice of methodology for the research. The third part explains the techniques employed and also elaborates upon why each of the techniques is found to be suitable for the research. The fourth part discusses the research procedures and the data collection process followed by the conclusion.

4.1 The research scope

According to Carmona et al. (2003), contextual integration involves the connection of the development to both the physical and functional dimensions of the surrounding environment. The research focuses on evaluating the contextual integration between the waterfronts with the urban rivers (relationship of development across property boundaries) in the context of Kuala Lumpur city centre to establish the key reasons influencing the level of contextual integration of the waterfront development to the urban river. Therefore, the integrative theory by Sternberg (2000) is referred to, which outlined five main principles ('good form', 'legibility', 'comfort', 'vitality' and 'meaning') (Chapter 3) that are vital to promote integration across property boundaries. Based on the principles, the literature review and the condition of the Kuala Lumpur waterfront, attributes concerning the physical and functional dimensions are extracted.

It is important to stress that measuring the attributes of the waterfront in the context of Kuala Lumpur does not mean that the author is suggesting that each and every attribute has to be implemented monotonously throughout the waterfront area or recommend what should be implemented on site. However, the measurement may be able to assist the decision making concerning the future development to consider which areas to improve and in what way. Different zones might need a different treatment of the dimensions to maintain the variety of activity in the city centre. Elaboration on the methodology chosen to answer the research questions will be discussed in the following sections.

Based on the objectives of the study, the data to be collected for the research include:

i) To examine the physical dimensions of the waterfront concerning its level of contextual integration with the urban river and identify the factors that affect contextual integration. The data needed are:

- a) The contextual integration level (high, medium or low) of the physical dimensions identified that relate to the urban design principles in the integrative theory
- b) Factors that affect the level of contextual integration

ii) To investigate the functional dimensions at the waterfront concerning its level of contextual integration with the urban river and identify the factors that affect the contextual integration. The data needed are:

- a) The level (high, medium or low) of the functional dimensions identified that relate to the urban design principles in the integrative theory
- b) The pattern of use and the type of activity
- c) Factors that affect the level of contextual integration

iii) To establish the key reasons for the existence of factors that affect the level of contextual integration. The data needed are:

- a) The criteria from the decision makers
- b) The support evidence from the official documents and secondary data
- c) The morphological development of the waterfront

4.2 Choice of research methodology

Two main aspects are taken into consideration in choosing the methodology for the research:

- i) The method that was already adopted by previous research in similar fields
- ii) The research questions and the nature of this research itself

4.2.1 Review of methodology in previous studies

The first question that needs to be answered is: ‘what’ are the factors that affect the level of contextual integration. This is followed by ‘why’ the factors that affect the level of contextual integration between the waterfront and the urban river exist in the Kuala Lumpur context. To identify the reason why the built environment is as it is, Manadipour (1996, p.135) suggested investigating the decision maker or the *‘development agencies, the structure that they interact with and the rationalities they use’*. This is based on four main notions, which are interrelated. The first notion is to simultaneously address the physical and social aspects of the urban fabric and look at the interrelationship of both.

The second notion stresses the necessity to understand the evolution of the urban form itself, better known by many as the urban morphology. This is also supported by Trancik (1986) who highlighted the importance of understanding the historical evolution of the urban fabric in order to understand its current condition. The third notion recognises the structure and its action in the development process. The final notion, which is a necessity, is the context of the physical characteristic, the social factors and the locality of the setting. This is very much related to the architectural studies concerning the *‘regional characteristic of the urban form’*. These are the aspects that constitute a conceptual framework that can be used as the method to understand the causes of the urban form as existing and also the changes that happen throughout the years. It is similar to the morphologist approach of study, the difference being that it emphasizes the *‘broad context in which the development takes place’*.

Lara (2008), examined ‘why’ the mid-cost housing in Brazil in the 1950s and 1960s had a modernist influence. He chose a town as a case study, which he deemed representative of the situation in Brazil with emphasis on the importance of the setting and the location of the place. He started with the fieldwork to identify the modernist character that had been adopted in the design of the houses. He then analysed them thoroughly (five hundred houses) using AutoCAD to understand the relationship of the character of the modern houses with the traditional Brazilian house. He did a detailed analysis on fifty-one of them. This was done to understand the physical characteristics of the subject of the urban form being studied.

Based on the findings of the fieldwork, Lara followed it through by interviewing twenty-one people who were involved in the decision making concerning the houses. These included the house owner (lay people) and the builders to determine the rational in their choice of the modernist approach in the house design. This was done to establish the interrelationship between the social and physical factors, while at the same time establishing the rationalities the decision makers used in the decision making. He then triangulated the results gathered from the interviews and field inventory with the archival data and references from the media to establish the reason why. He covered the four main notions mentioned by Manadipour (1996), the difference being that the decision maker in this context was not the professional decision makers but the laymen themselves and the builders (most of whom were their own family members).

Although the procedures mentioned by Manadipour (1996) and the studies by Lara (2008) may be adapted for this research, the subject of analysis is different. The study may adapt and modify the four notions mentioned to suit the research in order to achieve the research goal. Therefore, the study should involve: i) the morphological analysis, ii) the evaluation of the existing physical and functional character (level of contextual integration) and the local setting, iii) an examination of the relationship of the physical and functional aspects, and, finally, iv) the structure and their rationale behind the existing waterfront development.

In choosing the method to evaluate the level of the current contextual integration (physical and functional) between the waterfront and the urban river, methods that

have been used in previous studies to analyse the physical and functional aspects of contextual integration in the fieldwork were reviewed. Two main approaches have been adopted by previous research in physical evaluation. One is using the qualitative method, such as Lynch et al. (1976), Groat (1994), and Trancik (1986). Many of the contextual studies focused on visual compatibility or continuity with the surrounding development (Childs, 2009; Groat, 1994; Stamps, 1994; Sanoff, 1991; Tugnut and Robertson, 1987; Bentley et al., 1985; Worskett, 1969; Cullen, 2004; Edwards, 1946).

Many similar studies that attempted to measure the urban design principle in urban form usually evaluated each of the principles on its own (example, Lynch, 1960 on legibility). However, they did not specifically discuss the contextual integration at the waterfront. One of the closest to this research is the study by Lynch et al. (1976) who analysed the degree of integration between the waterfront and the water in land use. There is no similar research done in the more recent literature. Lynch evaluated the degree of integration in land use between the waterfront and the water along the Parramatta River using a scale comprising three levels of integration (high, medium and low). He categorized the land use into working, commercial, living, recreational and special areas. Each category has its own indicator to describe the level of integration for easy identification on site. The evaluation was based on personal judgment referring to the scale of measurement as indicators, which describe, in general, the criteria of each level. The result was then plotted on maps that indicate the length and the area involved in each level of integration. Although the method can be adapted, it does not include an evaluation of the physical aspects of contextual integration with the urban river; neither did it establish the reason why the situation occurred.

A study by Porta and Renne (2005) is quite related because they measure several dimensions that are related to the sustainability aspect of a city in one research. The link to sustainability was done qualitatively based on personal judgment. Comparing two cities, they quantified each of the physical dimensions measured, and through the analysis, they identified the detractors (negative factors that did not contribute to the sustainability). They employed photo documentation and field observations and measurements of the dimensions in AutoCAD. The results of the level of

'performance' of each dimension were then plotted on maps and tabulated in table form and charts for comparison between the two cities. This study provided a more comprehensive measurement of each of the dimensions involved compared to Lynch et al. (1976), which was general in manner.

Studies to measure the functional aspects of the contextual integration that employed the qualitative method were done using the direct observation technique. Based on Lynch and Hack (1984), to make direct observation more efficient it is better if we determine the particular behaviour or activity of interest. This is to avoid having unreliable data that encompass many activities but provide little information related to the spatial setting or intended purpose of research. Through selective observation at regular intervals, we can determine the pattern of use. The significance of the activity can also be understood through their regularized activity.

Furthermore, as well as being easier to record it provides an option to ask directly about their '*inner experience*' or *how they feel, their attitude, images and values*' that influence their activity (Lynch and Hack, 1984, p.86). It can also avoid a distorted activity from knowing that they are being watched. Although it is clear that no observation should be done without the person's permission, due to an invasion of privacy, it is permitted if the result does not identify the particular person or group. The observation will include the '*type of setting, their spatial and temporal boundaries, their physical character, their actors and their associated actions*' (Lynch and Hack, 1984, p.86). This can also be seen in the studies done by Whyte (1980), which adopted time-lapse techniques to identify the factors that influence the use of plazas in the American context. Similar to the work of Bosselmann (in Carmona et al., 2003, p.275), he also used mapping technique to identify pedestrian activity in the street in the original setting.

The other type of approach for physical and functional evaluation is through the user's perception, which uses quantitative methods, as adopted by Stamps (1993), in validating techniques in photo protocols on visual compatibility for public design review. Others evaluated the dimensions through a public survey or questionnaire to evaluate the image of the city (Nasar, 1998) and users perceptions concerning the

nature, to name a few (Kaplan and Kaplan, 1989). This shows that there are two ways of conducting this research – qualitative and quantitative.

1.4.1 4.2.2 Methodology adopted

i) Qualitative

The quantitative method, which involves a questionnaire survey, is found to be inapplicable in the context of Kuala Lumpur, Malaysia. This is because the research looks into the relationship between the waterfront development and the urban river. The decision made concerning the waterfront in relation to the river is done by the decision makers and public opinion was not sought in the decision making phase of the developments in Malaysia. Only recently have some attempts been made to include public participation, however, this is still at an infant stage. In-depth understanding in each case is needed, which suggests that questionnaires that generalize the factors involved would be inappropriate. According to Yin (2003), when references concerning the subject matter are limited it is particularly useful to use qualitative inquiry.

As stated by Cresswell (2003, p.181), *‘Qualitative research is emergent rather than tightly prefigured. Several aspects emerge during a qualitative study. The research questions may change and be refined as the inquirer learns what to ask and to whom it should be asked. The data collection process might change as doors open and close for data collection, and the inquirer learns the best sites at which to learn about the central phenomenon of interest’*. Strauss and Corbin (1998, p.17) stated that in the qualitative method, the research findings produced are not through the statistical or quantification means. Although some data may be quantified, the analysis is still qualitatively done. He further added that the qualitative method is used when the purpose of study is to *‘uncover and understand what lies behind a phenomenon about which little is yet known’*. Therefore, because of these reasons, the qualitative method is found to be appropriate for this research to answer both the current level of contextual integration and to establish the reason ‘why’ these factors that affect the level of contextual integration exist. In analyzing this research problem the case study approach is suggested as being appropriate.

ii) Case study

The case study approach is adopted for this study because it allows in-depth enquiry into the subject being studied (Lynch, 1960; Yin, 2003; Sandalack, 1998; Mijan, 1999; Merriam, 1998; Ouf, 2001; Lara, 2008). If the research is to increase understanding, a case study approach is recommended by Tesch (1990). Stake (1995) opined that a case study approach allows enquiries by the researcher to be done strategically through an in-depth exploration of a programme, an activity, an event, a process of a single person or of a group of people. Further according to Yin (2003, p.1), *'...case studies are preferred when 'how' or 'why' questions are being posed, when the investigator has little control over events, and when the focus is on a contemporary phenomenon with some real life context'*.

Muir (2008, p.106) stated that in order to understand the urban environment, case study is very effective for six reasons – *'spatial focus, the importance of context, flexibility of research design, use of multiple research methods, the experience of multiple perspectives on the case; and the depth and richness of data that can be obtained'*. It also has two disadvantages, which are *'generalisability and the validity of the case'*.

The disadvantages of case study are recognized in that it is not possible to generalise the findings in a statistical manner. Yin (2003, p.10) stressed that *'case studies are generalisable to theoretical propositions and not to populations'*. Yin further explained that the *'analytical generalisation'* allows for comparisons between case studies through the general principles and points, for example, by *'theoretical framework or perspective'*. There is opportunity for generalisation in urban studies because of the complex urban environment, however, it is important to acknowledge the potential lack of consideration concerning the interaction of the multiple factors involved and the possibilities of oversimplifying or misunderstanding the context.

The other disadvantage is the validity of case studies, which have to be ensured by a rigorous approach to testing the research design and method. Yin (2003, p.34 from Muir, 2008) highlighted four main criteria to address the validity and reliability of case study. She stressed the importance of *'construct validity'* in which the methods

chosen should be appropriate; where there are multiple sources of evidence and the ‘*chain of evidence established*’; ‘*Internal validity*’, which is the establishing of the causal relationship, whether or not the dependent variables are changed due to changes in the independent variables; ‘*external validity*’ where the result is subjected to ‘*analytical generalization*’; and, finally, the ‘*reliability*’, which is the repeatability of the study in producing results that are the same.

Case study is deemed appropriate in this research because it is done in a major city centre in Malaysia, Kuala Lumpur. Its spatial focus and the importance of context are paramount to this research and are the central subject of study. The flexibility of the case study is suitable as the study relates to the diverse urban environments and allows the possibility of changes to be made as the work progresses should any unanticipated events occur. The nature of research, which leans to qualitative methods, requires several techniques to be employed and the application of triangulation is suitable for case studies as it allows in-depth study of the multi-faceted environment and various perspectives to be taken into consideration (Muir, 2008).

4.3 Techniques employed and data collection procedure

According to Friedman et al. (1978), in most evaluation research, multi information-gathering is used. The converging technique strategy, allows the strength of one technique to support the other technique, which may have certain weaknesses. He further stressed that the data are considered reliable when consistent in at least two ways. The techniques employed in this research are discussed in detail in the following sub-section. Down and Stea (from Shamsuddin, 1999) also suggested the use of multi techniques in evaluating the built environment because of its multi-dimensional nature. Therefore, several techniques that have been suggested as suitable were employed for this study.

The study was done within the 9km stretch of the Kuala Lumpur City Centre waterfront. The data collection procedure comprises the stages of the procedures implemented for each of the techniques employed. There are five main phases of the data collection: Phase I): morphological study, Phase II): the field observation (visual

survey), Phase III: field observation – activity, Phase IV): focus group, and Phase V): in-depth interviews. The field observations for Phase II and III were preceded by a pilot study. Each of these techniques is further described in the following sections starting with the morphological study.

4.3.1 Morphological study

Trancik (1986, p.114) opined that in order to understand the contextual relationship of a place, it is imperative to understand the historical development of the urban form because many successive layers of the most recent development are lacking in terms of the continuity of time and missing in terms of symbols and fragments of the past due to insufficient enquiry and understanding of the matter. This is parallel with the opinion of Manadipour (1996, p.135), which stated that to understand the urban form, it is a necessary to study the morphological development of the urban fabric. Therefore, to have a better understanding of the existing waterfront of Kuala Lumpur, the study first analysed the urban morphology, which involves the physical and historical evolution of the city itself in relation to its waterfront (Appendix 02).

According to Carmona et al. (2003), the study of urban form and the shape of settlement is called urban morphology. It can also be defined as the study of the physical structure and form of the urban fabric. They opined that morphological study and awareness is essential for the urban designers in order to understand the process of change and the local patterns of development. Studies in urban morphology vary depending on the aim of the analysis (Hall, 1997; Chapman, 2006). Moudon (in Santa, 2003, p.6) defined it as the study of the urban fabric or the city, as part of the human habitat, through the physical changes and evolution over the years that have been formed by '*identifying and dissecting*' the various urban elements. He stressed that the continuing change is due to constant transformation by the actions of individuals or groups who are governed by culture and shaped by economic and social aspects over the years. Butina (in Santa, 2003, p.22), points out that it allows us to have a detailed understanding of the '*value and the overall quality of the existing fabric*'. Hall (1997) stated that the urban morphology will be able to provide understanding of the existing or contemporary urban form of a city and at the same time provides clarification of the historical evolution without involving the user's reaction.

Morphological study is chosen as one of the techniques to analyse the physical evolution of the urban fabric of Kuala Lumpur city centre in relation to the waterfront. This is parallel with the suggestion by Manadipour (1996) as part of the method to understand the existing urban form. Urban morphological studies have been used by many to evaluate the existing urban form, as mentioned above. The information will also be useful later to justify the findings of the fieldwork.

The systematic morphological method developed by Conzen (1960, p.5) will be employed. He demonstrated the methods in the study of a small town called Alnwick using the town plan, which he defined as the '*topographical arrangement of an urban built-up area in all its man made features*'. This town plan consists of three main elements, as follows:

- 'i) streets and their arrangement in a street-system*
- ii) plots and their aggregation in street-blocks and*
- iii) buildings or their block plan'*

He refers to street as an '*open space bounded by street-lines and reserved for the use of surface traffic or whatever kind*' or if these spaces are analysed independently from the rest of the urban fabric it can be called a '*street system*'. The street-blocks are the areas that are bounded by street-lines, which can be of a single land parcel or the amalgamation of a few land parcels. It may also be called a '*plot*'. The arrangement of a few plots can be called a '*plot pattern*' and if the plots are in a row or in the same street-line, having their own frontage it is called the '*plot series*'. Finally, the block plan is the area that the buildings occupy. It has continuing walls at the ground lines and can be referred to as '*buildings*'. The three main complex elements of the urban fabric, which are composed of the street, plots and buildings of a distinct area of the urban fabric, make up the plan-unit. Plan-units may be different from one area to another, which may be because they were not built at the same time or have undergone the different levels of transformation. He studied the town plan based on five main morphological periods. For this research, the terms above will be adapted to discuss the morphological development of the city in relation to the urban river in order to better understand the existing urban form at the waterfront area.

Much of the information for the morphological study is gathered from the archival data, the available secondary data and personal interviews with experts.

Data Collection Phase I: Morphological study

The procedure of the data collection starts with the morphological study of the waterfront in Kuala Lumpur. The morphological study is done based on the maps, archival and official documents and interviews with experts. This will provide an overview of the growth of the waterfront according to the phases of development. The morphological periods of study are divided into three main phases. These are:

- a) Early waterfront establishment – decline of waterfront (1857 -1910)
- b) Decline of waterfront – the commencement of the ‘waterfront regeneration awareness’ (1911 – 1978)
- c) ‘Waterfront regeneration awareness’ to date (1979 – 2010)

Discussion of each of the phases involves the main morphological elements – the street, plot and building – mentioned by Conzen (1960). Each of the segments is dissected to give a better understanding concerning the growth according to the period (Appendix 02). This study was done to support the findings of the fieldwork and interviews.

4.3.2 Secondary Data/library/archival

Secondary data include archival and official documents. Archival data include maps, photographs, manuscripts, official letters and newspapers. Official documents include laws and regulations, policies, structure plans, annual reports, plans and guidelines. The secondary data were gathered from the National Archive, Kuala Lumpur Library, Kuala Lumpur City Hall Library, Town Planning Department in Kuala Lumpur, Drainage and Irrigation Department, Public Works Department Library, museums, media and personal collection. From here the information concerning the historical evolution of the city, the physical and functional development of the urban fabric with the waterfront was gathered for the morphological study. The information was also used to justify and support the findings in the fieldwork. According to Strauss and Corbin (1991, p.55), ‘by

choosing the right literature in tandem with doing analysis, one can learn much about the broader and narrower conditions that influence a phenomenon’.

4.3.3 Field Observation-Visual Survey

Much of the research evaluating the built environment employed a visual survey. This can be seen in the work of Reeve et al. (2007), Porta and Renne (2005), Cullen (2004), Worskett (1969) and Lynch (1960) to name a few. A visual survey is useful to analyse the visual characteristics and elements of the urban fabric. Reeve et al. (2007), in their article ‘Townscape Assessment’, describe the evolution of the research technique employed to assess townscape patterns and quality in various types of projects over twenty-five years. Each of the research projects involved detail field observations using a piloted pro-forma that used a scoring technique for analyzing the view. They found that the use of a standardized pro-forma provides the opportunity for a comparison ‘*within and between areas*’ and at the same time permits a comparison between the variables individually or in groups. The technique was developed by Goodey and Ashford (from Reeve et al., 2005, p.26) initially to identify environmental opportunities in the London Borough of Tower Hamlets for the Tower Hamlets Environment Trust. Reeve et al. (2007, p.39) added that the use of photographs is beneficial as evidence for scoring is better compared to direct observation alone. Although the photographs may be able to provide a good record, they cannot be a substitute for field observations where certain qualities are only evident when direct observation is done.

Porta and Renne (2005) also employed a visual survey in assessing the urban form in terms of its sustainability in relation to urban design in Perth, Australia. Similar to Reeve et al. (2005) in the scoring technique, he gave a score to each of the indicators measured according to the sub-indicators produced. The indicators were measured in detail using photographs and measurement in AutoCad for each street, and maps were subsequently produced based on the results of each indicator’s performance according to the sub-indicators. From the study, the detractors were identified. As mentioned before, detractors are the negative factors that do not contribute or prevent the high level of performance of the dimensions evaluated from happening. From the results gathered a ‘*street-by-street table*’ was produced that allows quick

performance evaluation for each of the streets, each indicator and the average (Porta and Renne, 2005, p.59). Simultaneously, it shows the strength and weaknesses of every street and is able to provide a better understanding of the general trend. He produced a set of pie-charts for each of the indicators, based on the data gathered, with reference to the entire area involved. This allows for a clear understanding of the key differences between the areas and its overall character.

In both Reeve et al. (2007) and Porta and Renne (2005), the judgments concerning the variables or indicators were made qualitatively based on the scale and the sub-indicators, which produce numerical results. Reeve et al. (2007, p.33) stressed that although the data collected were qualitative in nature (*'based on empirically observed qualities'*), the results produced from the numerical scoring allow the data to be analysed *'unambiguously'*. However, the techniques can be questioned in terms of the reliability and the consistency of the observer in qualitatively judging the indicators. It *'involves some reliance on subjective judgements by survey personnel'* (Sakar, 2005, p.10). Reeve et al. (2007, p.36) suggested that to give greater confidence, two fieldworkers in one area are used and both are required to agree before a decision is made concerning the score. They further tested the technique and found that those observers who are motivated by a small fee with minimum training can produce more reliable, *'consistent and comparable scores'*. The scoring technique by both Porta and Renne (2005) and Reeve et al. (2007) and the detailed AutoCad measurements by Porta are applicable and can produce a detailed understanding of the existing condition of the waterfront. This is suggested as being relevant for achieving the research aim to evaluate the level of contextual integration and, thus, identifies the factors that affect the level of contextual integration between the waterfront and the urban river in the context of Kuala Lumpur. The result will then be cross analysed with results from the direct observation study.

Data Collection Phase II: Visual survey and measurement

This survey was conducted to evaluate the attributes mentioned in Chapter 3, which are related to the three main urban principles – 'good form', 'legibility' and 'comfort' – of the integrative theory by Sternberg (2000). Adopting the techniques

Porta and Renne (2005) (using photograph and AutoCad measurement), and Lynch et al. (1976) (scale – low, medium and high) the evaluations are modified to evaluate the level of contextual integration and to identify the factors that affect the level of contextual integration in the context of Kuala Lumpur. The survey started with a reconnaissance.

Reconnaissance and pilot study

The reconnaissance was done in May 2008 and had three main purposes: a) to identify the zones to be studied, b) to identify how many field assistants are needed, and c) to prepare the checklist and reference note that is appropriate for the fieldwork.

a) Identification of zone

The waterfront areas within the city centre boundary were divided into fifteen zones (each zone comprises the left and right banks). The important criteria taken into consideration in demarcating the zones were:

- i) Within the fifty metre length from the water's edge along the river (refer to Chapter 2 for the definition of the operational term of urban waterfront in Kuala Lumpur) within the city centre boundary
- ii) Each zone is within a 100m radius – a distance that is the maximum mesh for pedestrians to walk from one point to the other (Siksna, 1997).

Note: Some of the zones are labelled 'a, b, and c' because of the continuous physical connection from one zone to the other.

It is important to note that based on the reconnaissance, four of the zones – zone 8 (a, b, c) and zone 5 – are excluded from the detailed physical evaluation. This decision is made because of the existence of the elevated expressway (AKLEH), which sandwiches the river between the two highways in Zones 8a, 8b, and 8c, that totally prevent any contextual integration occurring between the waterfront and the urban river, either physically or functionally. In Zone 5, the Kinabalu Expressway cuts the physical connection of the area with the city centre and there is a six lane Federal Highway running parallel to the river that occupies the 50m width of the waterfront area from the urban river. Therefore, only 11 zones were evaluated for the physical evaluation (Appendix 04). Nevertheless, it does not have any effect concerning the

research because the impact of the highways (AKLEH and Federal Highway) on the user and the reasons why the highways were built along the waterfront can still be gathered through the interview sessions.

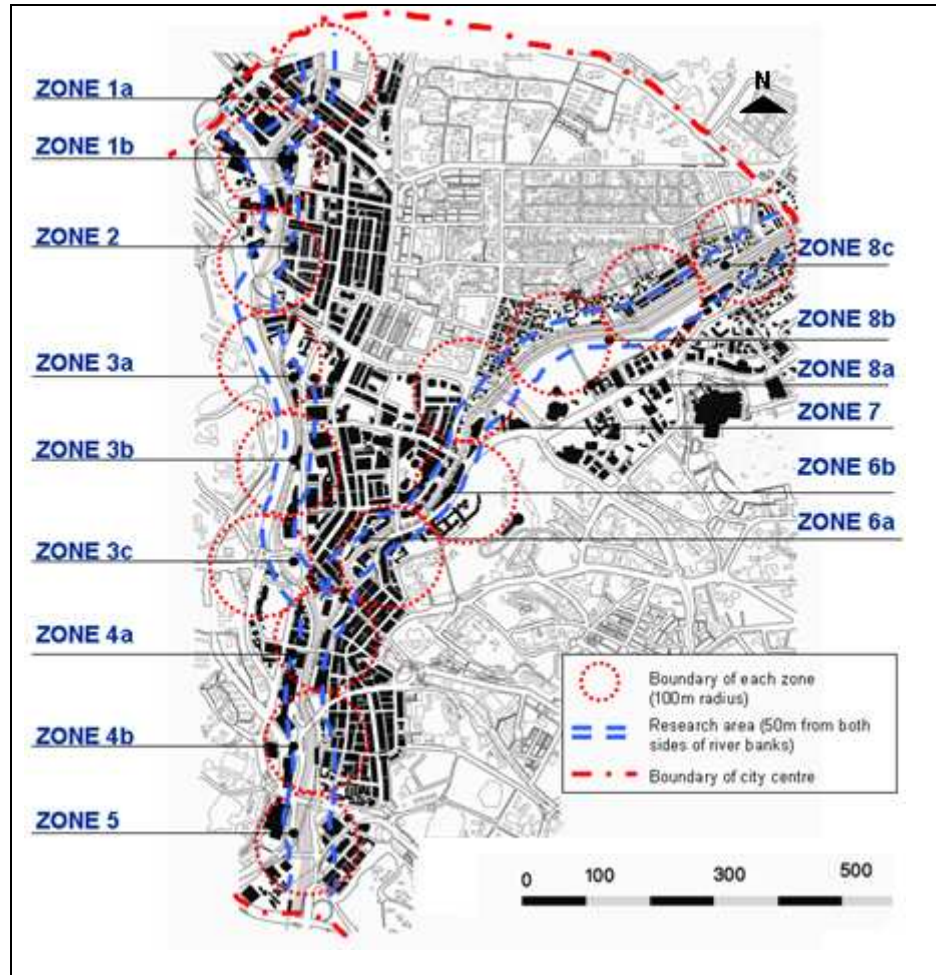


Figure 11 Demarcation of zone for fieldwork

b) Determination on number of field assistants

Based on Reeve et al. (2007), two field assistants were allocated for each area in order to increase confidence in the data collected. The training of the field assistants cum pilot survey was done for one day, prior to the actual survey to check on the familiarity and efficiency of the checklist and reference notes for the field assistants. The results of the one-day training were fruitful and the reference notes were found to be helpful in assisting them in their survey. Discussions were held concerning the reference notes that needed clarification.

Actual visual survey and measurement

The survey was conducted over two days to reduce the number of field assistants for better control and consistency of the data collected. Two persons conducted a survey of each of the zones, which are visually and physically connected to one another. AutoCAD measurements were made based on the detail map from KLCH. A checklist (Appendix 05 and 07) and reference notes (Appendix 06) were used during the survey. Maps were also used to locate the position, measurement and the angle of the photo taken during the survey and were later numbered accordingly for reference. The photographic documentation was a very important source of reference during the analysis of the data.

Data Analysis for visual survey

The data from the checklist were analysed accordingly based on each of the attributes. Detailed measurements of the attributes were transferred to AutoCAD and cross referenced with the checklist and photo documentation on site (Porta and Renne, 2005). The digital map used was dated 2008, which was the latest map available from the Kuala Lumpur City Hall. The dimensions measured were then arranged in table format according to the level of contextual integration of all the zones for easier understanding of the contextual integration of the whole waterfront area within the Kuala Lumpur city centre. The contextual integration level consists of three main levels, which are the high integration, medium integration and low integration (Lynch et al., 1976). Indicators of levels for each of the dimension were developed based on literature. The final findings of the levels of contextual integration are shown using bar charts based on the percentage derived from the measurement. From the analysis, the factors that affect the level of contextual integration between the waterfront and the urban river for each of the dimensions were identified through triangulation with the data from the focus groups and observation of activities.

4.3.4 Field Observation-activity

To investigate the activity at the waterfront, a direct observation study was employed. This technique investigates the type of activity available in the area and identifies the relationship between the physical and the functional (social) aspects of the waterfront area. According to Brandt in Friedman et al.(1978), there are two methods for direct observation of activities. These are the checklist or narrative and the anecdotal methods. He added that the narrative type of techniques record the activity in the setting and the sequence. Ongoing events and activities are recorded as the observer sees them rather than categorizing the activities earlier on. This allows the observer to record the emerging pattern of unexpected activities and imposes little structure on the data.

Anecdotal methods allow the observer to freely choose the activity they want to record. Rutledge from Friedman et al. (1978), added that it requires the sensitive eyes and ears of the observer and it is rather difficult to obtain through the structured research methods of the social sciences. This method may lead to the biasness of the observer. The record of specimen is more objective using the narrative method compared to the anecdotal method because in the narrative method all the activities are recorded and no pre-choices or categorization is required. The method may increase its objectivity by describing the activity in simple terms and separating the recording from theory and assumption. However, Lynch and Hack (1984) and Zeisel (1984) argued that direct observation will be more efficient if the particular behaviour or activity of interest is predetermined. It is important to avoid having unreliable data that encompasses many activities but contains little information related to the spatial setting or the intended purpose of the research. They added that through selective observations at regular intervals we can determine the pattern of use.

For the purpose of this research, the anecdotal method is more relevant than the narrative technique. This is to avoid having an abundance of unrelated information. However, extra measures were taken during the recording by avoiding theory and assumption. The only pre-chosen activity included the pedestrian activity at the waterfront and its relation to the urban river.

Sanoff (1991, p.78) stated that *“although verbal descriptions have been used to represent the environment, direct and indirect methods decrease the possibilities for misrepresentation since direct observation takes its information from the uninterrupted activity of the participants who are usually unaware that they are supplying it”*. He added that one of the best ways to minimize the opportunity for errors or misinterpretation is to include the original setting of the activity recorded by the observer. This is because the original setting or the environment is much easier to control and can be determined easier in relation to the activities and uses (Friedman et al., 1978). He further stated that there are usually more variables in the outdoor spaces compared to buildings. The variables that are related to the visual environment tend to be qualitative regardless of their characteristic. Therefore, the outcome of this kind of study is usually descriptive in nature and concerns how the observer responds to the activities verbally without necessarily establishing the relationship between the activities recorded (Sanoff, 1991, p.3).

Direct observation can also be supported by time interval sampling to obtain the pattern of the users. Time interval sampling is a technique adopted from the time-lapse photography that was employed by Rutledge in Friedman et al. (1978) in his research of the First National Bank Plaza in Chicago. He took colour slides from a high vantage point every fifteen minutes and each hour he captured the panoramic series in slides. Selected users were tracked and their locations were mapped to represent the user pattern. His purpose was to identify those areas that were the most popular in the open space. This technique is more appropriate for this research because it focuses on investigating the activity in the waterfront area in terms of its contextual integration with the urban river. The pattern of use and the type of activity available in the area are imperative for this study.

According to Friedman et al. (1978), in conducting the study, recording the activities that are not dependent on only one observer must be assured. It should be commonly agreed upon and recorded by two observers simultaneously and the result tabulated. A minimum agreement of 70-90% is acceptable. He further stressed the importance of the reliability of the data collected in determining the validity of it.

Photographic documentation

Photographic documentation is important to support the direct observation study. According to Davis et.al (1975 in Sanoff, 1991, p.95), photographic documentation allows a better accuracy for either brief or complex events compared to note taking during observation. It can help to improve the effectiveness of the observation by allowing the events that have taken place to be studied in depth. It can also be used both for space inventory and to show how the spaces are used by users. This technique has been used by many previous researchers in urban study, for example, by Stamps (1994) for the study of design review, Lynch (1960) for recognition of image of places, time-lapse photography for behavioural pattern research by Friedman et al. (1978) and visual coherence by Childs (2009). This technique was found to be an important technique in this research because it provided an additional means of data recording. First, it allows the recording of both the physical and functional aspects of the waterfront. Second, it allows the recording of the changes of activity in accordance with time frames so that the pattern of use and type of activities can be identified. The results from this study are then used as a basis for focus groups and interviews.

i) Data Collection Phase III: Direct observation – Activity

Direct observations for activity were conducted to evaluate activity in relation to all the principles mentioned in Chapter 3 including ‘vitality’. Vitality comprises the ‘diversity of use’ and ‘continuity of activity’. The study is done through building use survey, time interval sampling, photographic documentation and mapping of the activity.

Reconnaissance, Pilot Test and Refinement

The reconnaissance was done in June 2008. It had three main purposes: a) to identify the zones to be covered, b) to identify how many field assistants would be needed and to prepare the checklist and reference notes for the field assistants.

a) Identification zone to be covered

It is important to note here that out of the fifteen zones demarcated earlier, six of the zones – zone 2, zone 4b-left bank, zone 5 and zone 8 (a, b, c) – were not able to be included in the direct observation study (Refer Figure 11). In Zone 2, during the

reconnaissance, policemen patrolling the area advised the author not to linger in the area for long because it is not a safe place. According to the policemen, many drug addicts frequent the area and drug transactions are conducted in the area. Therefore, it was deemed unsafe for time-interval sampling, as it would require the author to be there the whole day for four days. Another area that was advised against because of safety reasons was zone 4b-left bank. As for zone 5, it is severed from the old parts of the city by the Kinabalu Expressway and lined by the six-lane Federal Highway. According to the maintenance workers the area is also known as a place frequented by drug addicts. Finally, zone 8, there is an elevated express highway crossing zone 8 that totally cuts the physical and functional aspect of the contextual integration between the waterfront and the urban river. Therefore, for the purpose of the direct observation study only nine zones were included. Nevertheless, this does not affect the research because the factors that affect the level of contextual integration can still be identified by triangulating the data from the visual survey and the focus groups. Consequently, the reasons why the factors existed will be triangulated with the data from the interviews, morphological analysis and secondary data.

b) Determination of the number of field assistants

The observations were spread over two weeks to reduce the number of field assistants (ten persons) for better control of the consistency of data collected. Two field assistants were allocated for each zone. The actual survey and measurement were done for four days in each week (Monday, Friday, Saturday and Sunday). The pilot study cum training for the field assistants (observers) was done in one day. Based on the results of the pilot survey, refinement and clarification was done on the form used due to some confusion concerning the terms used.

Actual Observation

a) Building use survey

It was mentioned by Wrenn et al. (1983) that the waterfront use can be defined by its land use and water dependency. However, because the Kuala Lumpur waterfront only consists of commercial and residential land use (KLCH, 2004a), the focus of the survey concentrates on building use to identify the water-dependency. Building use survey was done by mapping the building use in each lot by zone on the plans. This information was later categorized according to the three main building uses related to

waterfronts – water-dependent, water-related and water-independent building use (Wrenn et al., 1983).

b) Time-interval sampling and activity mapping

Time interval samplings noted the activities that took place in the area in relation to the urban river using the form prepared. Areas of observation were chosen based on locations that could see both the waterfront and the urban river without obstacles. To reduce errors in judgment, two observers were located in each zone (Friedman et al., 1978; Reeve et al., 2007) to note the activities and at the same time map the activities in the location as it happened at hourly intervals.

Of the nine zones involved, five zones were observed in the first week and the remaining four zones were observed the following week. Efforts to reduce errors in the data collected were made by using the same observers from the previous week. Types of activity were labelled for easier mapping. The time and days covered for observation are shown in Table 9. Public holidays or any other festive seasons were not included as it was a one-off situation (Ujang, 2008).

Table 9 Showing the days and time covered for the observation		
Day	Time	Reasons
Monday	7-8:30am 12-1:30pm 4-5:30pm 7-8:30pm	Representative of Tuesday to Thursday which are the normal working days
Friday	7-8:30am 12-1:30pm 4-5:30pm 7-8:30pm	There are congregational prayers (compulsory for Muslim man) at noon, which changes the activity in the city centre during this time
Saturday	7-8:30am 12-1:30pm 4-5:30pm 7-8:30pm	Half-day working for some which might have some difference in the activity
Sunday	7-8:30am 12-1:30pm 4-5:30pm 7-8:30pm	Full day not working which might have some difference in the activity

Dynamic activities (refer Chapter 3) for the first fifteen minutes during the one and a half hours were calculated based on the number of people that cross the area without stopping. An ‘invisible line’ was ‘drawn’ on site and within the first fifteen minutes, whoever crossed the line was calculated. An hour was allocated to map and record the static activities (refer Chapter 3) according to the form provided within the zones

(Appendix 08). The remaining fifteen minutes provided the buffer time for recording and mapping preparation.

Data Analysis for activity observation

Every activity found in the time-interval sampling was later extracted from the form and arranged according to the type of activity in a table format to analyse the pattern of use. Bar charts were produced from the number of activities according to the time and day to identify the pattern of use. From here, the results were cross analysed with the results from building survey, visual survey and focus groups to verify the identified factors that affect the level of contextual integration between the waterfront and the urban river. Findings from the evaluations provided the basis for the in-depth interviews.

4.3.5 Focus Group

According to Morgan (1988), focus groups are useful to supplement the quantitative and qualitative method or as self-contained data. There are arguments concerning focus groups or other qualitative methods as being a preliminary research tool that have to be supported by quantitative data, especially in the marketing area. Morgan (1988, p.11) argued that the validity concerning this type of argument depends on the purpose and aim of the researcher for his/her research. He further argued that this narrow type of argument is not limited to the social sciences research and there is '*no a priori reason to assume that focus groups or any other qualitative techniques, require supplementation or validation with quantitative techniques*'.

The main advantage of focus groups is the ability to have a dynamic interaction between the participants on a particular topic within a certain time limit, which is controlled by an observer. The controlled situation is also the only major disadvantage because the settings of these sessions are not in their natural condition (Morgan, 1988). Nevertheless, group discussions and hearing others give their own opinion is more realistic (Krueger, 1994). According to Krueger (1994, p.14), '*focus groups techniques are valid if they are used carefully for a problem that is suitable for focus group inquiry*' and very much depend on the procedures and context.

The objective of using this technique is to examine the meaning of the contextual integration between the waterfront and the urban river according to the public through the attributes used to evaluate the physical and functional dimensions. It is one of the most useful tools to know '*why people feel the way they do*' as well as gathering their interpretations of results from any earlier studies (Morgan, 1988, p.11; Krueger, 1994). As for this research focus groups are used as supporting findings for the result from the physical and functional evaluation done. This technique is opted for in obtaining information from the public rather than in-depth interviews because of the nature of the tools, which allow for dynamic interaction between the participants and is able to stimulate discussion through the sharing of information and creating a bond with the place (Carr et al., 1992). Through this the meaning of a place can be understood better (Carr et al., 1992). The research aims to evaluate the meaning of the contextual integration based on the dimensions evaluated rather than the volume of ideas needed from each individual (see Fern in Morgan, 1988, p.13).

i) Data Collection Phase IV: Focus Group

The source of participants, number and size of groups

The participants were gathered from the willing public who had experience of the waterfront area throughout the city centre. To have the right person who has experience of the topic to be discussed is important (Morgan, 1988) to ensure that the outcome of the research objective can be achieved. It was quite difficult to obtain the numbers because most of the public were not willing to participate. There were only twelve numbers of the public who were willing to participate in the focus group interview.

According to Greenbaum (1998), it is better to have a homogeneous group or of similar status and values because the participants may be able to relate to each other better, and the quality of the inputs they provide will be higher. Knodel (1984) and Krueger (1994) also mentioned that the similarity is important because if the topic of discussion concerns sensitive issues, they would be able to facilitate each other and perceive the situation as perspective sharing. According to Morgan (1988), the number of groups has to be more than one. Two would be safer especially if they are

highly similar. The size of group usually implemented is between 6 to 10 people (Morgan, 1988; Krueger, 1994; Greenbaum, 1998; Knodel, 1984) to allow each participant the opportunity to give their opinion. Therefore, for this research the groups were divided into two according to the gender to allow the similar status and values to be shared. Each of the groups consisted of six participants with ages ranging between twenty and thirty years old (Table 10).

Respondents Group 1 (Female)	Code	Age
Interviewee 1	F1	24
Interviewee 2	F2	23
Interviewee 3	F3	29
Interviewee 4	F4	25
Interviewee 5	F5	27
Interviewee 6	F6	24
Respondents Group 2 (Male)		
Interviewee 7	M1	29
Interviewee 8	M2	26
Interviewee 9	M3	23
Interviewee 10	M4	24
Interviewee 11	M5	24
Interviewee 12	M6	25
TOTAL	12	

Table 10 Respondents divided into two groups

Background of respondents

The qualifications of all the participants are diploma holder or higher (Table 11).

QUALIFICATION	Number	Percentage
Diploma	6	50%
Bachelor's Degree	6	50%
Master's Degree	0	0%
PhD	0	0%
TOTAL	12	100%

Table 11 Respondent's qualification

The procedure

The procedure is divided into three main parts – pre-session, during session and after session. Based on the earlier argument that the participants in focus groups are not in the natural environment, this research took the approach to allow the agreed participants to go through a pre-session before the focus group session was conducted. Although the participants comprised those with experience of the areas in the zones studied, the pre-session was conducted to allow the participants to go and experience the whole waterfront area in the city centre a day before the session was conducted. This enabled the participants to have a stronger memory of some of the places along the waterfront that they might have not been to for a while. During the pre-session, they were not briefed on the purpose of the research so that they could experience the waterfront with an open mind.

Before the session, a note taker was appointed and briefed on the running of the sessions and the author acted as the moderator. The focus group session was done the day after the pre-session with two separate sessions. The session in the morning was for the ladies, while the session for the men's group took place in the afternoon. Before the sessions, the participants were briefed on how the session would be conducted. Each of the participants was seated on chairs arranged in a U shape, which were tagged in alphabetical order (A-F). The tags and the easel were arranged to be facing the note taker so that it was easier for her to identify who said what and what had been written on the easel.

A tape recorder was used to record the whole session. A power point presentation with maps and pictures of the zones were projected on the wall throughout to allow participants to refer to in the discussion or when stating their opinion. The sessions were conducted using topics of discussion related to the attributes evaluated earlier. The discussion was followed using probing techniques. The arrangements of the topics are shown in Appendix 14. After each session, a debriefing session was held between the note-taker and the moderator to capture the first impressions on the main highlights or contrasts between the two focus groups. Then the data gathered were transcribed and analysed. Most fulfilling of all was when, at the end of both sessions, some of the participants came up and expressed their appreciation for the opportunity of participating because they learnt a lot and felt they could now appreciate the river

in the city centre better. They also indicated their willingness to participate in any similar sessions in the future.

Data analysis for focus group

The data was analysed using content analysis, which used a coding and categorizing process. A similar analysis process was used for the interviews, as explained in section 4.3.6, the only difference being that the findings were compared between the two groups to identify the similarities and differences in patterns. According to Krueger (1994, p.133), if the *patterns are clearly identifiable, when minimal differences exist within and across groups*, analysis can be *'simple and straightforward'*. The most important aspect of the focus group is to capture the *overall sense of the group* concerning the discussed idea but not the opinion of the individuals (Greenbaum, 1998, p.15). However, in some cases there are no unifying views from the participants and the absence of pattern may also be an interesting discovery (Krueger, 1994). As stated earlier, the focus interview was done to examine the meaning of the contextual integration between the waterfront and the urban river from the perspective of the public through the dimensions used to evaluate the physical and functional aspects of the waterfront. This is to cross check and to support the factors identified from the physical and functional evaluation that affect the level of contextual integration between the waterfront and the urban river. The findings from this evaluation became the basis for the preparation of the in-depth interview questions.

4.3.6 Interviews

To identify the rationale behind the existing factors that affect the level of contextual integration between the waterfront development and the urban river, the interview technique is found to be relevant. This is also a good technique to obtain an in-depth understanding of particular matters concerning the research study (Bechtel, 2002). According to Yin (2003), in social sciences research, one of the most powerful tools used is the in-depth interview with probing techniques. During the interview, probing techniques are used to elicit information and perceptual experiences from the respondents. Burgess (in Wan Abdullah, 2009), opined that unstructured interviews

are preferable because they are able to provide the respondent a relaxed environment for them to deliver a spontaneous answer and allow the researcher to deeply probe the subject matter.

However, using this technique may lead a person to an uncontrolled discussion and result in a waste of precious time. Friedman et al. (1978) stated that through unstructured interviews, natural and unbiased information could be gained, which is produced in the respondent's 'natural habitat'. This technique has the advantage of being a fast way to obtain information and understanding concerning the subject matter through the people who have experience and are involved in the setting. He further highlighted that unstructured interviews are best used if the research concerns basic issues and can be adapted to different needs for different groups of people. However, structured interviews might be appropriate when the research is looking at a focal problem. Therefore, due to the nature of this research, which is trying to understand the 'why' and 'what' in identifying the basic problem, the unstructured interview technique was employed. Although many authors stressed the advantage of using unstructured interview techniques, careful administration and planning is essential (Shamsuddin, 1999).

i) Phase V: In-depth interviews

The in-depth interviews were conducted after the data for visual survey and direct observation of activity and focus group were collected and analysed. The main purpose of the in-depth interviews was to determine the rationale/reasons behind the existing factors that affect the level of contextual integration between the waterfront and the urban river. The main respondents were the decision makers that were involved directly or indirectly with the development at the Kuala Lumpur waterfront area.

Most of the interviews lasted between forty-five to sixty minutes. In each interview, the researcher started by introducing herself, explaining the objective of the research and the process of the interview. Usually, due to the limited time they have, they would immediately give their opinion on each question. Questions regarding the

contextual integration were asked indirectly and probing techniques were used during the interview session to allow them to reveal the truth. The interview sessions were fully recorded to secure the information.

Lara (2008, p.26), in his research *The Rise of Popular Modernist in Architecture in Brazil*, conducted twenty-one in-depth interviews with the residents of the modernist homes to understand why the modernist influence is apparent in the design of the houses. For this research, thirty-two people were interviewed including fourteen from KLCH, eight from agencies outside KLCH, five developers and five architects who had been involved directly or indirectly with the development at the waterfront area in the context of Kuala Lumpur.

Pre-Test in-depth interview

Due to the small number of candidates to be interviewed, a pre-test in-depth interview was done. The interview was not recorded and only notes were taken. It was not very effective because the flow of discussion was disturbed when writing or notes were being taken. The following interviews were all recorded with the permission of the participants.

Selection of respondents

'For qualitative research, it is their relevance to the research topic rather than their representativeness which determines the ways in which the people to be studied are selected (Flick, 1998 in Rustam, 2007), the selection of respondents is based on their familiarity or involvement with any of the waterfront developments and their willingness to be interviewed.

Background of respondents

Thirty-two respondents from the decision makers group were interviewed. The numbers of respondents from each of the categories are shown in the table below (Table 12).

Group of decision makers	Code	Number
Local authority (KLCH)	LA	14
Agencies outside KLCH	OA	8
Developer	DV	5
Architect	AR	5
TOTAL		32

Table 12 Group of decision makers interviewed

The interviewees have various qualifications. The details of the qualification of the decision makers are shown in the table below (Table 13). All of them had between fifteen to forty years experience in their field (Appendix 13).

QUALIFICATION	Number
PhD	1
Master's Degree	13
Bachelor's Degree	18
Diploma	0
TOTAL	32

Table 13 The qualification of the decision makers' interviewed

Arranging for interview

Telephone calls were made to the potential respondents, to introduce the researcher and explain the reason for calling. Appointments were set according to the convenience of the interviewee in appreciation of their tight schedule. Most of the time, follow up calls were made and a formal letter was sent when required (Appendix 09). However, the first three letters that were sent to the architects and developer, which clearly stated that the aim of the research concerned the development of the waterfront in Kuala Lumpur did not receive any response. The letter was later revised and only mentioned that the researcher was interested in understanding the factors considered in the design and planning of the development. This time responses were received.

As many of the buildings along the river were built before the 1980s, most of the architects or developers in charge of the projects had either changed company and could not be traced anymore or had closed down their firms during the economic down turn. Some architects or developers had turned down the request due to their tight schedule and staff shortages in the office. Most of the officers from the related

authority departments that were involved in the earlier projects in Kuala Lumpur had either retired or died. As a result, out of all the architects and developers contacted, only five architects and five developers responded. The researchers received full cooperation from the current officers in charge in the relevant authority and representatives of each department that are directly or indirectly involved with waterfront development, which comprises a total of fourteen officers.

Data Analysis for interview

The analysis of the interview transcript will be in the form of content analysis, as, in general, with the rise of scientific methods in the social sciences this technique has gained popularity. Although the process is claimed to be limited and slow, it is still widely used in various topics. It is especially useful tool for *'summarising and handling relatively large quantities of qualitative material and for comparing different sets of data (from a range of sources, time-periods, localities etc; and its flexibility is particularly valuable, allowing adaptation to a wide range of problems and studies'* (Bird et al., 1983, p.146). It was designed to assess the content of communication in an objective and standardised system.

The chief characteristic, therefore, is that its procedures are formulated in such a way as to be in theory, *'exact and repeatable, to minimise any vagueness or bias resulting from the judgements of a single interpreter'* (Riley and Stoll in Bird et al., 1983, p.146). According to Bird et al. (1983, p.146), and Sulaiman (2000), the content analysis is based on a two-step procedure that consists of: a) *breaking down the communication into constituent units or categories which are then coded*, and b) *recombining these units to provide a composite measure or profile of the study*.

4.3.7 Cross analysis/triangulation

Based on the literature and previous works done in a similar area, it was decided that this study will employ several techniques for data collection, namely, morphological analysis, fieldwork observation, in-depth interviews and secondary data collection, which involves official documents, archival data and media. According to Aldridge

and Levine (2001), and Silverman (1999), one of the strategies to ensure reliability in data collection is through triangulation (Denzin and Lincoln, 2005). This can be done through the confirmation of outcomes by referring to various and multiple sources. Triangulation is a term frequently used to describe the principle of combining strengths and neutralising weaknesses. In general, researchers advocate triangulation to address issues of validity (*or credibility in the naturalistic paradigm*) and/or objectivity (*or conformability in the naturalistic paradigm*) (Groat, 2002, p.361). According to Miles and Huberman (1994, p.267) the best way to carry out triangulation is “*by multiplying independent measures and sources of the same phenomenon*”, for example, when the same claim is made independently by respondents. They added that the sources of data for triangulation should have ‘*different biasness and different strength*’ to enable them to complement one another.

For this research, the data from the field observations of the visual survey and direct observations of activity and focus groups were cross related to provide answers for the current level of integration. The findings established were used to identify the factors that affect the level of contextual integration for each of the attributes (refer to Chapter three). The factors identified were then used as a basis for the in-depth interviews with the decision makers. The data were then triangulated with the morphological study; data gathered from archival, reports and media were then triangulated to establish the reason ‘why’ the factors exist at the Kuala Lumpur waterfront. The triangulation process employed in this research is summarised in Figure 12.

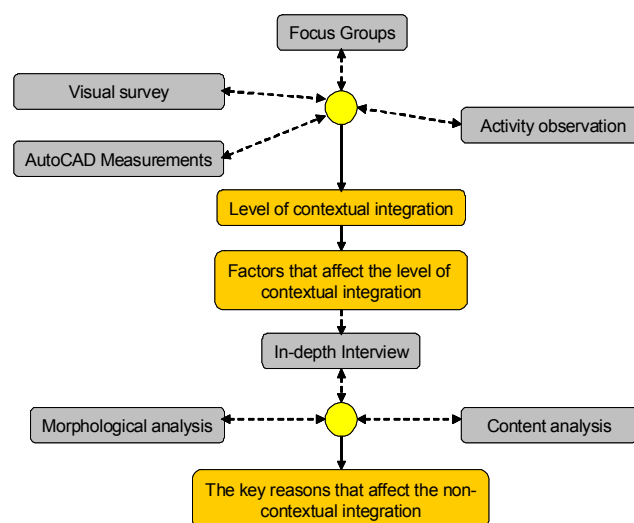


Figure 12 Triangulation process in this research

4.4 Conclusion

To identify the reason ‘why’ the built environment is as it is, in this case to research why the waterfront is not contextually integrated with the urban river, four main steps were identified as crucial to the research. These included morphological study, the physical dimension, functional dimension and also the decision makers involved. Although there are two possible methods (quantitative and qualitative) that could be used for the research, the qualitative method is deemed more suitable. This is because there are still limited references concerning the subject matter and there is a need for in-depth understanding of the case study.

In enquiring into the built environment, field observation is the most common technique used and is adopted for both physical and functional dimensions. These are supported by photographic documentation to allow better accuracy for either brief or complex events during observation compared to note taking. Time interval sampling for the activity recording and mapping using the anecdotal method is more relevant compared to the narrative technique. This is to avoid having an abundance of unrelated information. To identify the factors that affect the level of contextual integration of waterfronts with the water, triangulation with the information concerning how people feel towards the environment is important and this was gathered through the focus group interviews. Taken together, the information offers a strong base for generating questions for the in-depth interviews.

Because of the in-depth enquiry of the research, unstructured interviews were found to be the most relevant for encouraging the interviewees to give spontaneous answers and also allowed the researcher to probe the matter deeper. In strengthening the findings concerning the reasons that affect the non-contextual integration between the waterfronts and the water, triangulation with the data from the morphological analysis and content analysis of the secondary document are also important.

Triangulation is employed because each of the techniques employed has its strengths and weaknesses that are able to complement each other in the research findings. It is hoped that by adopting this approach the data will be comprehensive in tackling the

research problem in various aspects and perspectives. The following two chapters will discuss the findings of the research starting with Chapter five, which will provide an introduction to the study area.

CHAPTER 5





WATERFRONT IN KUALA LUMPUR CITY CENTRE

5.0 Introduction

This chapter introduces the case study selected for the research with a focus on the Kuala Lumpur city centre waterfront and the main urban rivers (Klang and Gombak Rivers). It provides insights into the physical characteristics, morphological evolution, related policies, laws, guidelines and decision makers (private and public institutions) concerning the waterfront development. The chapter is divided into four main parts. The first part introduces the waterfront in the city centre of Kuala Lumpur. The second part discusses the morphological development from the birth of Kuala Lumpur in 1857 until the current situation to identify the relationship of the waterfront and the urban river (waterfront treatments) throughout the years. The third part discusses the policies, laws and guidelines, and elaborates on the decision makers, which include the public and private sectors, the various government departments and their relationship to each other concerning the waterfront and the urban river. The final part concludes the chapter. The findings from this chapter are used to support the findings from the fieldwork and interviews.

5.1 Waterfront in the Malaysian context

Malaysia is located in Southeast Asia and comprises two parts – West Malaysia and East Malaysia (Figure 13). It had a population of 28.31million in 2009 (DSM, 2010). It is bordered by Singapore, Thailand and Brunei, and comprises fourteen states and three federal territories. Each of the states has its own capital city/town and Kuala Lumpur is the capital city of Malaysia. One thing in common that most of these capitals have is that they originated at the waterfront area. According to Shamsuddin et al. (2008), there are four main characteristics of waterfront towns and cities in Malaysia (Figure 13).

		Characteristics of waterfront
1		A city where the river flows through its centre and becomes an edge that separates the city into two parts
2		A city that was built on one side of the river where it acted as an edge that defines the city limits
3		A city that was built with the river mouth running through the city centre
4		A city that is fronting an open sea




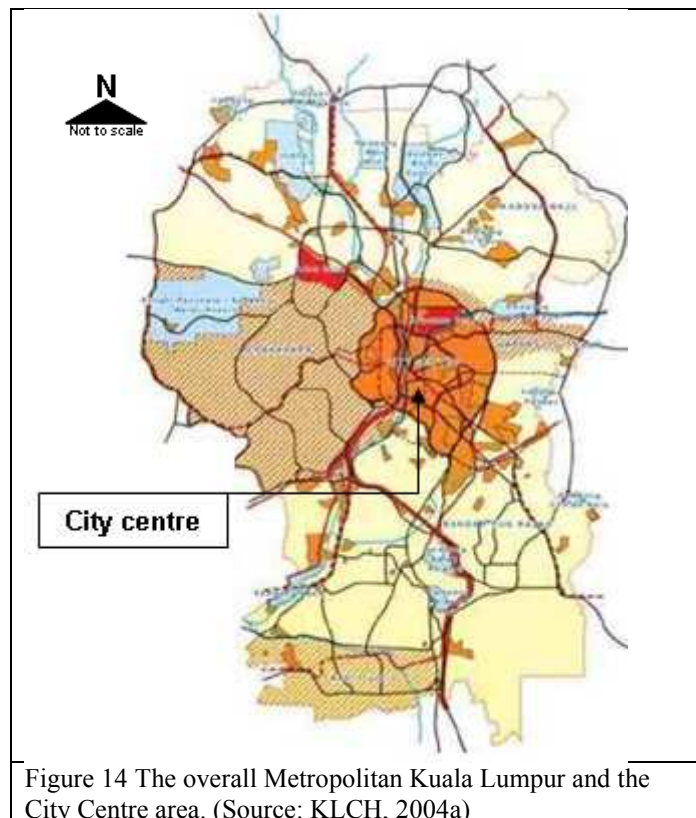
Figure 13 Map of Malaysia showing the category of capital city in the 14 states of Malaysia (Modified from: Shamsuddin et al., 2008)

The rivers were important to the development of these cities socially and economically, however, in this contemporary situation, the importance of the rivers in the development of the city has ceased and it is apparent that new developments are moving away from the rivers from where it once started (Shamsuddin et al., 2008). According to Morris (1994), it is natural for cities that were built at the waterfront area to be expanding away from the waterfront (Refer 2.2.1). Although that is the case, it has been acknowledged by many, as discussed in the earlier chapters (Chapters 2 and 3), that in order to achieve a sustainable development, sensitive development that preserves the contextual integration to its water and not treating the river as a backyard is imperative in creating a suitable quality of environment in the city centre.

5.1.1 Federal Territory of Kuala Lumpur (FTKL), its city centre and the waterfront

As for Kuala Lumpur, it is at the confluence of the Klang and Gombak rivers on the eastern bank of the Klang River was where this metropolitan city started as a small

trading post for tin in 1857 (Gullick 2000). It grew into a town with a population of 20,000 in the 1890s. It later became the capital of the new Federation of Malaya in 1948. It was chosen as the capital city for the new nation when Independence was achieved in 1957. In 1972, Kuala Lumpur became the first city to be granted city status and became the Federal Territory in 1974. Since then it has developed very rapidly and until now it is the '*nerve of the Malaysian economy*' (Mohamed, 2003). Its location is at the core of the '*larger planning entity of the Klang Valley*' (Morshidi, 2000). Urban sprawl has opened up the larger Metropolitan Kuala Lumpur to 4,000 sq kilometres, which stretches to the Kuala Lumpur International Airport (KLIA) in the south. The FTKL city centre comprises 243 sq kilometres and had a population of 1.6 million in 2006 (Figure 14).



However, since 1980, the growth of the population of FTKL city centre is only about two percent per annum. In the estimates done in the year 2000, the total population of FTKL was 1.4 million. This is about a third of the population of the Metropolitan Region as a whole, which has about 4 million in total. The growth is much lower compared to the average growth at the national level, which is about 2.6 percent. The estimated rate of growth in the Metropolitan Region is more than double compared to FTKL city centre. This indicates a '*strong out-migration trend*' of the population of

FTKL city centre to the outside region for residential areas, and many of those working in the city live outside of Kuala Lumpur (Mohamed, 2003, p.3).

Urban centres around FTKL include Petaling Jaya (near Petaling), which was developed in 1952 as a new township to accommodate the overspill of Kuala Lumpur's population (Figure 15). This was followed by the capital city for the state of Selangor, which is known as Shah Alam. It was developed to replace Kuala Lumpur, which had been taken under Federal control. Klang is another nearby urban centre. It has the advantage of having Port Klang (the previous Port Swettenham) in its vicinity which is '*ranked eighth among the container ports in the world*' (Mohamed, 2003, p.2).



Figure 15 Location of Kuala Lumpur, Petaling and Klang.

Source: Anon., 1880

The metropolitan region of Kuala Lumpur is divided into six main strategic zones (KLCH, 2004a) and the main commercial area is the City Centre (KLCH, 2004a), or as it used to be known – the Central Planning Area (CPA) (KLCH, 1984) (Figure 13). Meandering through the city centre are two major rivers, which are the Klang and Gombak rivers. The two rivers, which traverse the City Centre, comprise a total length of 9km (Figure 16). As mentioned in Chapter 4, the study area is within 50m from the edge of both riverbanks throughout the city centre area. The Klang River,

which starts to the north of Kuala Lumpur is 120km in total length and is joined by eleven other main tributaries towards Port Klang. The rivers run through eight different authorities including KLCH. Its river basin is the most populated in the country with over 3.6 million and experiences five percent growth annually (Anon., 2008). According to Chay (1989, p.21) the characteristics of the city are indeed influenced by the '*two streams and the architectural styles*'. This can be seen in the way the development grew from the nucleus of the city at the river confluence to the current sprawl (Figure 17). The following will discuss the waterfront treatments throughout the years at the waterfront.

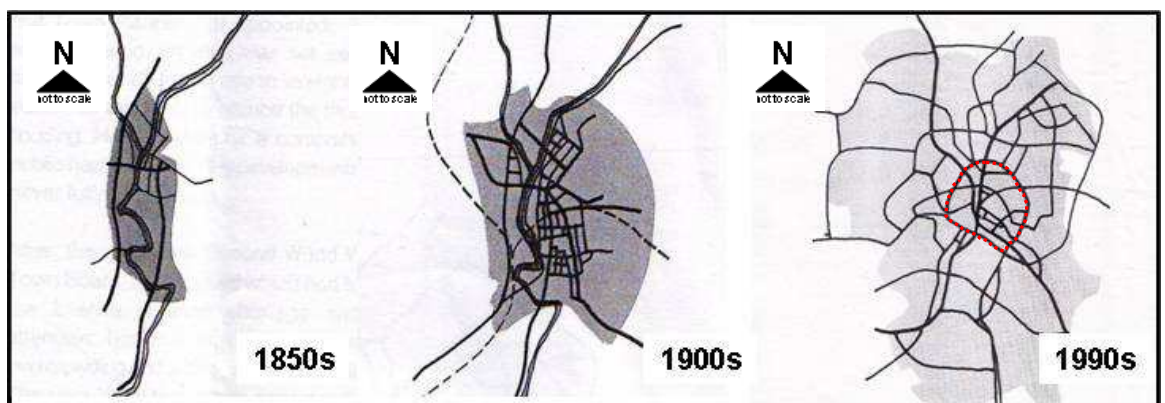
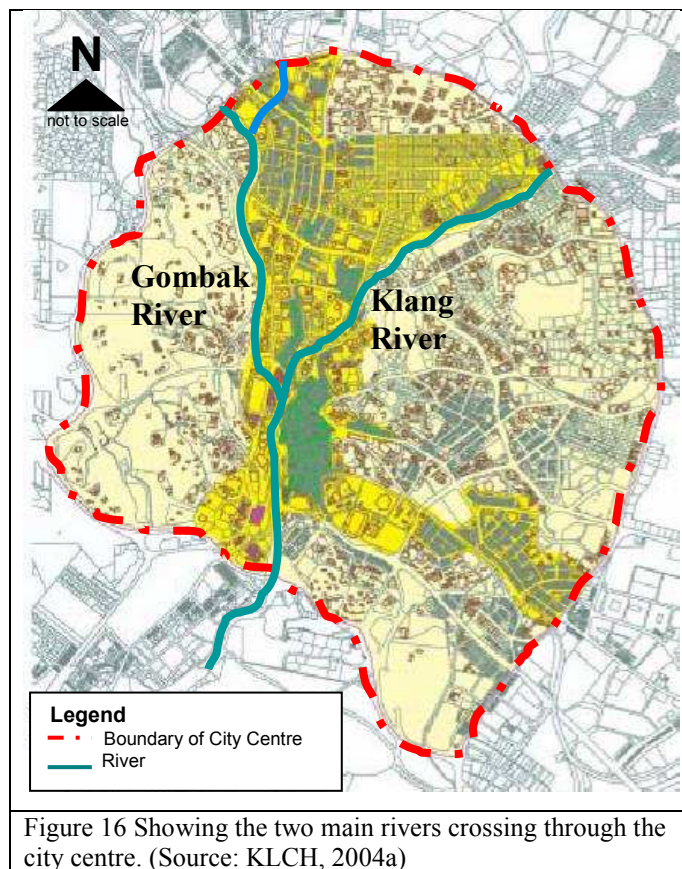


Figure 17 The growth of Kuala Lumpur from the river confluence. (Red line: City centre boundary)
(Source: KLCH, 1991)

5.2 Waterfront treatments according to morphological periods

To discuss the waterfront treatments, the morphological periods are identified. It focuses on the changes at the waterfront area. Based on archival records (maps, photos and documents) the three morphological developments of Kuala Lumpur in relation to its waterfront are traced (Table 14).

Table 14 Morphological periods

1	Early waterfront establishment – the decline of the waterfront (1857 – 1910)
2	The decline of the waterfront – the commencement of the ‘waterfront regeneration awareness’ (1911 – 1978)
3	‘Waterfront regeneration awareness’ till current (1979 – 2010)

Each of the periods are analysed in detail and the morphological elements, which comprise the rivers, streets, plots and blocks/buildings, are dissected and synthesised using maps, photos and diagrams to identify the type of relationship between the waterfront and the urban rivers (waterfront treatment) throughout the years. The detail of the study is in Appendix 02 (Abdul Latip et al., 2009). The following discussion will highlight the findings of the morphological analysis according to the morphological periods. (The following discussions will continuously cross refer to Appendix 16 for the road map, Appendix 17 for building map and Figure 1-Chapter 4 for the zoning map).

5.2.1 Early waterfront establishment – the decline of the waterfront (1857 - 1910)

Based on the morphological analysis during this period (1857-1910), there are six main types of waterfront relationship/treatment that can be identified (Figure 18). The first type (A1) is the development of residential buildings, which abutted the river. These are the early Malay settlements, which very much depended on the river for their daily routine including transportation, cleaning and washing. Even the houses have direct entrances from the river for boats. During that time when the sanitary system was unavailable, the houses were built backing over the river where

the kitchens and bathrooms were located for easier access to the water (Architect's interview (AR2) (Appendix 13).

The second type (A2) includes buildings that were built parallel to the river with their frontage facing the street and side elevation facing the open space between the building and the river. This is obvious for the 'shophouse' in the earlier 'road by road' planning (Gullick, 1988, p.39) that was located at the end of the row of Market Street next to the embankment (Zone 4a-right bank). The embankment was an open space between the building and the river, which was used as a landing place for trading. This is also the situation for the Federal Court building situated on Raja Road (Zone 4a-Gm) (Figure 19), which has steps and porticos with handsome arches at the side elevation facing the river.



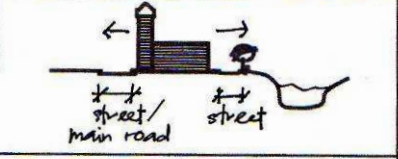
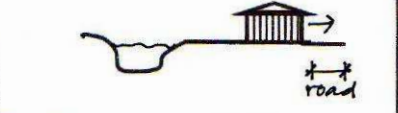
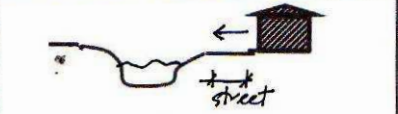
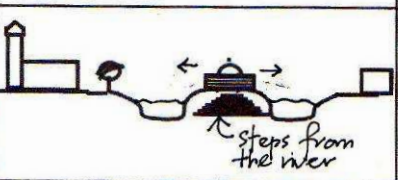
Early waterfront establishment - decline of waterfront (1857-1910)		
Type	Diagram of type of waterfront treatment	Description
A1		Building abutting the river on stilts and backing it
A2		Building built parallel with the river facing the street with side elevation next to the open space in between the building and the river
A3		Building with double frontage facing the main road and at the same time having entrance from the riverside with street in between
A4		building built facing the road and backing the river
A5		Building built facing the river with street in between
A6		Building with entrance and steps directly from the river

Figure 18 Waterfront treatments between 1857-1910.



Figure 19 Federal Court Building – with side elevation addressing the river. (Source: Anon., 1910)

The third type (A3) comprises buildings that had a double frontage (towards the river and the street) with a street/open space between. This arrangement can be seen at the Sultan Abdul Samad building (Zone 4a-left bank) and Central Market (Zone 4a-right bank). The former had the main entrance facing Raja Road and the secondary entrance from Holland Road (now known as Mahkamah Road) facing the river. As for the latter, the entrances are from both Rodger Road (now known as Hang Kasturi Road) and the riverside, providing a direct entrance for people coming from the landing area (the embankment). The embankment merged with the enclave of the open space in front of the building facing the river. In earlier days, the enclave was used by the sellers to sell their goods (Figure 20 and Figure 21). At that time, the street was only for pedestrians because no motor transportation had been introduced. The pedestrian track/street that was built along the river was one of the earliest developments in these settlements.

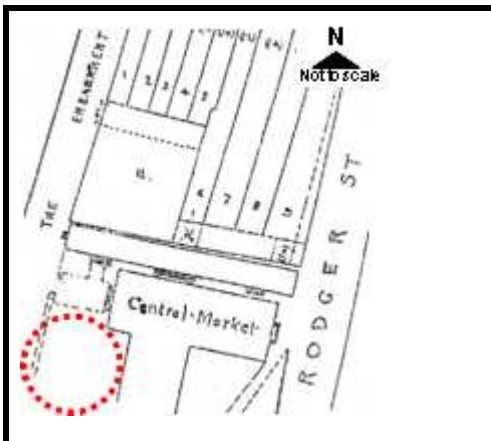


Figure 20 Enclave in between the building and the river. (Source: Gullick, 2000, p.52)

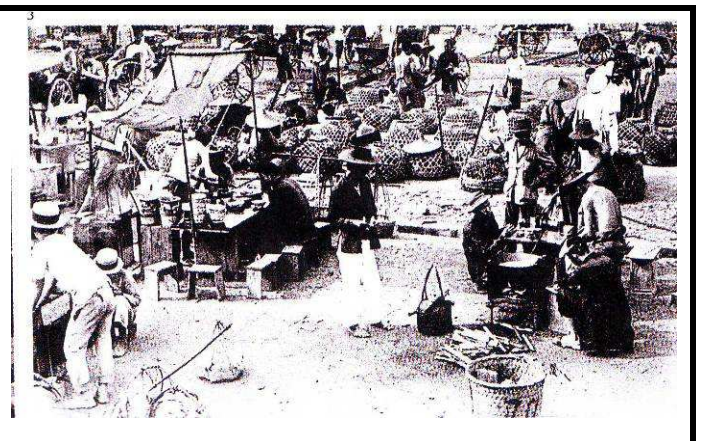


Figure 21 The activity at the enclave of the Central Market facing the river. (Source: Anon., 1900a)

The fourth type (A4) includes buildings that back on to the river and face the street. This situation is obvious for the Victoria Institution School (in Zone 4b-right bank) or, as some called it, the '*school at the river bend*' (Chung, 2000) (Figure 22). The bend that is better known as the 'S' bend was straightened in 1890 for flood mitigation purposes. The historical school, which was built in 1894, was oriented facing the street and backing onto the river.

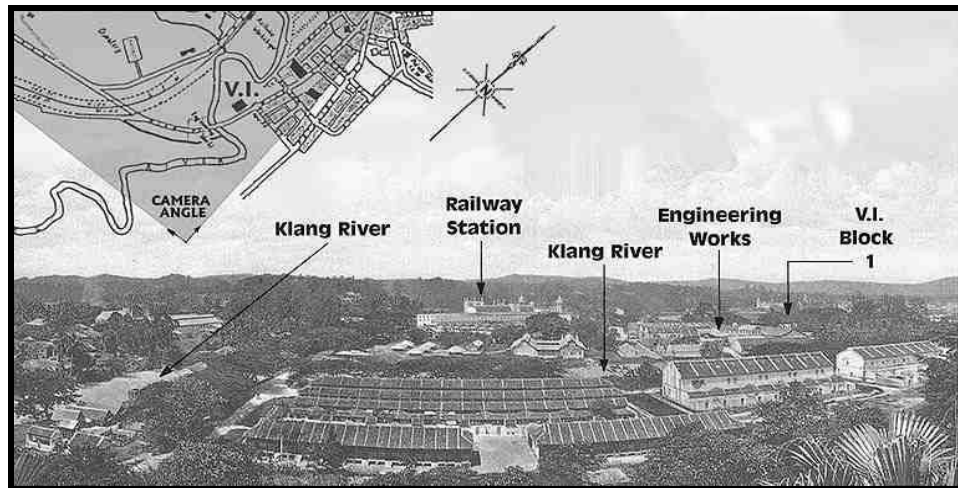


Figure 22 The 'S' bend at Klang River before it was straightened (Source: Chung, 2000)

The fifth type (A5) includes buildings that have only a single frontage that faces the river across the street. This can be seen at the row of buildings that were built along Holland Road where the Chow Kit Building is situated (4a-left bank) (Figure 23).

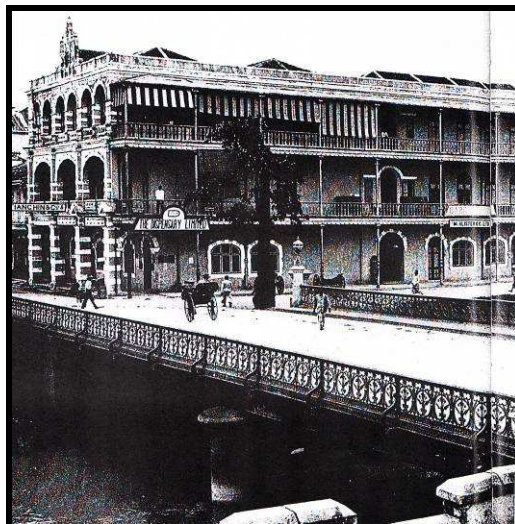


Figure 23 Rows of shophouses along Holland Road facing the river. Source: Anon., 1906

The mosque in Masjid India Road and the ‘shophouse’ along Church Road also had the same treatment towards the river (Zone 6a-right bank). The final type (A6) includes buildings that have an entrance directly from the river. Apparently, only one building had this characteristic, which was the Jame Mosque, which is located at the confluence of the Klang and Gombak River (Zone 4a-Gm) (Figure 24). It provided a direct entrance for the users coming from the river. This is also evidence of the importance of the river to the people of Kuala Lumpur at that time.

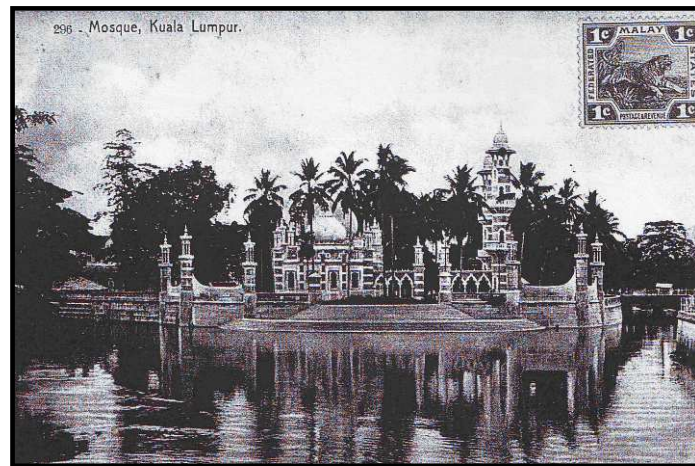


Figure 24 Showing Jame' Mosque in the early 1900s. (Source: Anon., 1909)

5.2.2 The decline of the waterfront – waterfront regeneration awareness (1911 – 1978)

Based on the morphological analysis of the second period (1911 to 1978), another eight types of waterfront treatments were identified with two having a repetitive situation (B3 with A5 and B7 with A2), as in the first period (Figure 26 and Figure 18). The first type (B1) includes buildings that were built facing the main road and backing the river with a back lane between the building and the river. This situation is apparent at the ‘shoplots’ that faced the Old Market Square (Figure 25) along the Klang River that backed onto the river with a back lane between (Zone 4a-right bank).



Figure 25 'Shophouses' facing the Old Market Square in the early 1900s. (Source: Anon., 1900b)

Following the earlier layout, which was first built around the Market Square, the 'shoplots' were built to replace the earlier lots that were in the nucleus area of the city. With the requirement of the back lane in the building regulations, which were already implemented during this time, it is obvious that these buildings would have to provide them to accommodate the night soil service.

The second type (B2) includes buildings that were built facing the main street sitting perpendicular to the river with a street between. This situation is obvious at the end lot of the 'shophouses' at Ipoh Road (Zone 1b-right bank). The third type (B3) is a repetitive situation of 'A5' (Figure 18), which was identified in the previous period; the same treatment was found to be continued in this period. These are buildings that are built facing the river but have a street in between. This type of building is one of the most common waterfront treatments that can be found in the city centre. Examples of this can be seen along Church Road, Ampang Road (Zone 6b-right bank), some parts of the 'shoplots' along Melayu Road (Zone 6a-left bank), 'shoplots' along 64/d Road (at Zone 1b-right bank) and Pertama Shopping Complex at Raja Laut Road. The fourth type of treatment (B4) is the double frontage buildings, which have entrances from both the main street and the river. This type of waterfront can be found at the Central Market building (Zone 4a-right bank), which was built to replace the Old Market building and is still standing until today.

The decline of waterfront-commencement of 'waterfront regeneration awareness' (1911-1978)

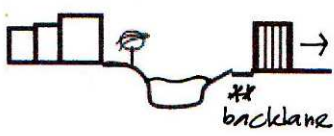

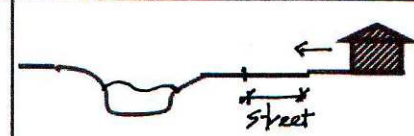


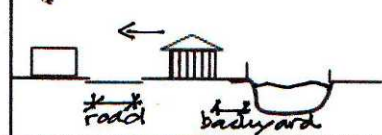

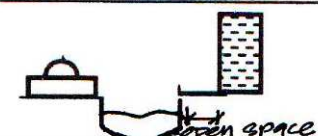
Type	Diagram of type of waterfront treatment	Description
B1		Building backing the river with backlane in between
B2		Building facing the main street perpendicular to the river with street in between
B3, A5		Building built facing the river with street in between
B4		Double frontage with open space in between building and river
B5		Building backing the river facing the road with street in between
B6		Building backing the river with backyard in between
B7		Building facing the street and abutting (backing/perpendicular) to the river
B8, A2		Building built parallel with the river with open space in between

Figure 26 Waterfront treatments between 1911-1978.

The fifth type (B5) includes buildings that were built facing the road, with their back to the river and with another street between the building and the river. This situation can be found in the Convent School at Church Road (6b-right bank) and the Police

Station at Bandar Road (Zone 4b-right bank). The sixth type (B6) includes buildings that face the street and have a backyard in between the building and the river. This type of building can be seen along Raja Abdullah Road (Zone 7-left bank).

The seventh type (B7) of waterfront includes buildings that were built facing the street, abutting and backing the river. This type of waterfront can be seen at the residential buildings built along Raja Laut Road (Zone 3a-right bank) and Wisma Yakin at Melayu Road (Zone 6a-left bank). These are buildings that were built right up to their boundary similar to the treatment of the earlier ‘shoplots’ in the town centre, which were allowed to be built to their boundary because of the limited and narrow size of lots. The final waterfront treatment (B8) that can be identified is a repetitive situation with ‘A2’ in the first period, which is buildings that were built parallel with the river and had their side elevation facing the river and having an open space between the building and the river. This situation is obvious in the development of the HSBC building along Benteng Road (Zone 4a-right bank), Tiong Nam Settlement (Zone 2-right bank), end lot at Mounbatten Road (now called Tun Perak Road) (Zone 4a-right bank), end lot at Ipoh Road (Zone 1b-left bank). Most of these building are still standing. There were different treatments in the building form of the earlier buildings, such as the HSBC and ‘shoplots’ at Mounbatten Road, where the side elevation facing the river were well treated and addressed the river (Figure 27), which contrast with the Tiong Nam Settlement that was built in the 1960s and the refurbished ‘shoplots’ built in the 1970s at Ipoh Road that only had a blank side elevation facing the river.



Figure 27 The previous HSBC building in the 1920s. (Source: Anon., 1920)

5.2.3 Waterfront regeneration awareness till current (1979 - 2010)

Based on the morphological analysis of the third period (1979 to 2010), another twelve types of waterfront treatments were identified with six having repetitive situations. These are C1, C2, C3, C5, C6, and C7 as in the first period and second period (Figure 30). The first category of waterfront treatments (C1) during this period includes midrise/highrise buildings that back onto the river with a back lane between. By this period, the provision of back lanes was a requirement in every building submission for fire and services purposes. Under this category, there were two types of development: i) the ones built on amalgamated plots of the old 'shoplots' (Figure 28 and Figure 29), and ii) the ones built on new larger plots. Examples of the first type of development are the Wisma Maran and OCBC Bank along Macao Road (Zone 4a-right bank). Examples of the second type in this category are KLCH building (Zone 3c-right bank) and PKNS building along Raja Laut Road (Zone 3b-right bank), Dato Zainal Building (Zone 6a-right bank) and Wisma Melayu (Zone 6a-left bank).

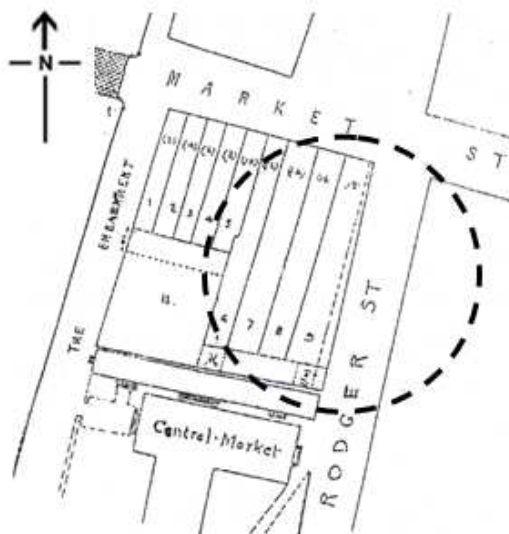


Figure 28 Smaller plots in the first morphological period (Gullick, 2000, p.52)

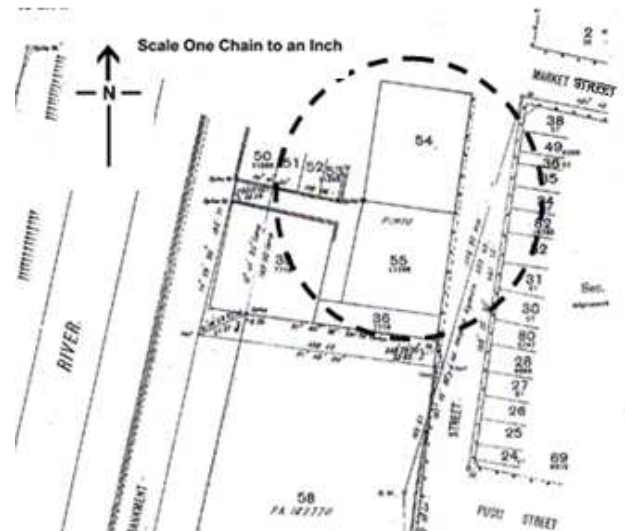


Figure 29 Old narrow plots in Figure 16 are amalgamated in 1936 (Anon., 1936)

The second category (C2) is a repetitive situation (B7 in Figure 26) of the previous period, which are buildings that face the street and at the same time abut the river (backing or perpendicular). The same type of treatment was still implemented during

this period. This is obvious at the Chinese School in Merpati Road (Zone 3a- right bank) (Figure 31).

Commencement of 'waterfront regeneration awareness' till now(1979-2010)		
Type	Diagram of type of waterfront treatment	Description
C1, B1		Mid and Highrise building backing the river with backlane in between
C2, B7		Building facing the street and abutting (backing/perpendicular) to the river
C3, B6		Building backing the river with backyard in between
C4		River feature 'naturalised'
C5, B3, A5		Building built facing the river with street/LRT line in between
C6, B2		Building facing the main street with side elevation facing the river with street in between
C7, B5		Building backing the river facing the road with street in between
C8		Building perched at the river bank with columns in the river channel
C9		Building - on top of the river
C10		Building facing the river with blocking element in between
C11		Building facing the river with public space in between building and river
C12		Terraces built facing the river for public

Figure 30 Waterfront treatments between 1979-2010.



Figure 31 Chinese School at Merpati Road abutting and backing the river

Category three (C3) is a repetition of B6 (Figure 26) where the buildings are backing onto the river and have a backyard between. These kinds of treatments are obvious at the PWTC buildings (Zone 1b-left bank) and also the houses at Raja Abdullah Road (Zone 7-left bank). The following category (C4) does not include buildings but development along the river in which the river form has been ‘naturalised’. This treatment can be seen at the confluence of the Gombak and Batu Rivers (Zone 1b). Although attempts have been made in other areas, such as at the portion of river behind KLCH building, the only one remaining is at the first location. The fifth category (C5) is a repetition of A5 (Figure 18) and B3 (Figure 26). This is one of the most common treatments identified, which is where the building is facing the river across a street, however, in this period some of the waterfronts are aligned with the LRT tracks that were completed in 1998.

The sixth category (C6) is also a repetitive category of what was implemented in the previous period (B2). These are waterfront developments that faced the street and have their side elevation facing the river with another street in between. These situations are obvious for corner lots of terraced ‘shoplot’ buildings. An example of this is the Pusrawi Clinic along Ipoh Road (Zone 1b-left bank).

The seventh category (C7) is a repetitive situation of (B5) in the previous period (Figure 26) in which the buildings face the road and back onto the river while having a street between. This situation is apparent at Sogo building (Zone 3b-right bank) in Raja Laut Road. The eighth category (C8) is buildings that are perched on the river

edge, either suspended or having columns in the river channel. This situation can be seen at the LRT stations that were built following the alignment of the LRT track as at Station Pasar Seni and Station Bandaraya (Zone 3b-right bank) along Raja Laut Road. The ninth category (C9) are developments which were built above/ crossing the river, which are obvious at the LRT station Masjid Jamek (Zone 4a and 6a) (Figure 32) and LRT Station PWTC (Zone 2).



Figure 32 The LRT Station Masjid Jamek, which crosses above the river. (Source: Ng, 2007)

The tenth category (C10) is development that is facing the river but being blocked by other urban elements. This significant waterfront treatment is only apparent in one place in the city centre – the well-known heritage building, Central Market (Zone 4a-right bank) (Figure 33 and Figure 34).

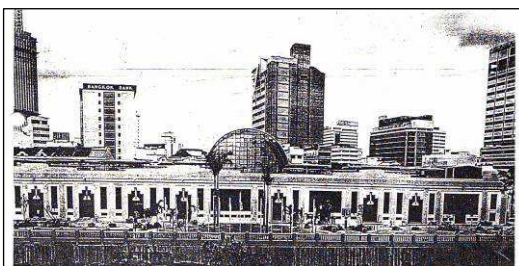


Figure 33 Central market facing the river before it was blocked by the LRT tunnel. Source: Md Kassim, 1988, p.33)



Figure 34 Central market after it was blocked by the LRT tunnel

The Central Market, which used to have a double frontage (B4 in Figure 26) that addressed the river and Hang Kasturi Street is now totally blocked from the river by the wall built for the descending LRT track from the viaduct to the tunnel system.

The eleventh category (C11) is developments that are built facing the river and have a public place between. This is obvious in the recently completed building of Medan Selera, Jalan Batu Bata (Zone 1a-left bank). Only one example of this kind of treatment was available in the city centre during the period the research was conducted. The final category (C12) is development of terraces that address the river and allows the public to enjoy the river. This is evident at the waterfront along the Pekeliling Bus station (Zone 1a-right bank), which is part of the Masterplan for the Medan Selera Batu Bata Project (which is located on the opposite bank) (Figure 35).



Figure 35 Terraced area facing the river

5.2.4 Discussion on waterfront treatments

Through the findings, the contextual integration between the waterfront and the urban river in accordance with the morphological period can be recognised. Eleven types out of the eighteen waterfront treatments (repetitive situations are counted as one) identified are governed by the road/street/LRT tracks: three types are facing the river with streets in between (A3, A5/B3/C5, B4); two types (A2/B8, B2/C6) are side-facing the river with a street in between, and five are facing the road and backing the river (A4,B1/C1, B5/C7, B6/C3). These types of treatments are similar to the ones defined by Owen (1993) as the '*set back building*' type of waterfront. As for B7/C2, although it is governed by a road, it is pushed to the edge of the river so that it abuts the river and is quite similar to the waterfront treatments '*vertical cliff edge*', as mentioned by, Moughtin (2003). However, the example given by Moughtin was more of dockside warehouses, which have a direct connection with the river or canal. As for the situation in Kuala Lumpur, the buildings have the same form but do

not have any connection with the water. As for C8 it is governed by the LRT tracks, however, its position, which is perched at the river bank, makes it quite similar to a *'pier jutting out into the water'*, as mentioned by Moughtin (2003). There are six other waterfront treatments that are governed by the river and facing it (A6, C4, C11, C12, C13), and only one which is governed by the river and backing it (A1), which is due to the situation prevalent at that time in which there was no sanitary system or water piping. Another two types are totally blocked from the river (C9, C10). Analyzing the waterfront morphologically and identifying the waterfront treatments, provides an overview of the evolution of the physical built environment. This is essential information to support the findings of the objectives in answering the main research question of why the waterfront is not responding to the urban river. It is also essential to recognise the policies, laws and guidelines available in accordance with these periods.

5.3 Policies, Laws and Guidelines in relation to the waterfront and urban river

The growth of policies and guidelines are listed in accordance with the three morphological periods previously discussed (Figure 36). (Detail explanation on the policy evolution is in Appendix 03 (Abdul Latip et al., 2010). It can be inferred from Figure 36 that although there were minimal laws and guidelines in the 1st period, many of the buildings addressed the river, as the river was fully functioning as the main transportation mode. However, although many laws were enacted in the second morphological period there were no policies promoting the contextual integration, which resulted in many of the buildings built during this time backing onto the river. The policies and guidelines to contextually integrate the waterfront and the urban river are only available in the third morphological period. However, from the morphological analysis earlier, there is a mix of waterfront treatments that have a good relationship and poor relationship with the urban river in the third morphological period.

Related Law/ Policy/ Guideline to the waterfront and the urban river according to the years			
Year	Law	Year	Policy/ Guideline
Waterfront Establishment - The Decline of Waterfront (1857-1910)			
1907	Sanitary Boards Enactment		
The Decline of Waterfront to the Commencement of Waterfront Regeneration Awareness (1911-1978)			
1913	Municipal ordinance Cap 133/ 1913		
1916	Town Improvement Enactment 1916		
1920	Water Act 1920 (Cap 146)(1989)		
1923	Town Planning & Development Bill, 1923		
1927	Town Planning & Development Bill, 1927		
1930s	Sanitary Board Enactment Cap 137, 1930		
1955	Town Boards Enactment of the Federated Malay States (Cap 137) amended in 21 st April 1955		
1953	Irrigation Areas Act 1953 (Act 386)		
1954	Drainage Works Act 1954 (1988)		
1958	Undang-undang kecil Bangunan Dewan Bandaraya Kuala Lumpur, 1958		
1960	Akta Ibu Kota Persekutuan, 1960 (Act 190)		
1964	Land Conservation Act 1960		
1965	National land Code 1965 (Act 65)		
	Ministerial Function Act 1969		
1974	Environmental Quality Act 1974		
1974	Street, Drainage and Building Act 1974 (1994)		
1974	Federal Constitution		
1976	Local Government Act 1976		
1985	Fisheries Act 1985 (Act 317)		
1970s	City of Kuala Lumpur (Planning) Act 1973 (Act 107)		
1976	Town and Country Planning Act 1976		
Waterfront Regeneration Awareness to Current (1979-2010)			
1982	Federal Territory (Planning) Act 1982 (Act 267)		
		1984	KLSP 1984
		1986-1990	5 th M'sia Plan
		1991-1995	6 th M'sia Plan
		1996-2000	7 th M'sia Plan
			KLSP 2020
2005	National Heritage Act 2005 (Act 645)	2001-2005	8 th M'sia Plan
2005			National Environmental Policy
2005			National Physical Plan
			River reserve (JPBD)
			Konsep Pembangunan Mengadap Sungai (JPS)
2005			Waterfront as Recreational Area
2006		2006-2010	9 th M'sia Plan
2008			National Urbanisation Policy
2010			Draft Local Plan 2020
			10 th M'sia Plan

Figure 36 Chronology of law and policies related to the waterfront development periods

Why did the decision makers still make such decisions when a lot of policies and guidelines were already in place by then? This is the question that will be addressed in Chapters 6 and 7. Therefore, it is also essential to first identify the decision makers involved in finding the answers to the research questions in the next chapter.

5.4 Decision makers concerning the waterfront

Malone (1996, p.2) pointed out that the general similarity with other urban developments with the waterfront regeneration lies in the same underlying forces that influence other developments. He highlighted that, *'the economic and political intentions of planners and developers and the conditions under which these activities*

are undertaken are central in all forms of urban development'. Based on this, the research concentrated on the main decision makers that were involved in the waterfront development to establish the reasons 'why the waterfronts in Kuala Lumpur are not contextually integrated with the urban rivers'. Since contextual integration is derived from the principles in urban design, the key decision makers involved in the implementation of contextual integration of the waterfront towards the urban river are also the same as those implementing urban design. They can be divided into three groups: i) the authority or the public sector, ii) the producer (developer and urban designer/architect), and iii) other decision makers/users (Greed and Roberts, 1998; Carmona et al., 2003).

i) Authority or the public sector

In Kuala Lumpur, several public sector departments are involved in the development of the waterfront area. According to Carmona et al. (2003), the authority or the public sector are government bodies (such as local authorities) that regulate and plan development through the planning system. The authorities establish a planning policy and prepare the framework of regulations for the private sector that are involved with development to make decisions accordingly. However, it is important to have knowledge concerning the authorities that were involved with the waterfront development since the inception of the city to better understand the state of the current situation (Trancik, 1986).

The earliest authorities that were involved in matters pertaining to the river in Kuala Lumpur were the Sanitary Board in 1890 and Public Works Department (PWD) in 1872. The early concerns were very much on sanitation and flood mitigation measures. The Town Planning Board (TPB), which was officially established in 1921, took over the task of the Sanitary Board under the Town Planning Act 1923 concerning planning and regulation matters. However, the task was given back to the Sanitary Board in 1927 when the Town Planning Act was revised. This is because the Sanitary Board was dissatisfied with the 'reduced power in decision making' when the TPB took over some of the Sanitary Board's earlier responsibility. Consequently, the TPB only remained as the advisory body to the Sanitary Board. The Sanitary Board was then changed to the Kuala Lumpur Town Board and later to

the Kuala Lumpur Municipality. The PWD had always handled matters regarding the river.

However, in 1932, DID was formed to take responsibility for the river. PWD, which was separated from the Sanitary Board to concentrate on other matters, handed over the task of overseeing the river to DID. The owner of the river had all the while been the State. However, when Kuala Lumpur was declared as the Federal Territory in 1974, the river was managed by the Federal Territories Director of Lands and Mines Office (Appendix 15). The Kuala Lumpur Municipality, which was later changed to the KLCH, regulated planning matters. Currently, the TBP, which later became the Town and Country Planning Department, are not the advisory panel for Kuala Lumpur anymore – they oversee and develop policies for the planning of the whole of Malaysia except Kuala Lumpur. This is because Kuala Lumpur has its own Planning and Master plan unit. Aside from that, there was also an agreement between the KLCH and DID, in which both agreed that the responsibility for the maintenance of the two main rivers (Klang and Gombak) in the city centre would be given to the KLCH. However, the rest of the tributary rivers and flood management in the city centre are still under the responsibility of DID (Other government agency officer's interview (OA4); City Hall officer's interview (LA7); City Hall officer's interview (LA5)).

Currently, there are several departments that have an interest in the waterfront. These separate government agencies (DID, TCP, KLCH and Landscape Department) produce their own guidelines concerning the waterfront area. In the KLCH itself there are several departments that are directly involved with the contextual integration of the waterfront and the urban river – the Masterplan Unit, which produced the masterplans and policies; the Urban Design Unit, which produced the guidelines; the Planning department, which regulates the regulations and guidelines; and the Architectural, Landscape and Services Department, which implements and monitors projects, but not specifically for waterfronts (Figure 37). For this research, representatives from each of the departments in KLCH and other government agencies directly involved in the planning and approval of waterfront development were interviewed (Appendix 13).

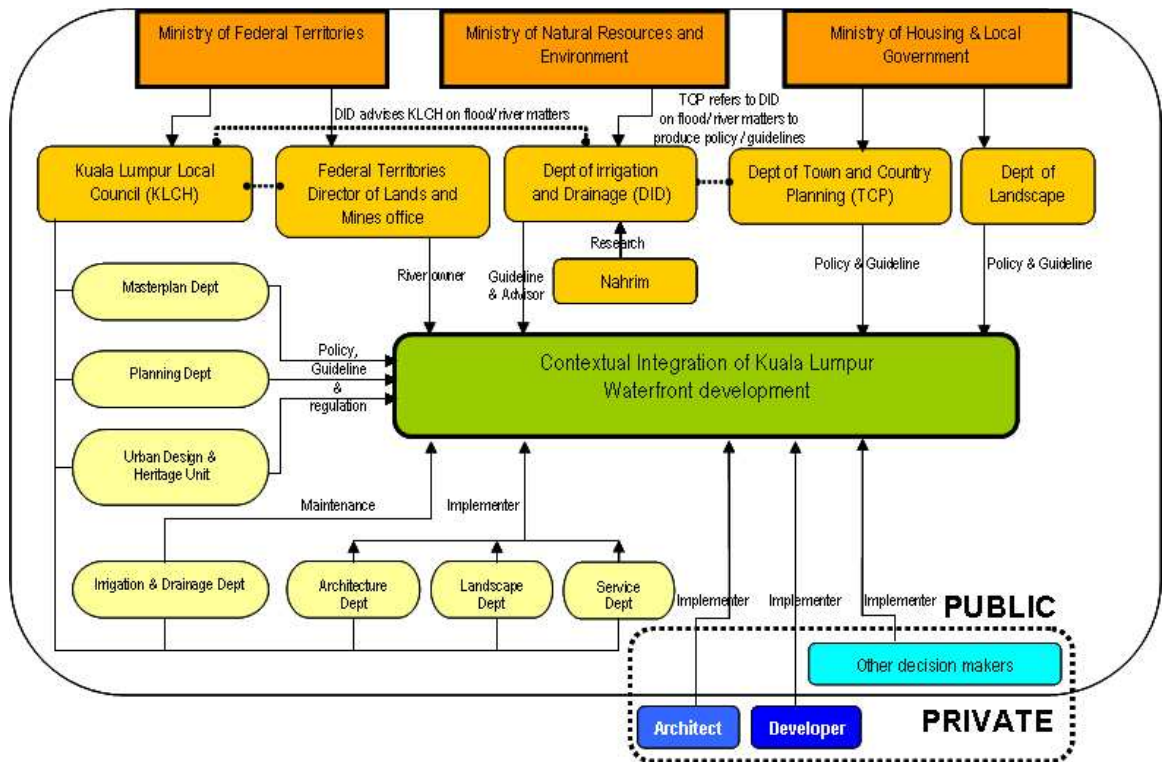


Figure 37 The current decision makers relating to the contextual integration of the waterfront and the urban river in Kuala Lumpur, as of 2010

ii) Producer

There are two types of producers directly involved in the implementation of the contextual integration of the waterfront and the urban river. These are:

i) developer and ii) urban design/architect

a) Developer

As in the international context, the producer that contributes to the contextual integration of the waterfront and the urban river in Malaysia is also the developer and the urban designer/architect. According to Hall (1997, p.71), the meaning of developer is '*anyone who cause development to happen from an individual householder to large corporation*'. The developer in the context of Malaysia is also defined as an individual or company who develops a project (Chong, 1977).

In relation to contextual integration, the decision of the developer in shaping the environment is crucial and their final say on the physical and functional aspect of the development will determine whether the integration may happen or not (Rowley, 1998). Therefore, the role of the urban designer or the architect is very important in

getting the right message through to the developer (Architect's interview (AR1)). For the purpose of this research, developers that are directly involved with the waterfront development projects were interviewed (Appendix 13).

b) Urban designer/Architect

In the context of Malaysia, it is the architects that are professionally responsible for the urban design (Architect's interview (AR1); Sulaiman, 2000). Although professional urban designers may come from any design background, it does not mean that a non-professional designer might not be able to produce a good urban design as well. However, for this section, the focus will be on the professional urban designers that have a planning, landscape or architectural background. These are the people who are directly involved in urban design projects. Their decision on design matters concerning the contextual integration is very important because they are the ones who interpret the design brief concerning the physical and functional aspects of the development and, consequently, will have a direct impact on the contextual integration. Although they might be working for a developer, their awareness and understanding concerning the importance of contextual integration is significant enough to communicate it to the developers. The architects/urban designers interviewed for this research are those with experience in working on the development at the waterfront in Kuala Lumpur (Appendix 13).

Woodbridge (1985) stated that good design at the waterfront lies in the care taken by the designer and the developer in executing the project with full awareness of the constraints of the regulations prepared by the authority and at the same time responding to the forces of the surroundings. However, at the same time, there are other decision makers who might have a direct or indirect influence on the contextual integration of the waterfront development. The following sections will discuss the other decision makers involved.

iii) Other decision makers

In Kuala Lumpur, other decision makers may come from many different backgrounds (politicians, transport planners or engineers, private owners and others). They either realise or do not realise that their decision concerning the built

environment can affect the contextual integration between the waterfront and the urban river.

According to Greed and Roberts (1998, p.10), a significant amount of urban design is done by other professionals in the built environment, either by '*default and often by ignorance*'. A good example of this is the planning for the motorcar, which for years had such an influence on the whole city form, including the smaller neighbourhood areas as well as some waterfront areas. The transport planners and the highway engineers might not have the same objectives or agenda as the urban designers but by default their decision and policies impact the nature of the urban design of a city or an area and the contextual integration of the place with its surrounding. Political figures may also impact the contextual integration of an area of development (Chang and Cervero, 2008; Malone, 1996; Breen and Rigby, 1996). Another possible decision maker is the citizens themselves (Hooimeijer and Toorn Vrijthoff, 2008).

However, in Malaysia, citizens or user participation is not fully practiced in all development (City Hall Officer's interview (LA12), City Hall Officer's interview (LA10), therefore, they were not included as interview respondents. Briefly, the decision makers' direct or indirect involvement in the current condition of the contextual integration between the waterfront and the urban river can be summarised in the diagram below (Figure 37). For the purpose of this research, representatives from other decision makers interviewed include transport planners, quantity surveyors, engineers and highway engineers from other government agencies and those working with private companies (Appendix 13).

5.5 Conclusion

This chapter introduces the waterfront in Malaysia in general and focuses on the case study area, the two main urban rivers that traverse the city and its context. The findings show the different types of waterfront treatments that can be identified through the three morphological periods. It is apparent that there is a strong contextual integration between the waterfront and the river in the first period when the river was the lifeline of the city. The buildings and the streets were dependent on

the river. However, it changes in the second morphological period when there was no more reliance on the river for transportation. There were also no policies, laws and guidelines to integrate the waterfront with the water. As a result, the waterfront treatments in the second period were very much governed by roads resulting in the two conditions of facing and backing/ 'ignoring' the river. The third period includes the current development together with a mix of the two earlier situations. Interestingly, this occurred when there were already policies, laws and guidelines in place. This raises the question why there is still development that is not integrated with the river and why do some waterfronts change from initially being integrated with the river to one that is not?

The chapter also identifies the decision makers relating to the contextual integration at the waterfront. This includes the authority, producers and other decision makers that may consist of various disciplines and the users. From the discussion above, it can be inferred that there are various other departments and agencies in Kuala Lumpur that have an interest in the waterfront. Does this situation affect the non-contextual integration?

Several questions that cropped up in this chapter will be explored in Chapters 6 and 7. The information gathered in this chapter will be used to support the findings in the following chapters. The next chapters will answer the main research question concerning the current situation — through physical examination, activity investigation and interviews with the decision makers involved.

CHAPTER 6

FACTORS THAT AFFECT THE LEVEL OF CONTEXTUAL INTEGRATION IN TERMS OF THE PHYSICAL DIMENSION

1.8 Introduction

This chapter addresses objectives 1 and 3 and provides answers to sub-research questions 1 and 3 (Chapter 1, p. 8). The discussion is a comprehensive evaluation of the level of contextual integration concerning the physical dimensions as well as the factors affecting them. The evaluation is achieved by cross analysing four types of data – field observations, plan measurement, mapping technique and focus groups (Table 2, Chapter 4 for coding of respondents). Finally, the key reasons for these existing factors are further explained by cross analysing data from interviews, morphological analysis and content analysis. To retain the confidentiality of those interviewed, codes are used for quotations (Appendix 13 for coding). The evaluations were primarily based on the theoretical framework stated in figure 4 (Chapter 3) and indicators were developed for each of the attributes based on the literature review. The discussion covered the whole 9km of Kuala Lumpur waterfront. However, an example of both physical and functional evaluation done in one zone can be seen in Appendix 18.

1.9 Physical dimension

As mentioned in Chapter 3, the level of contextual integration between the waterfront and the urban river in terms of the physical dimension is evaluated based on two main principles, namely, **good form** and **legibility**. In this research, **good form** has three attributes: physical character of water, development that is oriented towards water, building enclosure [ratio of height (building) and width (space between building and water)]. **Legibility** is composed of four attributes, which are ‘direct access to water’, ‘link the waterfront to the city’, ‘continuous pedestrian linkages’, and ‘visual accessibility’. The initial idea of the factors that may affect the level of contextual integration were derived from the ‘meaning’ of the physical dimensions based on

three attributes: association, use and awareness. These were gathered through the focus groups. The discussion starts with an explanation of how the indicators (for each level: high, medium and low) are determined for each attribute for each of the principles, followed by the evaluation of the level of contextual integration. The low level in the indicators represents the non-contextual integration in each attribute.

1.4.2 Good Form

a) The physical character of water

Indicators for evaluating the level of contextual integration

In determining the indicators for the physical character of the water, two main aspects were taken into consideration (refer p.43): i) the edge treatment, and ii) the quality of water. A natural condition is considered an important indicator to evaluate the physical character of the water, comprising its edge (riverbanks and its channel) and the water quality (Pidwill, 1993; Syms, 1993; Wakefield, 2007). In this research the water quality is measured based on its allowance for body contact, as outlined by DoE (2008) (Table 3, Chapter 3, p.45), rather than the scientific experiments concerning the water content.

For this reason, the indicator for the high level of contextual integration between the waterfront and the urban river for this attribute is based on the edge treatment that is natural and has water quality that would allow for possible body contact (Class I in Table 3, Chapter 3). This is followed by the mix of natural and concreted edge treatment as well as water quality that allows for possible body contact (Class II) as the medium level of contextual integration. A fully concreted edge treatment and has water quality that does not allow for any body contact with the water (Class III and IV) are used as the indicators that may contribute to the low level of contextual integration between the waterfront and the urban river. Owens (2005) stresses the significance of a river's natural appearance, and he posits that a change in its natural appearance is detrimental to the ecological system of the river. Furthermore, many cities have opted to take down the concrete walls that were constructed at their rivers for flood mitigation because they wanted to return their river to their natural state (FRIRJ, 2004). As for the water quality, Class III and IV may be contaminated and

have the possibility of releasing a foul smell, which may not be acceptable to people (Connor, 2005).

Level of contextual integration for physical character of water

Many studies have repeatedly found that the most preferred attributes for response by humans towards the environment is the natural atmosphere (Nasar, 1998, p.63). The importance of the natural look of the edge treatment was highlighted by the focus group. One of the respondents commented that a river, when stripped off its natural attributes, ceases to be one.

'To me the river should look like a river with natural stones or a natural embankment, but here, in most places, the river looks like a big drain. Honestly, when I first came, I did not really know it was a river (F2).'

The other members expressed a similar sentiment, which proves the point that a river's physical character is its most captivating feature. The comment also reflects that the presence of concreted banks at the river may reduce the meaning of the place to the users. The change of the river's physical character to a 'monsoon drain', instead of flowing water with natural stones clearly indicates poor meaning from the present condition of the river. Although seven years have passed, this opinion is still consistent with the statement made in 2003 by the Star, one of Malaysia's daily newspapers:

MENTION that we have two rivers flowing through the heart of Kuala Lumpur and most people would, after some thought, reply: "Oh, you mean those huge monsoon drains." (Anon., 2003a)

Similar to the comment made in the focus group, this public sarcasm is supported by the extensive concreted riverbanks throughout the waterfront (Figure 38). This situation might indicate that whilst the riverbank is concreted, people will keep associating it with a monsoon drain, thus, reducing their awareness of the river. Furthermore, most of the respondents mentioned that they do not have any interest to go down to the water except to those places where there are boulders (Zones 1a and 1b). It seems that there were attempts to 'renaturalise' the river banks in these two zones.

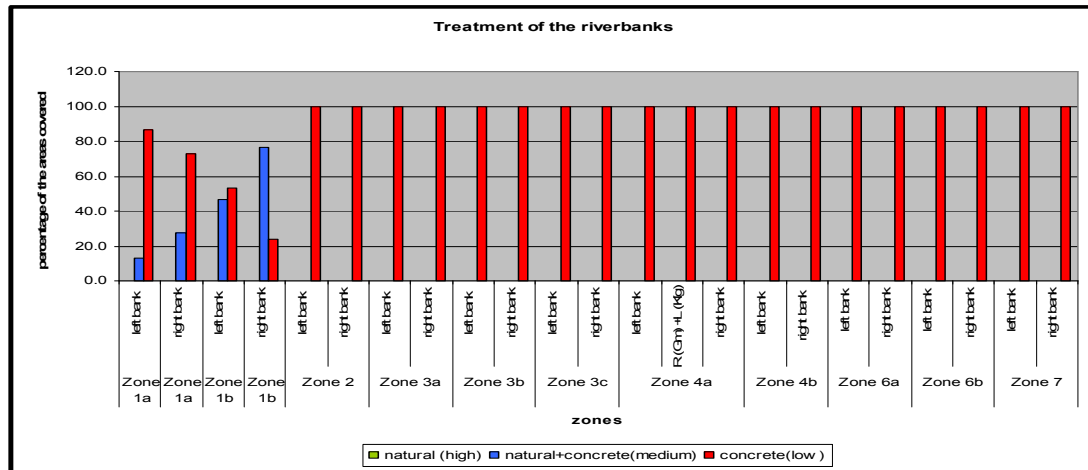


Figure 38 Treatment of the riverbanks in all zones

In Zone 1b although it was only ‘made up’ to have a ‘natural look’ by bringing boulders into the river to cover the concrete channel, the river manages to generate static activity such as fishing activities, and sitting on boulders close to the water edge as a form of relaxation, which is not observed in the other zones (Figure 39, 3 and 4). The inclination of the respondents towards the essence of “naturalness” that is observed in Zone 1a and Zone 1b confirms the findings of Marcus and Francis et al. (1998), Nasar (1998) and Kaplan and Kaplan (1989).

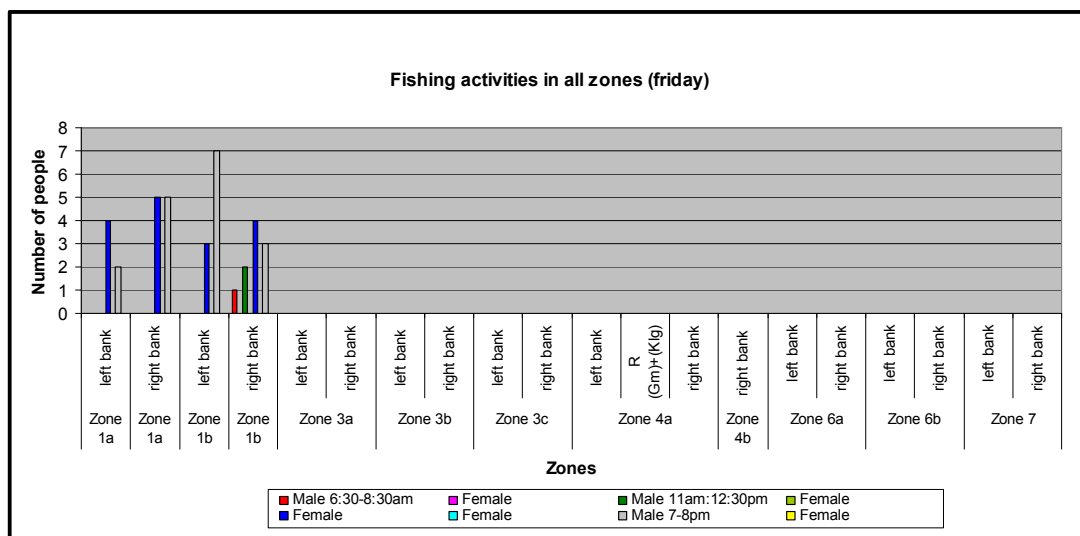


Figure 39 Fishing activities are only found in Zones 1a and 1b

The static activities suggest that the ‘natural’ condition of the environment in that area had changed people’s perception from a monsoon drain to a river again. These

situations demonstrate that Zones 1a and 1b give a medium level of contextual integration, which is a mixture of concrete and ‘natural look’. Such integration recreates the river’s physical character with minimal activities. In contrast, the rest of the zones have a low level of contextual integration with the river because of the concreted treatment, which has reduced the awareness and association of the user to the river. If the concrete wall has changed the river’s physical character and affected the users’ activities, why was it concreted?



Figure 40 Fishing activities in Zone 1a



Figure 41 Sitting and resting on boulders at water's edge in Zone 1b

The decision to concrete the riverbanks was to mitigate flooding. Flooding is the natural behaviour of a river when it occasionally overflows. Since every river has flood plains, this natural behaviour has no consequences if there are no human settlements in close proximity. However, because of urbanization, development projects started to intrude along the waterfront. Consequently, what was hitherto perceived as being the natural behaviour of the river now constitutes a ‘natural disaster’ to the people. According to Gullick (2000) and OA1 (Appendix 13), the two rivers (Klang and Gombak River) in the Klang Valley were first straightened in the 1890s, representing Malaysia’s earliest flood mitigation measure. The following discussion focuses on the six main themes that justify the concreting of the river: i) introduction of other transportation; ii) rapid development; iii) flood; iv) absence of policies and guidelines; v) lack of awareness and vi) limited funds.

Introduction of other transportation systems; rapid development; flooding

The introduction of the rail and motor system brought rapid development and increased the city's population. More structures were built, which increased the water run-off to the river in the city. This resulted in more flooding because the rivers did not have the capacity to cater for excess water run-off (KLCH, 2004a, p.725), which eventually disrupted the functioning of the city, threatened human lives and damaged properties (LA13). As the country strives to introduce other transportation systems, certain aspects of environmental control that should be considered in the development have been set aside. Without proper planning, some areas are grossly affected, as evidenced in the urban rivers at the heart of Kuala Lumpur, which have suffered the brunt of modernization and urbanization.

In 1971, Kuala Lumpur experienced a devastating flood, which stalled its economic activities. The government's response was to devise a plan to make sure that the situation would not happen again (LA5). A task force from the DID (one of the government agencies) was instructed to come up with a proposal. Based on the study it conducted, the water run-off at that time was already three times higher than the capacity of the river leaving the DID with three options. The first option was to store some of the water upstream so that it would not hit downstream; second, to make the river bigger or deeper so that it could hold the extra water; lastly, to build walls so that even if the water level rises, the developments on both sides can still be protected (OA1).

The first suggestion was to build a third dam in the city, which would store the water in case of flooding. However, there were too many objections from the public on the location of the dam and it has still not been built (OA4). Without enough storage, the government decided to adopt the second option, which was to deepen and widen the river. Despite the fixed condition of the river, with buildings built either along the waterfront or too close to the river edge (OA1), work had to be done. With this limitation and the maximum capacity of the river, the riverbank had to be made vertical so that it could carry more water. The only way to achieve this without increasing the friction was to make it smooth and vertical by using steel sheet piles with a concrete finish (OA1). The discussion above illustrates the limited solutions that they had during that time, which resulted in the river being concreted.

Absence of policies and guidelines; lack of awareness

The first proposal to concrete the river was put forward in 1978 and the concreting work of the whole riverbank continued up until the 1990s (AR4, OA1, LA12). Is this the only way possible for flood mitigation, and why were other options that would maintain the natural condition of the riverbanks not explored? It was highlighted that when the decision was made in the 1970s, Malaysia was not ready for integrated flood mitigation policies or guiding principles (LA12). In 1984, the KLSP (KLCH, 1984) stated that natural features such as rivers, highlands and mining areas may be in danger of being destroyed in the future due to the absence of positive policies and guiding principles. The statement by the KLSP is directly related to the decision to concrete the river. At that time, Malaysia adopted the flood mitigation model of the United States and the United Kingdom (OA1), which implies a lack of policies and guiding principles concerning the management of river systems that would fit the river conditions of Kuala Lumpur.

Although the government opted to concrete the riverbanks, does it have to be concreted throughout? LA5 argued that the concreting should be selective, which was contrary to what the engineers from DID had in mind. Succinctly, the decision to concrete the riverbanks relied on engineering logic, and was devoid of any collaboration with other experts who might have foreseen the effects of the problems beyond the awareness of the engineers. This might also be because there was no urban design awareness and no expert in the government agencies during that time who could contribute to the contextual design issues. The awareness of the opportunity and potential of the waterfront and the river as a public place were not considered an important factor at that time (LA5, AR2). Even now, urban design issues remain in the background despite the country's rallying cry to be the centre of development and progress in Southeast Asia by the year 2020.

Limited funds

In addition, DID had to take into account that Kuala Lumpur was growing rapidly and there were limited funds available at that time. LA5 stressed that at that time, everything had to be done by tomorrow and the environmental aspects were not considered. The focus was more on meeting the basic necessities. Consideration for environmental quality was considered an aspiration. This is similar to Markoff's

theory, which states that it is the basic needs that need to be fulfilled first followed by the aspiration. It was only in the 1990s that DID realised that it was not the best solution, however, according to the economic and engineering perspective at that particular time, the concrete solution was the most cost effective (OA1). Why is that so?

At that time, there was only limited and very expensive land in the city centre that could be acquired for widening the river. Therefore, the solution to make the river vertical in the city centre was crucial. This solution was not only implemented in Kuala Lumpur but in all city centres in Malaysia. Outside the city the land was cheaper where private lands could be acquired to maintain the natural sections of the river, however, this was not so in Kuala Lumpur. Due to the limited funds to acquire the expensive land, concrete was used (LA13, OA1). This reflects that the limited funds greatly affected the chosen solution. Was any other solution used?

In 2008, the SMART tunnel was introduced. This prevented some of the excess water that could not be carried by the river from reaching the city centre (OA1). Local authority officials and one of the developers agreed that since its introduction it had reduced much of the flash flooding in the city centre (LA3, LA10, DV2). With the smart tunnel in place, why were the concrete banks not removed? Unfortunately, the calculation for the capacity of the SMART tunnel had to include the river channel as part of the flood mitigation. This meant that the concrete channel would have to stay until the excess water run-off was successfully prevented from going into the river (OA1, LA13). Was there any effort to prevent the excess water run-off?

In the 1990s, the awareness of the importance of the environment had increased and the aspiration was geared towards bringing the natural river back to the city (OA1, OA4). The Urban Storm Water Management Manual (MSMA) was introduced in 2000 to reduce the water run-off from every building (DID, 2000). If this is so, why was the concrete channel not removed? Although MSMA was being implemented in new developments, unfortunately many of the buildings along the waterfront were old buildings. The question of who should fund the retrofitting of these old buildings is still unanswered (OA1). This discussion implies that the concrete riverbanks may have to remain intact until there is a solution to prevent the excess water run-off.

The next factor that affects the level of contextual integration, as pointed out by the focus group respondents, is the bad smell and the pollution in the river:

'The river smells all the way. The colour of the river does not look inviting. Yes, there are areas where they put some boulders but if you look closely there's a lot of rubbish stuck between the boulders and it does not look nice.' (F5)

'The worst situation is behind the Industrial Court (Zone 4a left bank). Occasionally, that place will have a foul smell from the water and sometimes I made jokes with my friend that I think even the judge cannot make good judgments with this kind of smell.' (M2)

These statements indicate that the bad smell and pollution may also reduce the use of the waterfront, as they create an uncomfortable situation that deters the user from staying at the waterfront, thereby indirectly preventing them from appreciating the river. This is parallel with Pidwill (1993) who found that the improvement of water quality in a deteriorated waterfront is one of the main aspects that will boost the confidence of developers and the public in the place. LA1 highlighted that the quality is not confined to the appearance (no rubbish floating) but also the class in which it is categorised (refer Table 3, Chapter 3, p.45). This is to make sure that it is not too contaminated for the public to touch and does not produce a foul smell. The existence of these two aspects may reduce the level of contextual integration because they prevent the user from having body contact with the water and only allow a visual connection. Why is the water polluted? The following discussion indicates that there are five main themes as to why the river is polluted: i) lack of initial planning, ii) lack of awareness, iii) lack enforcement, iv) lack of political will, and v) lack of coordinated river management.

Lack of initial planning

The pollution of the river started in the first morphological period. This is because during that time there was no proper sewage treatment system. All the wastewater went directly into the river. Consequently, a movable bucket scheme for night soil was later introduced to deal with the situation (Abidin, 1990, p.23). OA1 added that the rubber plantations around the city also contributed to the pollution. This was due to the water runoff from the plantation, which contained pesticides that were dangerous to the ecological system of the river. This situation was already experienced by a city that was, at that time, only 40 years old (OA1).

Furthermore, with the introduction of the rail and motor systems, Kuala Lumpur saw rapid development and the population of the city increased. There was a lack of proper planning of housing to cater for the lower income population. This situation resulted in squatters along the waterfront due to the non-affordability of the expensive houses in Kuala Lumpur (LA12). Being squatters, not even the basic facilities were provided by the Local Authority. This situation made them reliant on the river as their main source of water and most of them also used the river as their dumping ground (LA1, OA1). The pollution from the squatter areas increased from time to time and was particularly bad when the lower parts of the squatters' accommodations which were built on stilts, were packed with debris and polluted the river with solid waste (LA1, LA13). How was this problem tackled to reduce the pollution? Resettlement of the squatters was done in the 1980s and 1990s (AR4, LA5). Although many efforts were made for the resettlement, the KLCH (2004a, p.748) mentioned that further resettlement of the squatters was needed to eliminate one of the major sources of pollution along the waterfront. This may indicate that this is still an existing problem in the city.

Lack of awareness, lack of enforcement and political will

Furthermore, based on the KLCH (1984, p.158), other sources of water pollution resulted from serious soil erosion and siltation due to land development, domestic waste and industrial effluent. It was mentioned by all respondents that this was due to the lack of individual and community awareness concerning the importance of the river. The public awareness and mentality of '*not in my backyard syndrome*' has existed since the early days of Kuala Lumpur as reported by Reade (1924) in the second morphological period and still exists today (OA2). He stressed that there is a lack of public spirit within the urban community, which often acts on the principle of '*that is someone else's problem*' as mentioned by Tibbalds (2001). It was argued that an awareness campaign alone was not enough. This can be seen in the 'Love Our River Campaign' by DID, which ran between 1992 and 2002, and was not very successful because of the lack of law enforcement and political will (OA1, OA3, OA4). The discussion above reflects that the lack of awareness is a continuous problem that has existed from the early days of Kuala Lumpur. It needs to be backed up by law enforcement and political will. Is there any other evidence that this is the problem?

The inadequacy in the environmental control towards the physical development of Kuala Lumpur can be seen from the heavily polluted rivers. This was mentioned in both structure plans of Kuala Lumpur (OA1, LA13, LA5). After twenty years from the first gazetted KLSP 1984, this problem was highlighted again in the KLCH (2004a, p.724). The KLSP 2020 include the report on the Water Quality Index (WQI) from the Malaysian Environmental Quality Reports 2000, which showed that the two rivers were still polluted (Class III) and require extensive treatment. In 2008, the WQI released by the Department of Environment again showed that both rivers were still polluted with Class II for the Gombak River and III for the Klang River (Table 15). Although an improvement can be seen for the Gombak River, it is still in the category of polluted river.

River	Year	Water Quality Index	Class	Status
GOMBAK	2007	78	II	Slightly polluted
	2006	74	III	Polluted
	2005	68	III	Polluted
	2004	67	III	Polluted
River	Year	Water Quality Index	Class	Status
KLANG	2007	55	III	Polluted
	2006	63	III	Polluted
	2005	52	IV	Polluted
	2004	52	III	Polluted

Table 15 Water Quality Index. (Source: DoE, 2008)

In the KLCH (2004a, p.749), one of the policies mentioned that treating the wastewater from all the local sewers before it goes into the river is a prerequisite for improving the water quality. It was admitted that it was only in 2008 that the wastewater treatment was connected to all areas in the city centre (LA1). Indirectly, this shows that the wastewater that was released to the river directly without treatment still existed in the city until two years ago. This may indicate that the enforcement and political will on this matter can still be questioned. Why is this so?

Lack of coordinated river management between authorities

LA1 added that one of the key problems is due to the uncoordinated management of the river itself among the different authorities (refer Figure 25, p. 135). The Klang River is a very long river (120km) and only runs through Kuala Lumpur in the middle part, about 9km. It crosses between two states (Selangor and Kuala Lumpur) and eight local authorities. Unfortunately, each local authority only looks at its own problems in the local context and does not look at the river as a whole (LA1, OA1). Why is the river not treated as an entity? Each of the local authorities would want to have its own programmes and industries in its area so that it can get better revenue from higher taxes (OA1, LA1). Furthermore, various departments (refer Figure 25, p. 135) have separate responsibilities for the river, for example, KLCH only looks at the maintenance of the river within the Kuala Lumpur territory, while the DID is in charge of the flood mitigation programme. Sometimes this situation creates overlapping work between the agencies and creates problems concerning the management of the river (LA3, LA5, LA7, OA1, OA2). This is because if a river is looked at as a whole and not as a political boundary, it is not good to have a polluting industry upstream (LA1, OA1). This implies that it is vital to look at the river holistically, which, currently, is not the case.

At present, 92.9% (Figure 69) of the waterfront length has a concreted riverbank. It is further worsened by the polluted condition of the water. This provides a poor meaning of the place to the user in terms of their awareness, association and use of the river, and, hence, the level of contextual integration between the waterfront and the urban river in most parts of the waterfront is low. The reasons why the concreted riverbanks and pollution occurred are considered to be due to the introduction of other transportation systems, absence of policies and guidelines, limited funds, lack of initial planning, lack of awareness, lack of enforcement and political will and lack of coordinated management by different authorities.

b) Development oriented towards water

Indicators for evaluating the level of contextual integration

The second attribute to be evaluated is the orientation of the development/building towards the water. The importance of this attribute concerning waterfront development is mentioned by Tugnutt and Robertson (1987), Pidwill (1993) and Scoffham (1993) (Refer p.46) . In this research, orienting towards the water refers to buildings that are facing the water. This indicates a high level of contextual integration between the waterfront and the urban river. Through the morphological analysis it was found that in the context of Kuala Lumpur there are buildings that are arranged perpendicular to the river and that have minimum openings or no openings on the side elevation facing the water (A2 in Figure 6 and B2 in Figure 14, Chapter 5). Although this kind of arrangement allows for higher accessibility to the water's edge (Hoyle, 2001) it results in less integration between the ground floor activities and the water. This is because, according to the Public Places and Spaces Team (www.pps.org), buildings that are oriented towards the water should also have ground floor activity that allows it to be connected to the public, without which it may not contribute anything to the place making of the area.

Therefore, buildings that are arranged perpendicular to the river are categorised in the medium level of contextual integration. Finally, the buildings which are backing onto the river may create a redundant waterfront and sever the relationship with the water (Takahashi, 1998). Therefore, these situations are categorized in the factors that may indicate a low level of contextual integration. Since the size of the buildings differs in each zone, the buildings are measured according to the length of the buildings. The percentages are derived from the length of the buildings that back onto the river compared to the river length within each zone studied.

Level of contextual integration for development oriented towards the water

From the findings, about 29.8% of the buildings face the river, 11.8% are perpendicular and 49.7% back onto the river (Figure 69). Of the 146 buildings observed (Figure 42), ten out of the eleven zones consist of buildings that back on to the river. Only Zone 1a, does not have any buildings in this category (Figure 43). How do these conditions affect the meaning of the place to the users? It was the consensus of both focus groups that they do not have the courage to walk alone in

areas that have buildings backing onto the river even in the daylight. Two of the respondents mentioned:

'The areas along the buildings which face the river – I do not mind walking alone. However, not where the buildings are backing onto the river.' (M6)

'Although buildings fronting onto the river can sometimes be congested if the traffic is heavy with parking on the side of the road we feel safe because there are a lot of people.' (F2)

Zone	No of buildings
1a	8
1b	18
2	23
3a	4
3b	5
3c	3
4a	34
4b	19
6a	6
6b	17
7	9
TOTAL	146

Figure 42 Number of buildings evaluated

These statements reflect that buildings backing onto the river are connected to a lack of safety. It may affect the length of stay and reduce the use of the area. It might also indicate that natural surveillance such as the presence of people is also important in this context (Jacobs, 1992). This may be the reason why buildings backing onto the river do not generate any 'static activities' (term described in p.60-61) between the waterfront and the urban river (Figure 44).

Examples can be observed at the hotel buildings in Zone 3a-right bank and 1b-left bank. Although many hotels in waterfront cities take advantage of the location to combine activities with the water, this is not the case with the hotels here, which back onto the river and do not generate any static activities (Figure 45).

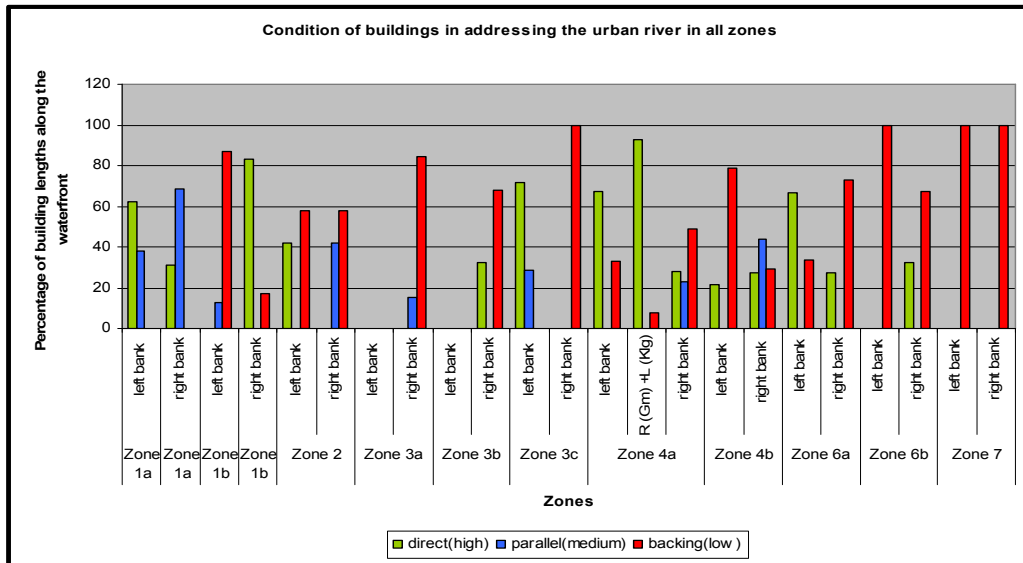


Figure 43 Condition of building in orienting towards the urban river in all zones



Figure 44 Restaurant in Zone 4b that is backing onto the river does not generate any static activities between the waterfront and the urban river



Figure 45 Hotel in Zone 1b that is backing onto the river does not generate any static activities between the waterfront and the urban river

The discussion indicates common ground with Tugnutt and Robertson (1987), and Takahashi (1998), who mentioned that buildings backing onto the river may create a waterfront that is not used by the public and severs the relationship with the water. Whereas McCluskey (1992) mentioned that the ability of a place to increase static activities is a major concern in creating a sense of place for people and can increase the meaning of a place. This situation can be seen in three zones (Zone 3c (right bank), 6b (left bank) and Zone 7 (left and right bank) which have 100% of the buildings backing onto the river. Again, it was observed there were no static activities generated in these areas. The example in Figure 46 shows the record for

one of the days (Monday). This demonstrates that buildings backing onto the river may affect the use of the area. Another factor raised is the aspect of cleanliness. One of the respondents commented:

'One of the reasons is rubbish. Buildings that are facing the river have less rubbish along the waterfront compared to those backing onto the river.' (M1)

This statement might indicate that they are not comfortable with the presence of rubbish in the area. This may shorten the user's length of stay in the area. With rubbish seen piling up at the back of the buildings, it is possible that the owners themselves are not very concerned about what happens at the back of their buildings.

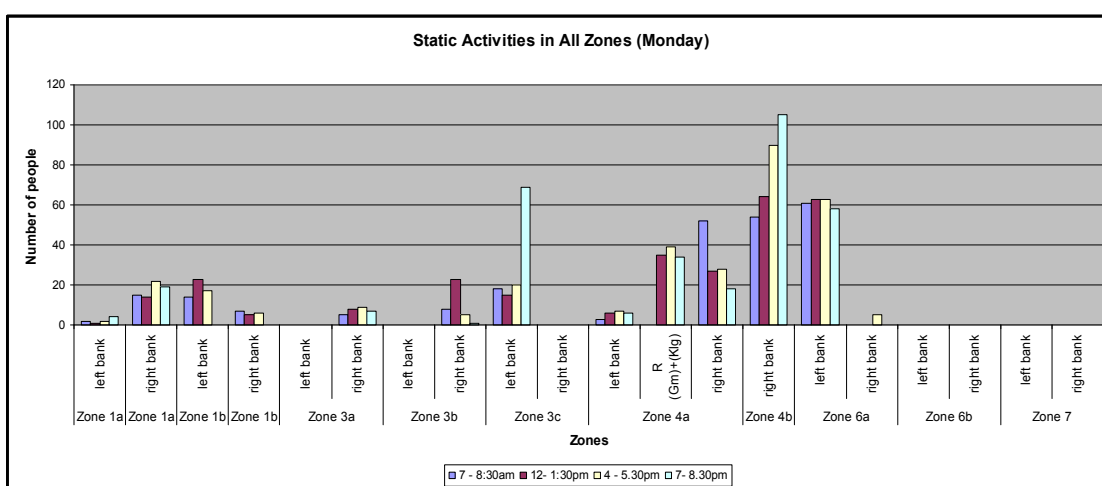


Figure 46 Static activities in all zones (Monday)

In relation to this attribute, two major issues were raised – lack of safety and lack of cleanliness – both of which are related to buildings backing onto the river. These factors might reduce the meaning of the place to the user as they may directly affect the poor use of the area. The discussion above reveals that buildings backing onto the river may have a low level of contextual integration with the urban river. This leads to the question of why most buildings (49.7%) (Figure 69) at the waterfront back onto the river? Five key reasons were discovered as to why this situation occurred: i) layout and planning in the early days, ii) introduction of other transportation systems, iii) absence of policies and detailed guidelines, iv) lack of awareness, v) condition of the river, and vi) no market demand.

Layout and planning in the early days and introduction of other transportation systems

Through the physical observation, a clear example of buildings backing onto the river is in Zone 7. All the residential buildings at Raja Abdullah Road are backing onto the river. According to the morphological analysis (Chapter 5), many of the residential buildings built were backing onto the river in the first morphological period. Why is this so? This is because they depended on the river as the source of water for daily washing and cooking (AR2) – there was no Syabas (Water Provider Company) that provided water at that time. Nevertheless, they also had direct entrances from the river into the house from the back. Therefore, in the layout of the houses, the kitchens and bathrooms were located near the water for easy access to the water source (AR2). In 1875, Sir Frank Swettenham was quoted as saying that *'Kuala Lumpur is the best mining village I have ever seen with houses back onto the Klang River bank so boats could go up to people's door'* (Mabbat, 1965). It was found that some of the residential buildings built in the second part of the morphological period followed the same planning layout as those built in the first morphological period. However, during this time the river was no longer used as the mode of transportation. It can be inferred that this may be the reason why the river started to be treated as a backyard.

Why were some of the buildings built backing onto the river with a pathway or road in between? Most of these buildings were built during the second morphological period (1911-1978). Buildings that were built during this period were governed by the layout and planning of the roads (for example in Zones 4a-right bank, 6a-right bank, 6b-right bank, 7-left bank). This is because, at this time, the earlier footways along the river, which were used by the people that landed at the riverbank, were turned into back lanes when it was a requirement for all shop houses to have back lanes. Some of the back lanes were turned into roads when the motor systems were introduced (OA2). This shows that the initial planning and introduction of the other transportation systems has affected the present condition of the waterfront development.

The absence and inadequacy of policies and detailed guidelines

There is no evidence that policies or guidelines were in place during the first or second morphological period that promoted development to orientate towards the river. This was claimed by AR1:

‘No...no...at that time, planning did not have anything of that aspect (on regulations or guidelines facing the river)...let us say what an architect wants to do, we just have to follow the By Laws and regulations and that is all. The rest is you...you in your own ingenuity if you want to focus on that.’ (AR1)

This may reflect the inadequacy of policies and guidelines during that time and the dependence on the awareness of the producer to orientate towards the river. Some of the developments that backed onto the river were built in the third period (1979-2010). Since 1984, laws, policies and guidelines have been introduced to promote development to orientate towards the river, so why is this situation still occurring? It was found that this is because there are still inadequate policies, and the lack of a framework and detailed guidelines led to a difficulty in monitoring. The development in Kuala Lumpur after the KLSP 1984 depended solely on the Structure Plan, which is general in manner as it was planned according to zones and not by lots (OA9). It is evident in the Structure Plan 1984 (KLCH, 1984), which specifies in sub-section L7 that the waterfront is a potential public place and that future consideration of the relationship of the buildings to the surrounding environment is important as part of the development control. This shows that there were concerns regarding the contextual integration at that time. However, although this document was gazetted there was no supporting framework or detailed plan for its implementation.

This is the same for the Structure Plan 2020 (KLCH, 2004a), which was gazetted in the year 2004 to replace the Structure Plan 1984. Six years after the document was gazetted, the local plan, which is supposed to have a detailed plan by lot at the waterfront area, is still in draft form and has yet to be revised after the public hearing on the draft plan in August 2008. Although it includes consideration on the aspect of addressing the river, due to the public comment on the document, it is yet to be gazetted. This may indicate that the framework, detailed plans and guidelines are still inadequate. Is there any other aspect related to the policies and guidelines?

LA2 claimed that some of the available guidelines were too general and not applicable in the Kuala Lumpur context. An example was shown of a guideline for developments fronting the river. It shows a diagram of a building that has ample space between the building and the river. This situation is very rare in the fully built up area of Kuala Lumpur. This tallies with the statement mentioned in the KLSP 1984 (p.3), which states that many of the policies and guidelines are drawn up on a nationwide perspective by many ministries and departments, and are not applicable to the needs of Kuala Lumpur. This may imply that there was already a call to reorient the perspective but that not much has been done since then concerning the aspect of developments facing the river.

OA1 highlighted that another reason for the difficulty in implementing the guidelines is that they are non-statutory. An example was given concerning the guideline produced by DID in 2003, which is known as the 'Fronting the River Development Guideline' and also the 'River Reserve as the Public Open Space' guideline by the Town Planning Department. Their implementation is still questionable, as there have been buildings built in recent years that still back onto the rivers. This may be because it is a non-statutory document, and, therefore, it is difficult to enforce compliance with the guidelines.

Lack of awareness by the producers

Another factor given by LA12 and OA1 is due to the mentality of the developers who only consider the development in terms of its profitability without any real awareness concerning this matter. One developer stressed this matter when asked about their consideration in development:

'First, we consider is it feasible? Then we will look at the how much profit we can make. Can you sell it? If you cannot sell, we do not want your idea or concept.' (DV2)

This statement implies that profit is the first thing on their mind. This situation is paralleled with Greed and Roberts (1998, p.198) who opined that the main consideration of the developers is always the opposite of the town planning requirements. To them '*the cost factor*' and '*profit*' are the priority rather than the '*design*'. Are there any efforts to educate the developers? LA12 claimed that efforts to educate the public, including the developers, concerning this information have

recently been increased by the local authority. He mentioned that educating the architects is quite easy because it is part of their nature of work to consider the surrounding context but the ability of the architect to convince their client or developer is the challenge. AR3 and AR1 highlighted that it is very important for the architect to be creative and play their role in educating the developer on this matter.

'If you tell your client and say I can get your money back and I can give you extra. Why must they decline? So, you have to take more time in the design. You have to convince them. Tell them ...this is what you (developer) want. I am suggesting something better, the cost is almost the same or only a little extra but it can give more benefit. However, you (architect) have to go all out to convince people. It is in the hands of the architect, especially in this country.' (AR1)

This may imply that the creativity of the architect is very important in getting the message through to the developers. This may also indicate that the development control is still inadequate to ensure the developers implement certain requirements.

No market demand; condition of the river

LA12 added that although some developers are receptive there are still those who are reluctant to do so due to the condition of the river itself. This factor was also stressed by LA2, DV2, DV5, AR1, AR2, AR3 and AR4. Why is this so? The condition of the river was polluted and flooded almost every time during heavy rain before the SMART tunnel was constructed. Is there any effort to face the river by the producers after the SMART tunnel was constructed? DV2 mentioned that they tried to follow the instruction of the authority by facing the river but, unfortunately, they had to 'solve' the view for the apartments by having a landscaped car park partly on top of the river so that the apartments could have a green view instead of the polluted river to enhance the value of the apartments.

AR1 added that due to the repeated occurrence of flooding previously, one of the building forms was designed with the car park to be on top and ramps for the car parks were placed at the back of the building facing the river as the buffer for the building in case of flooding. LA2 added that due to the unbecoming condition of the river, most of the developments did not consider it as a factor let alone face it as the developer always argued that it would devalue their development. AR2 shared his experience:

'I did one project also facing the river, part of it. We wanted to incorporate the river, thinking that people can walk along the riverbank. In the original design, there was a water feature that goes from the development to the river. It is similar to the one in San Antonio. But for the developer to wait for the river to be cleaned for this to happen, the project will never start, you see. How? They cannot wait for that. So, it is not practical, the best is we leave a buffer. Then, when the river is cleaned up, maybe we can open it up again.' (AR2)

This illustrates that the condition of the river (polluted and flood) itself does not encourage the producers to face or orientate their buildings to it. Although the SMART tunnel is there, they are still very cautious concerning flooding.

c) Building enclosure

Indicators for evaluating the level of contextual integration

Building enclosure (ratio of height and width) is another important attribute for the contextual integration between the waterfront and the urban river (Trancik, 1986; Owen, 1993; Samant, 2004). As mentioned in Chapter 3 (refer p. 48), this attribute was chosen because the form of most of the waterfront in Kuala Lumpur is the setback type, which has space (street/pathway/open space) between the waterfront and the water. The study by Greenbie (1981) was adopted and modified to prepare the indicators to evaluate this attribute, as it is considered to be most related to the research.

According to Greenbie (1981), as mentioned in Chapter 3 (p.49), the 'wall' (height i.e. the building) should be at least one-quarter going upwards of the width of the 'floor' (space between). This is important in urban design because buildings are only perceived by pedestrians at the ground level to two or three storeys above (Gosling, 1992). Where the height of the 'wall' extends twice the width of the 'floor' it will make the people feel as if they are walking in a canyon and if it is four times higher they will lose the sense of enclosure (Greenbie, 1981). Trancik (1986) also highlighted that with highrise towers it is almost impossible to create a positive and coherent urban space. Therefore, a ratio that is less than 1.25 may contribute to the high level of contextual integration between the waterfront and the urban river. Anything between 1.26 and 2 may contribute to medium contextual integration. This is because anything that is more than 2 may result in a canyon effect to the user. This may contribute to the low level of contextual integration.

In addition, it takes into consideration the statement highlighted by Owen (1993), that is, if the building is too far from the water, the relationship with the water may be lost. Too far in the context of Kuala Lumpur is defined in this research as those that are outside the 50 metre range of the research area (DID , 2003). Another aspect that is considered important is the continuity of the walls. Areas that have continuous walls may provide a better enclosure compared to 'walls' that have too many gaps (or broken spatial structure) as they may loosen the enclosure.

Level of contextual integration for building enclosure

The level of concern regarding the importance of building enclosure was stressed by the focus group. Most of the participants in both groups felt very uncomfortable walking in a narrow walkway with high buildings adjacent. One of the female respondents expressed:

'Having a narrow space and a high building next to it makes the space become darker than other areas and even in daylight I feel scared.' (F2)

This may indicate that safety is one of the main concerns in relation to this attribute. It seems that buildings that have a ratio of more than 2 make people feel insecure because of the narrow and shadowed space, especially if the buildings back onto the river. Does it affect the user in any other way? Another respondent shared the same view concerning the feeling of insecurity but adds that it makes them feel claustrophobic:

'I feel claustrophobic walking in this kind of place and very insecure. I really feel it should be wider.' (F6)

Indirectly, these statements imply that it may affect the use of the area. Although it was observed that the difference in percentage between the buildings that have a ratio of less than 1.25 (39.3%) and buildings that have a ratio of more than 2 (41%) is small (Figure 69), their concern might prevent them from staying long or result in them totally avoiding areas with this type of development. This may result in poor use of the place by the user and indirectly prevent people from enjoying the river.

It was observed that buildings with a ratio of more than 2 can be found in three types of development: i) highrise buildings that are built close to the water's edge; ii) buildings that are abutting the river, and iii) buildings that are over the river.

Although it was difficult to justify whether this attribute was a concern to the user through physical observation alone, the activity observation shows that static activities are lacking in areas that have this building condition. This can be observed, for example, in Zone 3c-right bank, where all of the buildings are those that have a ratio of more than 2 (refer to both Figure 46 and Figure 47). The earlier statements by the focus group support the argument.

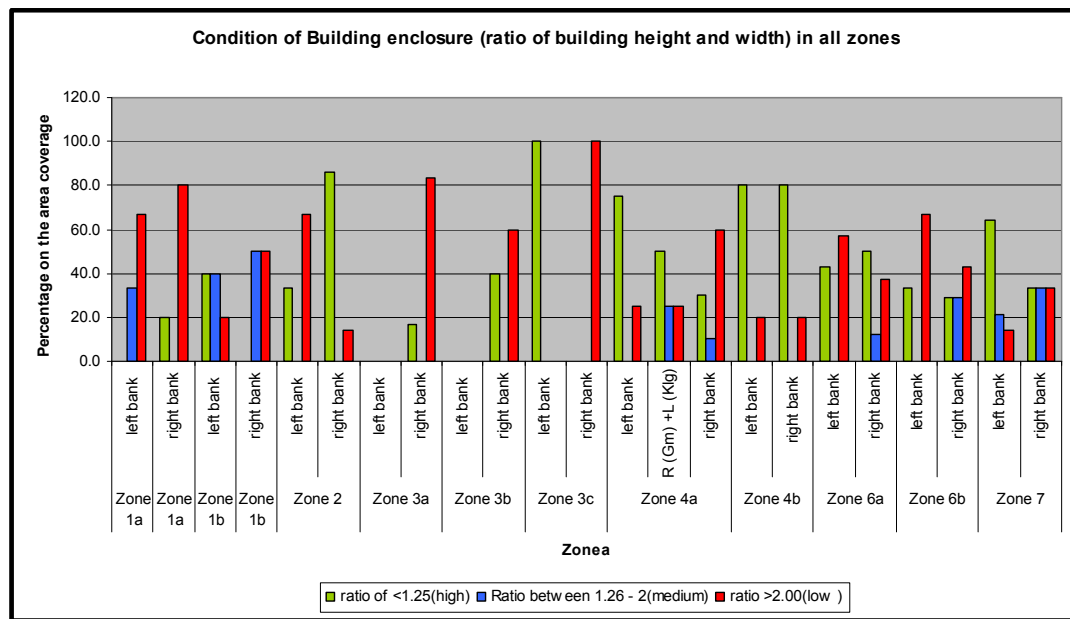


Figure 47 Ratio of building height and width of space between the building and the river for all zones

Interestingly, some mentioned that high buildings can sometimes provide good shade at the waterfront during hot days but none would stay long because the safety factor was their priority. This finding is parallel with Carr et al. (1992) who stressed that a sense of safety is an important factor in creating a positively meaningful place. This shows that the presence of buildings with a ratio of more than 2 may affect the low level of contextual integration of the waterfront with the urban river because of the poor use by the user. Why do the three types (i, ii, iii) of development mentioned above exist along the Kuala Lumpur waterfront? This will be further explored in the following discussion.

High-rise buildings that are built close to the water edge

Initial planning and market demand for higher structures

Based on the morphological analysis it was found that the earlier buildings that were built during the first morphological period were single storey. Starting in the early twentieth-century, the trend for double storey and even three storey 'shophouses' was practiced, especially with the growing population and the limited space in the town area. These include buildings that are built close to the water's edge. Although there is a continuity of walls with two and three storey high buildings, some of these buildings do not have activity at the ground floor facing the river. This situation can be observed at the stretch of 'shophouses' in Zone 4a-right bank where the earliest nucleus of the city originates around the Old Market Square.

As the population increased, the demands for higher structures were seen, especially after the World War II in the second morphological period. This was when higher structures (as high as 15 storeys) were built. LA12 added that the situation worsened with the implementation of the Comprehensive Development Plan (CDP). It was prepared in 1965 and gazetted in the 1970s. It promoted development in the city centre during the second and third morphological period through the incentives of higher plot ratios to replace the old 'shophouses'. This approach is quite similar to the approach of the western modernist planning. Many of these old 'shophouses' are located along the waterfront. During the CDP, did they differentiate the plot ratio at the riverfront area and the city centre area? Was there any awareness to conserve the historical buildings? According to LA12, there were no specific areas conserved but rather to redevelop and replace all the old 'shophouses'. He added:

'No, at that time there was no concern. In the CDP, there was no consideration for conservation. The UDA wanted to take over and demolish Central Market and even, Sultan Abdul Samad building. In the historical area, they planned to develop new buildings such as Daya Bumi (40 storeys high). However, in 1988, the awareness of conservation started to grow in Kuala Lumpur. We managed to save these buildings.' (LA12)

This implies that the awareness concerning heritage buildings, which are 2-4 storeys high, only came later, in the 1980s, after a lot of the damage had already been done. This was supported by AR1 who had experience during the implementation of the CDP. He mentioned that with the incentive to build higher, no setback could be created on tight 'shophouses' plots, which were already built quite close to the

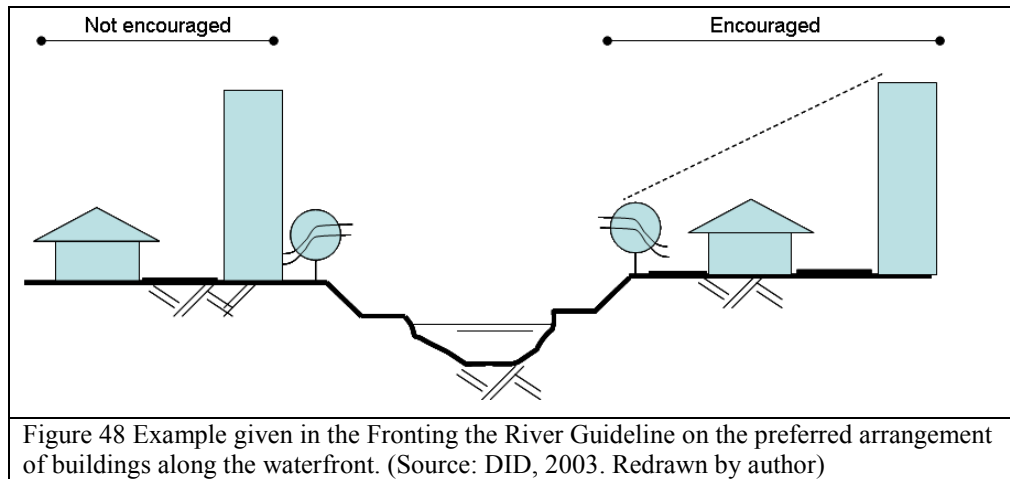
water's edge. A high rise is only viable if it is constructed on at least eight plots of the old 'shophouses', which results in a narrow space between the waterfront and the urban river.

Furthermore, developers in the early days approached development in the 'traditional ad hoc' manner. Only in the late 1970s did the Housing Developers Licensing Act require developers to be more organised in both operation and management level (Chong, 1977). In the 1970s, the developers were not interested at looking at development in the larger coherent whole and '*could not care less about urban design*' being only interested in making the building pay (Shahariman, 1977). This situation is parallel to the opinion of Desfor and Jorgensen (2004) who mentioned that without initial planning of the waterfront and with the inconsistent demand of market-driven development high-rise buildings may be built close to the water's edge along the waterfront.

Absence of policies, laws and coordinated management

According to the content analysis, there was no consideration concerning the creation of the enclosure of space for the waterfront area as a potential public space until the 1984 Structure Plan. Furthermore, although in the Guideline on facing the river concept (DID, 2003) it stated that the arrangement of buildings at the waterfront area should have lower buildings at the river's edge (Figure 48), it could not be fully implemented because it was a non-statutory document. This implies that it is not possible to force people to apply it. Was there any river reserve that could prevent buildings being built close to the water's edge?

OA1 mentioned that the river reserve was only available in the National Land Code, which was established in 1960. The reserve was meant for the public similar to the reserves for the roads. The only difference being that the reserves for roads were given after the roads were built, whereas the rivers were already there before human settlement.



He highlighted that most of the buildings built along the waterfront were already at the waterfront from the beginning of Kuala Lumpur before the river reserve was even established. LA14 added that the existing ‘alignments’ of the building or plots along the waterfront already existed and, therefore, the 50m reserve of the river is quite difficult to apply in the context of Kuala Lumpur. This is because if the site is too small, the owner will not be able to do anything with the site if the 50m setback is followed. Usually, the owners are required to provide some buffer depending on the site (which does not have any fast rule) or they will be asked to follow the neighbouring development in terms of the alignment. He further added that the river reserves in the context of Kuala Lumpur are still not a gazetted area.

‘Actually the river reserve (Right of way – ROW) is not done yet. It is not gazetted yet. DID are still in the process of doing it. There is a reserve but not a legal reserve. That is the problem – cannot control. Try asking the DID about the reserve – they would not want to answer – it is not finished yet!’ (LA14)

From the statement it implies that KLCH is expecting DID to do it. OA4 argued that as DID does not have the statutory power over the river, it makes it difficult for them to manage the river.

‘At the moment, DID does not have any power in any of the Acts. None of the Acts mention their role except that they are on the board of appeal for appealed projects in the Water Act – so it is difficult for them to implement projects or manage the river fully or even request for the river to be gazetted. This is because the river (land and water) is a State matter. DID are in the process of proposing a new act – ‘River law’ (water resource Law) – and in that DID has the power to manage the river, as the implementer of the law.’ (OA4)

This implies that although there are various agencies involved (refer Figure 25, p.135) in respect of the rivers, unfortunately, no one is really focusing on them. As DID have no power in any of the Acts they have difficulty in getting the gazette done. This situation results in the loss of many river reserves and new developments are allowed to be built near to the riverbanks (LA1). These statements reveal that without clarity of the job scope, coordinated management between the different agencies involved and appropriate laws, it is going to be difficult to control new development along the waterfront.

Buildings that are built abutting the river edge

River widening flood mitigation

OA1 highlighted that one of the reasons why some of the buildings were abutting the river in the current context is related to the exercise of river widening for flood mitigation in the 1970s, 80s and 90s. OA4 mentioned that in some of the areas, the river is too narrow (less than 30m). In order to achieve the capacity to cope with the 100 years intensity discharge the river would need to be widened to the maximum.

'It is difficult to do in Kuala Lumpur because the space is too limited. Some of the buildings are built right up to the reserve area. Therefore, it is difficult to make the river bigger. We have to go right to the building edge.' (OA4)

This statement implies that the buildings in the area were already built quite close to the river before the river widening took place. The width of the river, which is quite narrow in certain areas, made them go all the way to the building line, consequently, resulting in buildings that abutted the river when the river widening took place.

Natural movement of the river

OA1 and OA3 added that there are cases where the building was once quite a distance from the river but after 50 years it became very close to the river because of the natural movement and meandering of the river. This phenomenon sometimes caused the concrete wall to collapse. Consequently, some of the concrete channels had to be repaired and widened from time to time. This exercise sometimes reached the building line, which resulted in buildings abutting the river. The Anon. (2003a) mentioned that the engineering-driven solutions used to straighten and widen the rivers were '*poorly conceptualised flood mitigation measures*' and that they were

done without a thorough understanding of the importance of the morphology and hydrology of the river. Nature's way of fighting back was evident through the continuous collapse of the concrete riverbanks throughout the years, which resulted in more money being spent for the rehabilitation process. These facts were admitted by the Department of Irrigation and Drainage who were in the process of proposing the re-meandering of the river and removing the concrete wherever possible (Anon., 2003a). This indicates that the natural movement of the river affected the solution that was taken, which affects the level of contextual integration.

Building over the river

Limitations of cost and space

Buildings in the city centre that are built over the river are the LRT stations (Figure 49). OA5 highlighted that the river reserve was chosen to locate the LRT lines and stations because of cost limitations. LA1, LA2, LA3, LA4, LA5, LA6, LA5, LA7, OA1, OA3, OA4, OA5, DV4, AR1 and AR2 confirmed this matter. LA5 stated:

'This is a Federal government project and there is a limitation on cost. If it is constructed on a big road you have to acquire the land and others, therefore, the project cannot start. Our country is not so rich, therefore we have to make use of the space that we have. By using the riverfront area, we do not have to pay.' (LA5)

This may indicate that the government has limitations of cost and that they have to use the available resources wisely, in this case, the river reserve to provide infrastructure (LRT-public transportation) for the people. The river reserve is government land and no cost is incurred for the land acquisition for this purpose. Due to the limitations of space at some very important catchment points, such as Zones 1b and 6a, stations had to be built on top of the river.



Figure 49 PWTC Lrt station in Zone 2 was built over the river

1.9.1 Legibility

a) Direct access to water

Indicators for evaluating the level of contextual integration

Similar to the previous attribute of ‘building enclosure’, due to the limited studies on measurement of accessibility at waterfronts, studies related to accessibility in street design were adopted and modified as indicators to evaluate the direct accessibility towards the water. As discussed in Chapter 3 (p.53), shorter intervals of access are needed along the waterfront to provide better access to the water. The study by Siksna (1997) highlighted that the desirable pedestrian circulation mesh that may be used to evaluate the performance of a block is: i) 60-70m: very fine mesh – optimal for pedestrians; ii) 100m: fine mesh – very convenient for pedestrians; iii) 200m: very coarse meshed – inconvenient for pedestrians. These indicators are adapted and modified to evaluate the direct accessibility to the water in the context of the Kuala Lumpur waterfront. With 200m being used as the lowest accessibility from one point to the other (one entry point within 200m length), 100m as the medium accessibility (two entry points – one point every 100 within the 200m length) and the 60m as the high accessibility (three entry points – within the 200m length) (Figure 50).

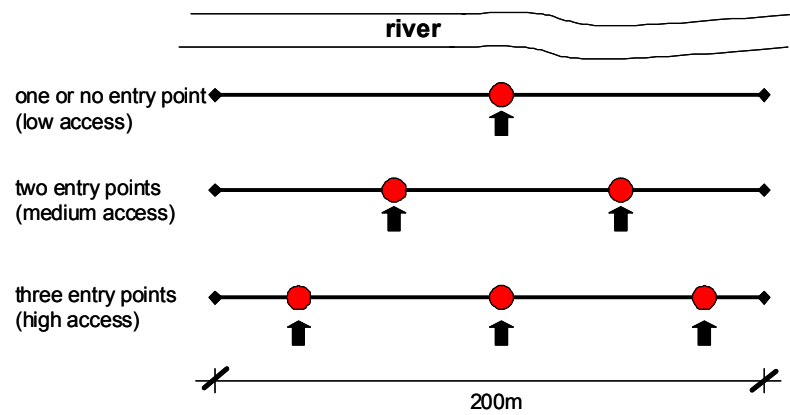


Figure 50 The indicator for direct access to the water's edge

Level of contextual integration for direct access

Direct access to water is another attribute that is important for integrating the waterfront with the water in many western countries (refer p.51-53). Is this the same in the context of Kuala Lumpur? When asked about the access to the water's edge, a female respondent pointed out:

'Very difficult...we do not see any access to the water accept for the one behind Sultan Abdul Samad building (Figure 51). But, as it looks so uninviting, we do not go in.' (F1)



Figure 51 Access to the water behind Sulatan Abdul Samad Building in Zone 4a-left bank

The statement may indicate that the location and the characteristics of the access – safe and comfortable – are important to them. It was also observed that most of the waterfront has railings. What is their view concerning this? Some respondents perceived it as an obstacle to reaching the water's edge:

'The only place we feel we can get to the water is the Kondo Bistari area (Zone 1b). The rest of the areas they have railings throughout. I cannot see any access to the water.' (F2)

This implies that they may prefer direct access to the water's edge without any obstacle that might reduce the use of the urban river. It was observed that some people climbed the railings and the high concrete wall to gain access to the water for fishing or just relaxing at the water's edge. This may suggest that some people are willing to risk their life to get close to nature and that the closest resource they have is the urban river.

The findings show that none of the banks in the evaluated zones have more than one access (Figure 52) and that they are isolated and not visible to the public, which may make it difficult for the public to gain access to the water's edge. It was also viewed that known dangerous areas are purposely avoided. A male respondent who works in Zone 4 highlighted:

'There is one more access at Masjid Jamek (Zone 4). But I do not feel like going down at all because it feels weird – no one actually uses the route other than the drug addicts who frequent the area.' (F4).

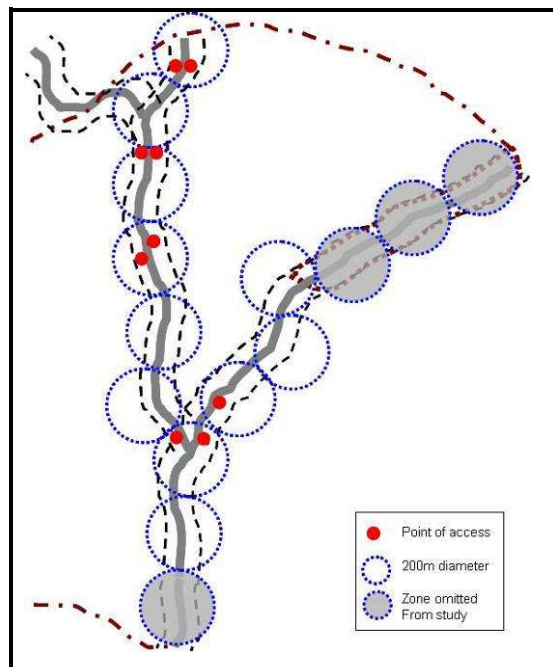


Figure 52 The only available points of access to the water throughout the waterfront

This implies that safety reasons are still the main concern even when there is access in the area. The presence of the drug addicts may also influence the use of the area.

Many are also well aware that the water can rise very fast within the river channel during rainy days and avoid the area because of the inherent danger. These situations may also reduce the use of the urban river.

Based on this discussion, it suggests that direct access to water is crucial for the integration of the waterfront and the urban river in this context. The number of accesses is not the only reason in preventing public access to the water, as the character (which has clarity, comfortable and safe) of the access also plays a role in strengthening the meaning of the place. As Carr et al. (1992) highlighted, one of the fundamental requirements for a space to be meaningful is a clear cue for the user to understand. Furthermore, it needs to be able to communicate the kind of place that is offered and have a sense of welcome to the user. However, most of the accesses do not have either of these characteristics and the problem is compounded by the limited number of accesses throughout the waterfront. This may result in poor awareness and use of the urban river, which affects the low level of contextual integration with the urban river. Why does each bank in every zone have only one or no access? The main reason identified is the condition of the river (flood and concreted riverbank) itself and the introduction of other transportation systems.

Condition of the river (flood and concreted banks); introduction of other transportation systems

Based on the available documents regarding this matter, the structure plan does mention that, '*...future development to consider the relationships of the buildings to the surrounding environment as part of development control*' (KLCH, 1984, p.10). If this is related to the context of the waterfront, it may be interpreted that the waterfront has a relationship with the surrounding environment through visual or physical access to the water. Other available documents that specify on this matter include the 'Guideline on facing the river concept' (DID, 2003, p.15), which mentioned that, '*...the area along the river belongs to the public. Fencing or anything similar is not allowable at all*'. This statement is also quoted by Town and Country Planning in their guidelines for the River Reserve, as part of Public Open Space. However, even though these policies and guidelines are in place, none of the buildings in the current context provide any kind of direct access to the river. Why is

this so? Based on the first morphological period, there were records showing that direct access to the river was very important because at that time the river was the main transportation mode. Even the earlier layout of the streets was planned to end at the riverbank to allow for the continuing access to and from the river. People could still access the water easily because the riverbanks were quite low (Figure 53).

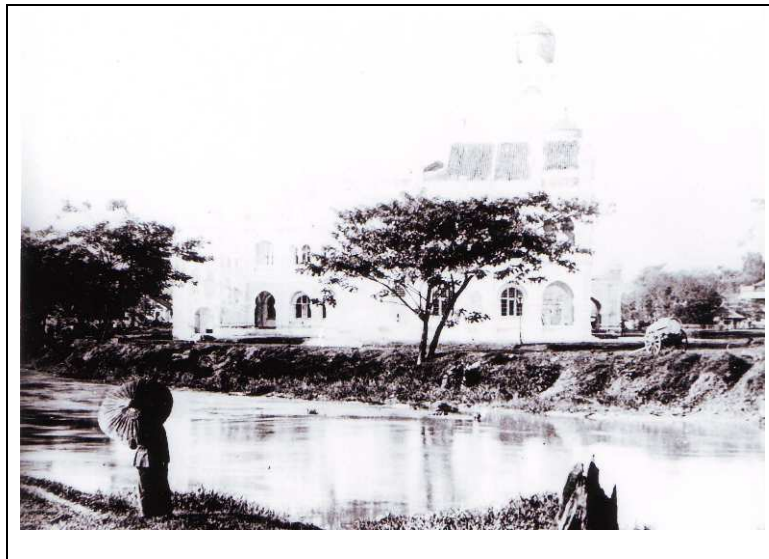


Figure 53 People could access the water directly during the 1890s.
(Source: Anon., 1897)

However, in the second morphological period, when the transportation system changed from the river to the road system, the importance of the river started to decline and it started to become the backyard to the city with a consequent increase in pollution. With the rapid development and flooding, which occurred quite frequently, developments along the waterfront did not consider access to the water (AR1, AR2). One developer stressed:

'We had a flood in the year 2000. At that time, we were constructing our basement. We learnt from that experience... so we raised the retaining wall at the riverside there... to try and prevent the river water level from overflowing on our side.' (DV2)

This may indicate that the regular flooding before made the developer more cautious causing them to provide a buffer instead of access to the water. As discussed earlier, there is minimum access for the public. There are only six available access points to the water (Figure 52) and most of the time they remain chained. Why is this so? According to OA1, this situation exists because the current channelled river is not meant for the public because of safety concerns. During rainfall, the smooth concrete

wall allows the water to flow through the channel at a very high speed to get the water away from the city as quickly as possible. This is because with the rapid development and many concreted surfaces in the city, most of the water run-off will go straight to the river, which will cause the channel to fill up quickly during heavy rain. According to LA13, during heavy rainfall, the water can rise in the channel within two hours. This situation is very dangerous to the public. OA3 added that the access is only provided for the maintenance of the river and is not open to the public. That is why it is chained most of the time. LA13 stated:

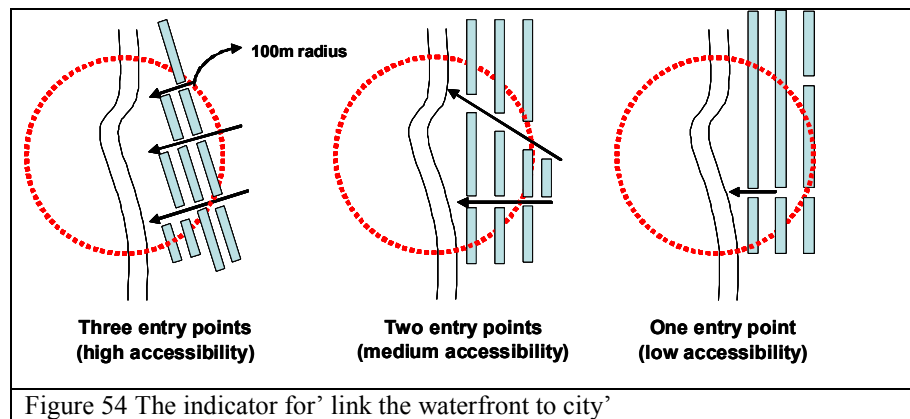
'...first, it is like any drain. Fishing? You have to go to other places to fish. It is a public infrastructure – it can become a hazard – suddenly the water rises and you have to run. Second, if you drown in a public place people will accuse us. We prefer people not to go in. It is not for them yet, for the moment. It can be dangerous until the river is beautified.' (LA13)

This explains why the access is limited (one or no access) in each zone. The river now works and looks the same as any other monsoon drain and it is not designed for the public to access the water.

b) Link the waterfront to the city

Indicators for evaluating the level of contextual integration

In preparing the indicators to evaluate this attribute at the waterfront, the situation of Kuala Lumpur was taken into consideration. It is acknowledged that there are LRT lines aligning the river throughout the city centre and that there are seven LRT stations along the waterfront. This may allow pedestrians to move easily from one zone to the other. However, for the purpose of this research, the focus is on the legibility (link the waterfront to the city) at the ground level, which involves pedestrians. This is because the waterfront is within walking distance from the city centre. Therefore, the same reference to measure 'direct accessibility' as used in the study of Siksna (1997) (p.53) was referred to for evaluating the attribute 'link the waterfront to the city'. The only difference is that the point of entry is not evaluated every 200m along the *length* of the waterfront but instead within a 100m *radius* for each zone – to identify the number of entry points possible from the city within the radius. Therefore, the indicators that will be employed for this attribute are as shown below (Figure 54).



One entry point within 100m radius, limits and interrupts the movement flow, this will give a low level of contextual integration and poor accessibility from one point to the other; two entry points within the 100m radius will allow for different access and egress and may provide a medium level of integration; and three entry points within the 200m radius will provide more choice or alternatives to get to the waterfront (Porta and Renne, 2005), which may provide a higher level of integration. The overall percentage is measured based on the number of banks that have a certain type of entry point compared to the overall number of banks evaluated.

Level of contextual integration for linking the waterfront to the city

The importance of the 'link the waterfront to the city' attribute ensures that people will be able to get to the waterside from the city (refer p.54-56). Many waterfronts have not worked well because they are not adequately linked to their city (Malone, 1996). Is it easy to access the waterfront from the city in the Kuala Lumpur context? In relation to this attribute, one male respondent pointed out (and supported by a few):

'Some of the areas are difficult to get to if you are not familiar with the area because of the limited entry.'

This statement may imply that some of the areas of the waterfront cannot be accessed easily from the city. Physical observation shows that 39.1% of the banks in the zones have three entry points from the city within a 100m radius of the zones. Another 39.1% of the banks in the zones have two entry points and the remaining 11% of the banks have one entry point, which comprises about 9 banks out of the 23 banks (in 11 zones) (Figure 69). This indicates that the percentage of the banks that have one entry point is the lowest. It was observed that the zones in this category are

quite isolated from the main road and some are inaccessible, even by car. One example of this can be seen in Zone 1a (left bank), which provides a new food court. It only has one access for pedestrians, which is by a bridge (Figure 55 and Figure 56). Regarding this matter, two of the respondents replied:

'The bridge is out of the way. I'd rather buy food, which is available along the road on this side of the river.' (M1)

'We eat here everyday (hawker area) and do not go to the new food court on the other bank. The only access is the bridge and it is so far and cannot be seen directly from the station.' (M3)

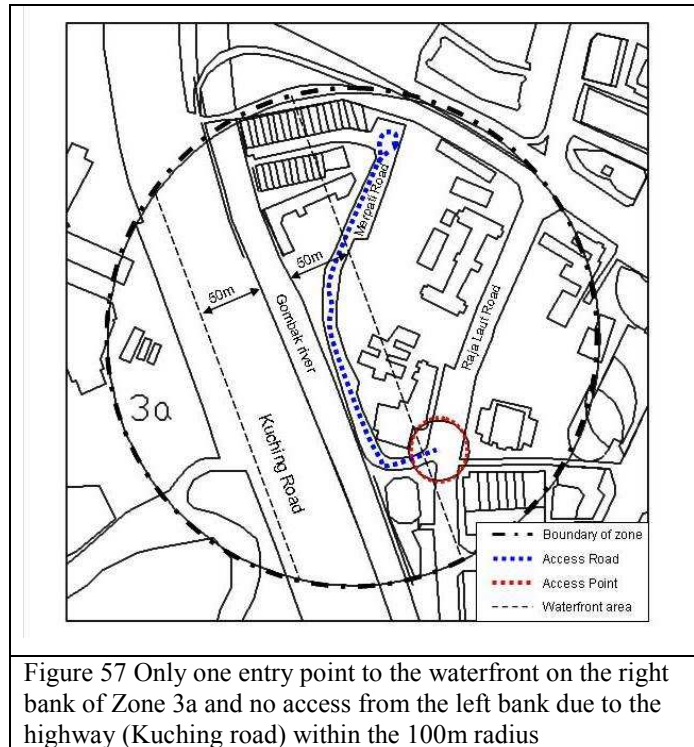


Figure 55 The location of the only bridge to the food court is quite far from the nodes

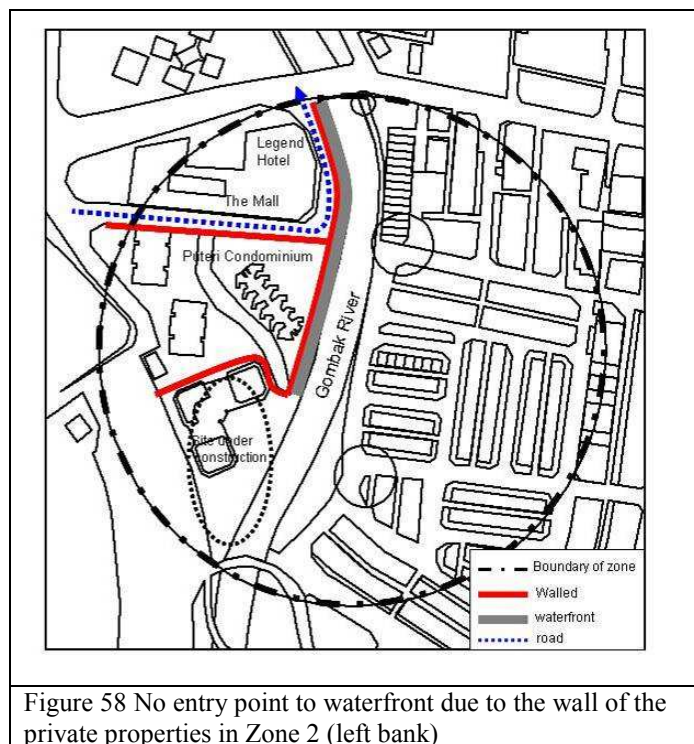


Figure 56 There is no bridge connecting to the food court on the left bank of Zone 1a

This statement may indicate that the bridge is not convenient for the user to cross over from the nodes at the bus station (on the right bank) because it is not located strategically within the nodes and it is also the only access to the food court. This may reduce the concentration of public on the left bank. A similar situation is also observed in Zone 3a, which only has one entrance coming from Raja Laut Road into Merpati Road – a cul-de-sac road that does not provide alternative access or exits (Figure 57). Less than ten people had static activities recorded in this area throughout the day (Monday) (Figure 46). This indicates that limited access from the city may also lessen the concentration of people in an area.

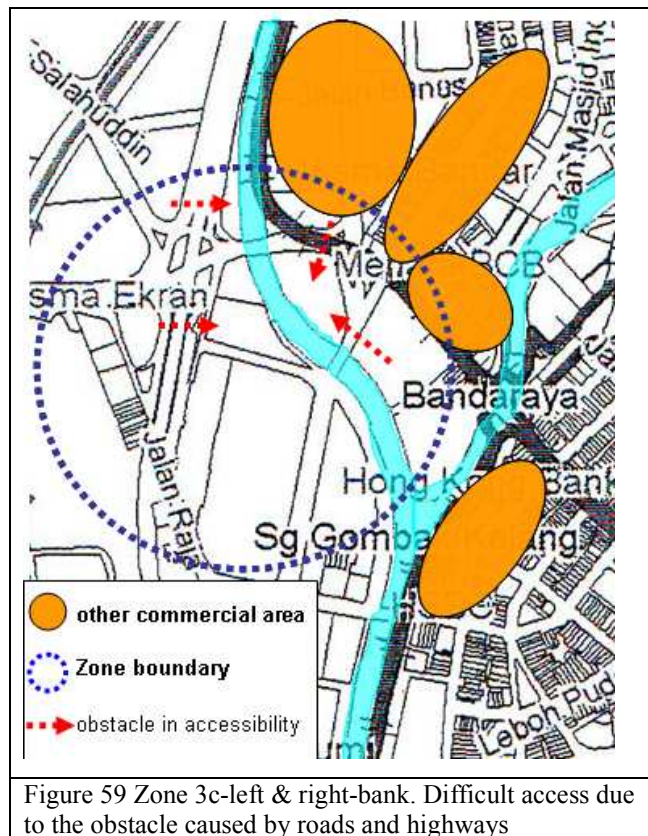


There is also no entry point to the waterfront in Zone 2 (left bank) and Zone 7. It was observed that there are private buildings, which were built backing onto the river with no access to the waterfront area. The walled boundary makes the waterfront an isolated place from the nearby activities (Figure 58).



No entry point was also observed in Zones 3a (left bank); 3b (left bank); 3c (left bank and right bank) (Figure 59) and 7 (left and right bank). However, in these zones it may be due to the highway along the waterfront. This contrasts with the zones that have high accessibility (three entry points or more), such as in Zones 1a (right bank), 3b (right bank), 4a (right bank), 4b (right bank) and 6a (left bank). These areas are recorded as having a higher number of static activities (Figure 46), which may indicate that one or no entry points in a zone may lessen the awareness and use of the place by the user. This may also add to a sense of isolation that may make the user feel insecure. Furthermore, some of these places do not have proper signage leading to the waterfront. A female participant highlighted:

'Although there is a road leading to the area, I wish there was signage for people to get to the area. It is difficult to get to this place for first timers.' (F6)



This may indicate that although there is provision of access, proper signage is still needed to direct people that are not familiar with the area. Based on these findings it shows that the importance of providing clarity concerning accessibility to make a particular place responsive to activities, as mentioned by Tibbalds (1988), is also applicable in the context of the Kuala Lumpur waterfront.

Interestingly, the focus group highlighted the importance of public transportation to get to the waterfront and the river even though it was not mentioned in the questions. Why is this so? A male participant responded (and supported by a few others):

'I am used to the LRT and there are a few choices of transportation to get there.' (M3)

This may indicate that they found the waterfront to be quite accessible by either bus or LRT. Although some of the waterfronts are only a short distance from the heart of the city centre, the LRT may still be preferred to get from one point to the other. It may be more convenient for them because the LRT stations are located at various points along the waterfront and are also connected to various areas around the city as well as extending into the suburbs. Although this study does not prove whether the 'link the waterfront to the city' attribute is important from the economic point of view, as argued by Pinder et al. (1988) and Tunbridge and Ashworth (1992), the discussion suggests that it is important in the context of Kuala Lumpur from the contextual integration point of view.

However, through the research, the 'link the waterfront to the city' may not be a major problem in the study area because most of the zones have 'two or three entry points'. Nevertheless, some of the waterfront areas are difficult to get to due to the limited entry points from the city. The 'one or no entry point' to the waterfront provides poor use and poor awareness to the user of the urban river. These situations directly cause the level of contextual integration of the urban river to be low in these areas. Why do these areas only have one or no entry point from the city? Two main reasons were established: i) rapid and ad hoc development, and ii) absence of policies and guidelines.

Rapid and ad hoc development

Based on the first morphological period, the town had good links to the waterfront area when the river was the main lifeline to the town. Streets were also arranged in a way that ended at the waterfront for easy access to and from the river. In the second morphological period, when the river was replaced with the road system as the main transportation mode, the city had grown without proper planning or a master plan. The waterfront had become the backyard of the city by then. The phenomenal rate of

growth had loosened the connection of the city with the waterfront. Why has it become so?

According to Rohaizan (2004), '*...the city, in many respects are disjointed, lacking in visual and physical coherence. Consequently there has been a decrease in the legibility of the city structure together with certain historical continuum and sense of identity*'. This shows that many of the areas in the city are not well linked to one another and the example at the waterfront area was as illustrated earlier. The physical development of the city was described in the KLSP 1984 (p.13) as '*rapid but ad hoc development...within overall city layout, such sporadic developments has resulted in an almost incoherent mix of forms, functions and activities...the piecemeal developments in the heavily built-up Central Commercial Area (CCA) also leave little scope for comprehensive developments, incorporating open spaces, landscaping and pedestrian linkages.*' This may indicate that in the city centre, the dramatic change to the urban form and design were the result of the intense construction activities. In the process of development, the city became a mix of new buildings with scattered or dilapidated structures that do not take advantage and connect it fully to the valuable resources it has, such as the urban river. As mentioned by Gosling (1992, p.34) it is important to abandon the *site by site* or ad hoc approach of development in creating public realm. This is important to ensure the compatibility of the link and continuity of use with adjacent sites.

Absence of policies and guidelines

According to LA3, the importance of the waterfront was only acknowledged as a potential public place since the KLSP 1984. Why was it not acknowledged before that? There were no policies or guidelines concerning this matter before 1984. This may indicate that the development of Kuala Lumpur has (about 60 years) treated the waterfront as the backyard for quite sometime and most of the city planning was done on an ad hoc decision basis due to the rapid development. This fact was agreed by many of the local authority officials, outside agencies officials and some of the architects interviewed. This may be the reason why certain areas of the waterfront were divorced from or only had one access from the city.

Is there any effort to link it back? L13 highlighted that due to the condition of the city planning, which made no plans to link to the waterfront for many years, much effort was needed to reverse this situation. AR1 mentioned that the introduction of the LRT stations in these areas has somehow provided alternatives and helped to link the area without which the places may otherwise have become dead. This fact was also agreed by the focus groups earlier. LA5 mentioned that many dilapidated areas or sites were recently identified as potential urban renewal areas including the waterfront areas. The statement reflects that although it is still in the planning stage, there are positive efforts to reconnect the waterfront to the city.

c) Continuous pedestrian linkage along the waterfront

Indicators for evaluating the level of contextual integration

This attribute is considered to be an important factor in bringing the public and allowing them to have an integrated activity with and along the river (refer p.56-59). Therefore, continuous pedestrian linkage along the waterfront that would allow people to enjoy the waterfront area and urban river without interruption may contribute to a high level of contextual integration between the waterfront and the urban river. However, according to the study by Appleyard and Lintell (1972), the interaction between the neighbourhood is lower in heavy streets (900 vehicles per hour – an average of 15,750 vehicles in 24 hours). Therefore, having the walkway but with obstacles such as having to cross roads from one zone to the other would make it difficult and perhaps make it dangerous for the public to walk or conduct activities. This situation may contribute to the medium level of contextual integration. Finally, a total discontinuity of the walkway may affect the low level of contextual integration between the waterfront and the urban river because it totally prevents any activity from happening at the waterfront, thus, not allowing people to be connected to the urban river. The percentage is measured based on the length of the waterfront that allows for pedestrian linkage compared to the length of the river.

Level of contextual integration for continuous pedestrian linkage along the waterfront

Based on the discussion in Chapter 3 (refer p.56), Lynch and Hack (1984, p.205) highlighted the importance of the continuity of pedestrian linkages to allow the user to experience ‘*the sequence of space and form*’. This allows them to understand the order clearly and at the same time enables them to compose the functional and natural expressive image of the site. It was mentioned by participants from both focus groups that this attribute is very important for them to enjoy the waterfront without any interruptions or obstacles. They find it quite easy to walk along the waterfront most of the time except in some of the areas. One respondent who passed along the waterfront everyday on the way to work pointed out:

‘I do not have a problem walking continuously along the waterfront...it is only when I try crossing the Sultan Ismail by-pass from Zone 2 to Zone 3a. It is almost impossible and dangerous because it is a very busy road and there are dividers in the middle of the road.’
(M1)

This was also agreed by a few other participants. This statement may indicate that there is a good continuous pedestrian linkage along the river. This is supported by the physical observation, which shows that out of the 23 banks of the 11 zones examined, 18 banks have areas with continuous pedestrian linkage along the waterfront (Figure 60).

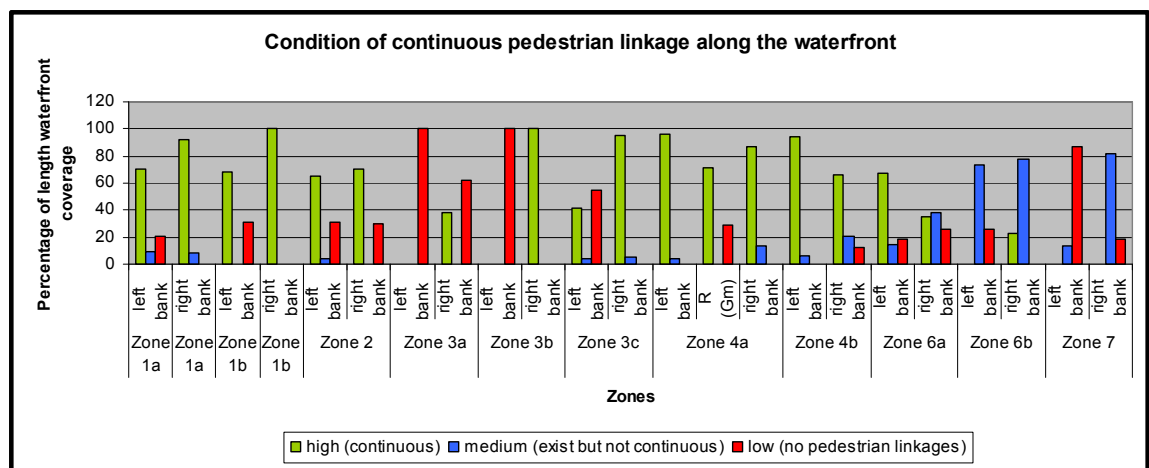


Figure 60 Condition of the pedestrian linkage along waterfront

However, they also highlighted the difficulty of crossing to certain areas such as in Zones: 2 (left and right bank), 3a (left bank), 3b (left bank), 3c (left bank) and 7 (left and right bank). Why is this so? This may be due to the roads/highways that are built

right up to the river's edge without any provision of pedestrian walkway/ crossing (such as traffic lights or zebra crossings) (Figure 61). For example from Zone 1b to Zone 2, the number of cars in 24 hours is about 17,924 vehicles and the number of cars at 12 noon is about 676 vehicles (KLCH, 2009). This road is categorised as a heavily trafficked road, especially during peak hours. This indicates that the traffic may become a barrier for them to get to the other zone.



Figure 61 Kuching Road is built right up to the river edge without any provision of pedestrian walkway at Zone 2-left bank

Importantly, they highlighted that pedestrian traffic lights in Zones 4a, 4b, 6a, 6b help them cross the busy road, however, they claimed that, unfortunately, the zebra crossing alone without the pedestrian traffic light, such as in Zone 4a-Pasar Road, cannot be relied upon. Why do they feel that way? They claimed that not all drivers gave priority to pedestrians. This may indicate that the zebra crossing alone is not sufficient and that if this situation is not controlled it may become worse in the future. As highlighted by Appleyard and Lintell (1972) the impact of traffic hazard/barrier to the community can be detrimental if not controlled and managed.

It seems that highways are not the only obstacle for them. Another respondent added: *'At the Masjid Jamek LRT station and Masjid India, we cannot walk by the river anymore...'* (F1)

In the area (Zone 6a-left bank) mentioned, buildings are built abutting the river (Figure 62). This may indicate that buildings abutting the river can also reduce the awareness and use of the urban river when it totally blocks the continuity of walkway.



Figure 62 Buildings abutting the river in Zone 6a

This same situation can be observed in areas that have abutting buildings, such as in Zones: 1a (left bank), 3a (right bank), 3b (right bank), 4a (Gm), 4b (right bank) and 6a (left bank). The statement is further supported as no dynamic or static activities were recorded between this building/development and the urban river. A female respondent cited (supported by a few) another obstacle:

'Some of the areas we have to walk away from the water's edge due to the buildings. I do not know where the river has gone when I walk from the Masjid Jamek Station to the Amanah Raya Building.' (F5)

The area mentioned is where a few fenced private properties are located. This may indicate that private properties that are fenced up to the edge of the riverbank also prevent continuous pedestrian linkage and reduce the use and awareness of the river. The same situation was also observed in Zones 1b (left bank), 3a (right bank) 6a (right bank), 7 (left and right bank). According to Francis (1991), an area that is fenced along the waterfront cannot be considered as open space due to the prohibition of public entry. Whereas the waterfront is a place for the public to enjoy (Burton and Mitchell, 2006; Moughtin, 2003; Moudon, 1987). This shows that having walled properties right up to the river's edge may deny the public's right to access the urban river.

Although a high percentage of the waterfront length allows for continuity of the walkway, the ‘roads/highways built along the waterfront’, ‘private properties fenced up to the river’s edge’ and ‘buildings built abutting the river’ that block the continuous pedestrian linkage may result in poor awareness and use of the urban river by the user. Consequently, they may cause the level of contextual integration of the urban river to become low in some areas. Why do these three situations above exist? Seven reasons were established from the discussion: i) initial planning, ii) limitation of funds, iii) political will, iv) absence of policies and guidelines, v) flood mitigation, vi) introduction of other transportation systems, and vii) lack of awareness. The reasons for buildings abutting the river were discussed earlier (refer c – ‘building enclosure’), which is related to flood mitigation. The reasons for the existence of the ‘roads/highways being built along the waterfront’ and ‘private properties fenced up to the river’s edge’ will be discussed next.

Roads/highways built along the waterfront

Initial planning; limited funds; introduction of other transportation; political will

Based on the morphological analysis, in the first period, when the river was still the main transportation mode, a lot of the earlier pathways were built along the river for safety purposes because there were more people along the river compared to the jungle (Architect’s Interview (AR2)). Some of these pathways were later developed into walkways or roads/highways along the river (Figure 63).

In the third period, although the KLSP 1984 (KLCH, 1984) and KLSP2020 (KLCH, 2004a, p.676) promotes a green network along the river area and the potential of the waterfront as a public place was acknowledged, the initial planning of the roads had already resulted in a lack of pedestrian linkages. It is still a major deficiency in the city centre, which disconnects the link between the spaces in the city (LA12, LA5). Is there any effort to link this back? LA10 claimed that the detailed planning is already in place. This may indicate a positive move towards having a continuous pedestrian linkage at the waterfront in the future.

‘At the moment, a thorough pedestrian network in the city is ready to be executed. We are going to do it phase by phase.’ (LA10)

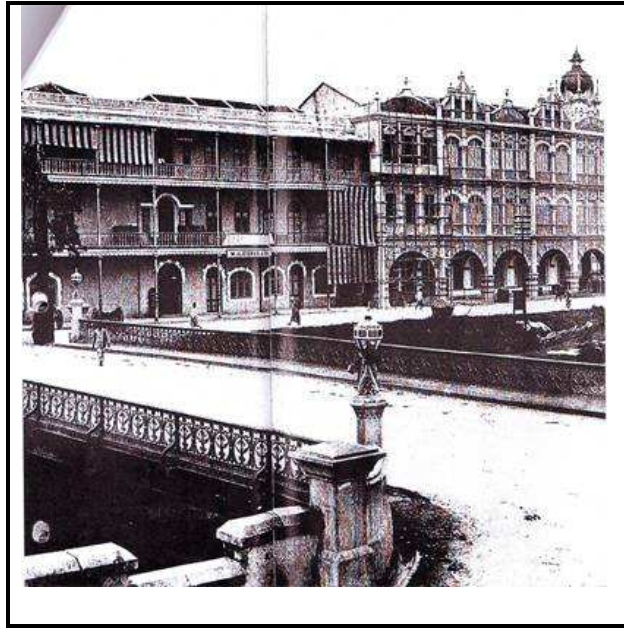


Figure 63 Earlier pathways that were developed into walkways along the river. (Source: Anon., 1906)

However, according to LA4, the main priority in Kuala Lumpur at the moment is transportation, followed by flood mitigation and then the other problems. The waterfront is not yet a priority. He added that the problem of transportation has never been solved since the introduction of the motor system to the city. LA4 claimed:

'Roads were provided in an ad hoc manner without following the long term planning even though it is unsustainable in the long run. This is because of the urgency of the situation in the city, which has massive traffic jams, especially during peak hours, it is only a short term solution, if not people will complain and blame the government. It is also politically driven to win people's hearts.' (LA4)

This statement may indicate that the ad hoc planning of the roads is still being practiced until today and backed by political will. Is it not conflicting with the effort to promote good pedestrian linkage in the city? OA1 agreed that this is the situation now in the city. He argued that the way the government is going in solving the problem of transport by providing faster or bigger roads will never end. He stressed that eventually this situation will only result in more cars and suggested that the alternative of public transportation will need to be seriously looked into. This implies that there are government officials who realise the conflicting situation but that they may not be able to do much because the decision is politically driven.

LA5 added that that most of the applications for projects in relation to the river were to use the river reserve instead of enhancing the river such as the building of roads along the river reserve. This is similar to the situation in the US in the late 1960s to 1970s when many expressways were built along the waterfront in the name of urban-renewal (West, 1989). He claimed that the investment from the federal funds were not spent to improve the waterfront but to improve transportation. He presumed this is because the transportation planners perceived the waterfront as an area of '*minimal social and economic resistance*', as mentioned by West (1989). This implies that we are repeating the same mistakes made by other countries more than 30 years ago. Why did we opt for the same solution?

This is found to be the situation in Kuala Lumpur because the waterfront was chosen to reduce the cost of land acquisition and minimise the disruption to other urban areas. As argued by Hagerman (2007), much of the waterfront regeneration had done little to enhance and most of the time further damaged the integration of the natural system in the urban area. This example can be seen in Zone 7 where part of the Klang river is sandwiched by the Ampang-Kuala Lumpur Elevated Highway (AKLEH) (Figure 64).



Figure 64 Klang river is sandwiched by AKLEH at Zone 8a

AR3, who has a project near the area had to abolish their original plan, which had a pedestrian linkage along the river that was connected to their building. This was because KLCH had directed them to omit the plan due to the highway that was going to be built through that area. The local authority officials claimed they were only told

to monitor the highway project when it had already been approved at the Federal level (LA5). Although most of the officials at KLCH did not agree with the project, they could not do much because as one of the government agencies, they have to accommodate and give priority to projects from the Federal level that are headed by the Ministry, in accordance with the Local Government Act 1976.

This discussion illustrates that with the current practice in Kuala Lumpur, which still executes ad hoc development, the continuous pedestrian linkage may be difficult to achieve unless it is strongly backed with political will. However, with the recently announced Economic Transformation Programme, a new mass rapid transit system and a comprehensive pedestrian network are targeted as two of the nine Entry Point Projects (Anon.,2010b). These are positive developments in the government policies, and which are hoped will propel the future development throughout the city centre, including at the waterfront, to be more integrated and pedestrian friendly.

Lack of awareness

Regarding the construction of the elevated highway in Zone 7 and 8, LA2 added that the contextual integration with the river was not even considered in the decision making. DV1 stated:

'So far, our job is only to build highways and make sure the river flows. After finishing, we hand over to DID for maintenance. No, we do not have any proposal for a pedestrian walkway.'

This statement may indicate that consideration of the river only concerned fulfilling the requirements of DID, which required them to control the river flow and the ecological condition of the river, and that any consideration concerning the contextual integration was absent. According to AR2, there used to be pedestrian linkages along the river before the highway was constructed that connected Keramat to Kampung Baru (Zones 8a, 8b, 8c) to Kuala Lumpur before the policy on the continuous pedestrian linkage along the waterfront was established.

Private property fenced up to the river edge

Can any instruction be imposed on the private owners to follow certain guidelines? LA5 and LA10 added that it is difficult to impose the instruction when the private owners already had their own plan within their private lots. Furthermore, they

stressed it is very expensive to acquire private lands in the city centre to achieve the continuous pedestrian linkage throughout the city. The statements above indicate that this maybe an obstacle for this aim to be achieved.

LA3 highlighted that Kuala Lumpur is a city that has been developed for quite sometime and it is not a newly planned city. A lot of the development along the waterfront was already there before the policy to have a continuity of pedestrian linkages was established. AR1 added that such requirements were not in place when he was in charge of building midrise and highrise buildings along the waterfront in the 1970s. This may imply that the absence of policies and guidelines resulted in a situation where private buildings are fenced to the edge of the river. Is there any alternative to resolve this issue?

LA7 added that not much can be done about the existing fenced property. However, efforts are already on the way to impose a minimum twenty foot setback for pedestrian linkage in new building applications. LA5 added that it has now become a requirement for the approval of development order for the developer to provide and maintain the continuous pedestrian linkage at the waterfront. DV2 who has buildings still under construction highlighted that they were asked to provide the walkway by the authority:

'It was a dilemma at first because our neighbours all had their properties fenced. The waterfront has been an isolated place for quite some time. In order to get the approval of the development order, we decided to do more than just walkways to enliven the place. We added some provision of space for recreation with a promenade and seating along the waterfront within the length of our property in the hope that the neighbouring land would want to continue the effort. It is going to be open for the residents of the condominium and public alike.' (DV2)

This may indicate that the recent requirement by the authority increased the awareness of some developers concerning the provision of pedestrian walkways and public spaces at the waterfront. AR4 added that the same requirement was imposed on them for their project, which was recently completed in May 2008. They managed to setback and provide space for the provision of the continuous pedestrian walkway from their site but were not able to continue to the next building because the neighbouring building is built abutting the river. This indicates that although the

requirement is beginning to be implemented, they still cannot do much with the existing buildings that have already encroached into the river reserve, especially for those that are abutting the river, as discussed earlier in (6.2.1 (c)-‘building enclosure’).

d) Visual accessibility

Indicators for evaluating the level of contextual integration

Visual accessibility is interrelated with the ‘direct access’ attribute in achieving legibility (refer p.51). Legibility in the contextual integration of the waterfront development with the water can be related to the people’s clarity on how to get near to the water’s edge. The level of contextual integration for the visual accessibility between the waterfront and the urban river is evaluated based on the quality of view, where a high level of integration would be when the waterfront allows for a direct view of the river. The medium level of contextual integration is when the waterfront allows for a view of the river but with obstacles such as concrete railings, hedges and others. Contextual integration is low in level when the waterfront is totally blocked from the urban river by other permanent structures such as high walls, private property or highways. The percentage is measured based on the length of waterfront in accordance with the visual accessibility in comparison to the whole length of the river in each zone.

Level of contextual integration for visual accessibility

Development that allows the public to have a direct view of the water is always the preferred situation (Stefanovic, 2002). Clear direct access with visual accessibility of the water is one of the key attributes in allowing the integration between the waterfront and the urban river. It was observed that most of the zones (21 out of 23 banks in the 11 zones) (Figure 66) have concrete railings along the river (Figure 65). Based on the indicator, these may become obstacles for people to view the urban river directly. Is this really an obstacle to the user? In contrast, the focus groups generally perceived that the river is visually accessible at most of the waterfront. The concrete railings are only an obstacle to them to view the river if they are walking quite a distance from the edge of the river, which they rarely do because the pedestrian walkways are mostly available near to the water’s edge.



Figure 65 Concrete railings can be seen in most zones along the river.

However, both groups highlighted various factors that made them feel that the river is no longer in sight and that the presence of the river is not felt. This includes Zone 6a-right bank. Why is this so? In this zone it has buildings built abutting the river. This implies that when the building is built without allowing the public to go to the edge of the river, it may totally block their view of it and may reduce their awareness of the urban river.

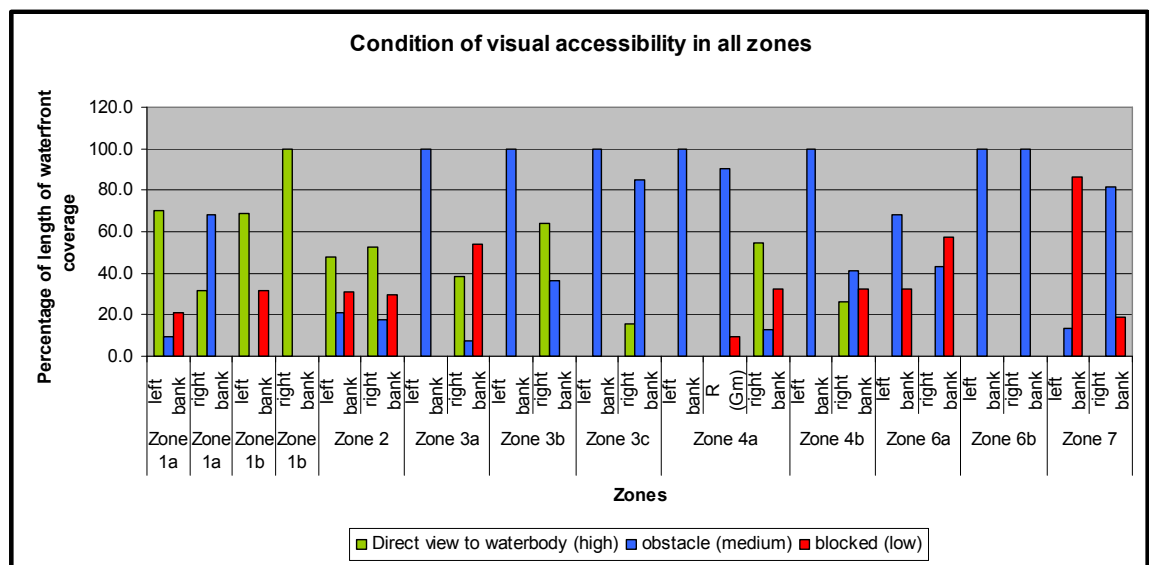


Figure 66 Condition of visual accessibility for all zones

In addition, Zones 3c and 6b were also mentioned. These zones have buildings/development that backs onto or above the river. This includes buildings/

development backing onto the river that does not have any back lane for the public use or which has a back lane between the building and the river that is not/or rarely used by the public. This situation may also block their view. This is supported by the observation, which did not record any static activities here (Figure 46). An example of this situation was observed at the Periuk Kera Plaza (3c-right bank) area and the shop lots at Zone 6b-right bank. One respondent highlighted:

'We cannot see the river from the Periuk Kera Plaza (Zone 3c-right bank) and we do not know where the river is.' (M5)

This situation demonstrated that although there is pathway along the river if it is behind a development or building that backs onto the river the pathway may be rarely used. Passers by might not be aware of the river. They may also choose the route that more people use, which might be in front of the building. Without being able to see the river, this situation may also reduce their awareness of the river.

Another respondent pointed out (and supported by few):

'I do not actually know where the river goes if I walk from Masjid Jamek Station towards Masjid India Road (Zone 6a). Suddenly it is not visible anymore.' (F3)

Why this area? This statement reveals another factor that may block the visual accessibility. The area mentioned is at the LRT station in Zone 6a. Here, the LRT was built directly above the river at road level (Figure 67). From the statement it suggests that this may have blocked their view of the river. Compared to Zone 2, the building (LRT station) was also built over the river but it was elevated as high as the viaduct. Although it created an obstacle, it may still allow people to view the river between the columns and not block it totally. They also highlighted another area.

One of the respondents stated:

'In fact, if you walk along Jalan Melaka, you do not feel the river even though the river is just behind the buildings.'

Why this area? Jalan Melaka is where private properties are fenced to the edge of the river. This statement may indicate that the respondents have difficulty in viewing the river because it is blocked by these private properties. They are not able to walk close to the river, and, consequently, it may also affect their awareness and use of the river.

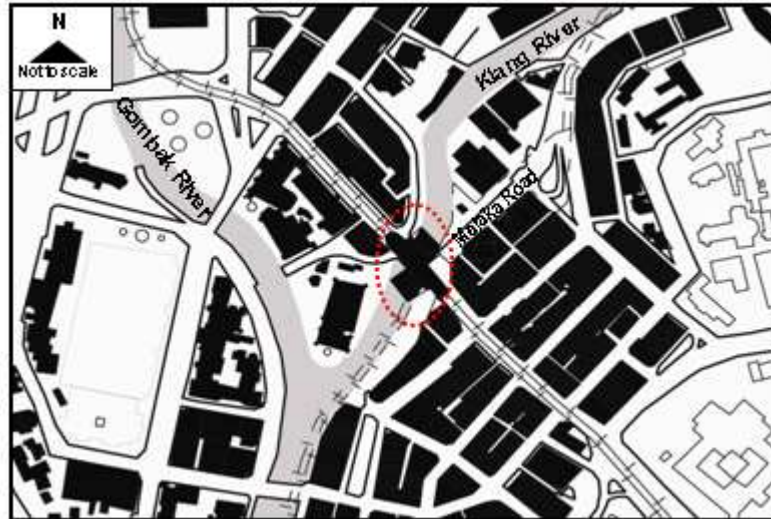


Figure 67 Location of Masjid Jamek Station (in red circle) is directly above the river

Another respondent stated:

'If we disembark from the LRT at the Sultan Ismail Station (Zone 3a) we do not know where the river is. When we go from the PWTC Station (Zone 2) to the Sultan Ismail Station, from above we can see the river on our left side but as we get down we do not feel the presence of the river anymore.'

From the statement, as they disembark they cannot feel the presence of the river. This may be because that is where the Sultan Ismail-Kuching bypass is located. The bypass seems to block the view of the river. This is also the case in some parts of Zone 7 on the left and right bank where the Ampang-Kuala Lumpur elevated highway (AKLEH) totally blocks the visual accessibility of the urban river. This may also reduce their awareness of the river. Finally, one of the respondents pointed out another aspect that blocked the view of the river:

'I only use the Hang Kasturi Road when crossing at the Central Market. There are more people in the area and I love to see people selling and sitting along the road. I did not know there were a river and a walkway next to the river.' (M4)

Central Market and Hang Kasturi Road form one of the most vibrant public places in the city centre next to the river. From the statement, the respondents are not even aware that the river is close by. The Central Market used to have a double frontage and addressed both the road (Hang Kasturi Road) and the urban river. However, in

1998, the LRT viaduct, which descended into the tunnel system, was constructed (LA10). It was mentioned by OA1, that a pedestrian pathway was provided between the descending tunnel wall and the river as an alternative for people to view the river. In contrast, many of the focus groups highlighted that they did not realise the presence of this pathway. This may be due to the tunnel wall, which blocks their view and makes the walkway become isolated. The wall of the tunnel is located between the Central Market and the Klang River. Although less than 50% of the length of the area (Zone 4b) is blocked by the tunnel wall, the statement indicates that the wall may obstruct the opportunity to link one of the most vibrant areas in the city to the river.

As mentioned by Carr et al. (1992) in the earlier discussion, the legibility factors, which include clear visual accessibility, are crucial in order for people to feel connected to the place and for it to be meaningful to them. Boyd (1985) stressed that if the goal is about maximising the '*public access to and along the coast*', preservation of the physical and visual accessibility have to become *the* site planning principle. At the moment, neither the physical (direct access, link the waterfront to the city, continuity of pedestrian linkages along the waterfront) nor the visual accessibility in some areas in the zones highlighted above were preserved for this purpose. These situations may provide a low level contextual integration between the waterfront and the urban river.

i) 'Buildings built abutting the river', ii) 'buildings/development backing onto/above the river', iii) private properties that are fenced to the edge of the river, iv) 'highways along the waterfront', and the v) 'the LRT tunnel in Zone 4a' are considered to be the main factors blocking the view of the urban river and may reduce the awareness and use of the urban river. Some of the factors mentioned concerning blocking the view are similar to those that affect the continuity of the walkway, direct accessibility and development orientated towards the water. This may indicate that there is a possible relationship between these attributes with visual accessibility. The reasons for four of the factors (i, ii, iii, iv) were discussed in an earlier section (Development orientated towards the water'), ('direct access to water') and (continuity of walkway'). Why the LRT descended at Zone 4 will be discussed next.

Limited cost and space, political intervention

Based on the archival records, the views of the river from the Central Market area were direct because it had a double frontage to the river (Refer Chapter 5, Figure 21 and 22) and Hang Kasturi Road. Why was it blocked by the descending LRT line?

According to LA5, in the earlier design, the LRT tracks were all elevated throughout the alignment along the stretch on the right bank of the historical zone (Zones 4a and 4b). Why did the local authority agree with the alignment, which stretches along the river and may block prominent historical buildings? LA4 and LA5 lamented that they did argue with the representative of the board of the committee that it may become an obstacle to view the river and will block the view of important historical buildings in the area. LA4 added that they even proposed that the LRT be submerged underground before the track enters the historical zone. DV4 mentioned that there was political intervention in the project because the project was fully funded by the government and that there was a limitation concerning the funds available. Going underground for a longer stretch would mean that greater cost would be incurred and that this was not possible.

LA10 lamented that at that time they were required to choose between the improvement of linkages and the view of the historical buildings by the political person in charge. Therefore, they had to choose the improvement of linkages because that was more pressing due to the commonwealth games that Kuala Lumpur was about to host in 1998. Furthermore, OA5 added that the available space was limited within the river reserve and before reaching the historical zones the space was too congested with existing infrastructure and cables. Therefore, it was only deemed possible to descend the viaduct system into the tunnel system at the Central Market area, hence, blocking the view of the river. This statement may indicate that the main reasons were due to the limitations of funds and space and also the political intervention involved. Did they consider the loss of integration with the river?

Lack of awareness

According to DV4, the main objective during that time was to solve the linkages problem. Whether their construction would have any effect on the contextual integration with the river was not a factor. This was also agreed by LA2, who related

that consideration was only given to avoiding construction debris entering the river to meet the requirements of the DID. According to DV4, who attended 80% of the committee board meetings, the visual accessibility towards the river was not considered by the committee board, although it was argued by the local authority. He stressed that the board members did not perceive the river as a river:

'...to them the river, is not a river, they defined it as monsoon drain...and they considered this part of the city as not the main area of the city.' (DV4)

This statement may imply that there was a lack of awareness among the decision makers at that time concerning the importance of the contextual integration with the river. DV4 added that when the decision was made, the area along the stretch of Zones 4a-right bank and 4b-right bank was considered as the back part of the city because it did not have any main road. The main roads and the front part of the city were considered to be at Jalan Raja in front of Daya Bumi facing the Dataran Merdeka (Figure 68). Furthermore, the river was not considered as an asset to be viewed. This may reflect that the river was still being treated as a backyard to the city at that time.

Did they not try to educate the committee board? LA10 added that they had to fight on the proposal for a long time to educate the committee and make them aware of the importance of the historical area and the river. LA12 lamented that the current solution was the 'best' solution that they could reach agreement on after considering all the factors. He expressed that at least they had managed to submerge part of the LRT track to save the view of the historical Jamek Mosque and the Sultan Abdul Samad Building. These statements indicate that due to the lack of awareness of the importance of the contextual integration with the river, the view from the Central Market had to be sacrificed because that was 'agreed' as being the 'best' point for the track to descend from the viaduct system into the tunnel system. This project was completed in 1998, which may imply that until the late 1990s the lack of awareness among the decision makers was still apparent.

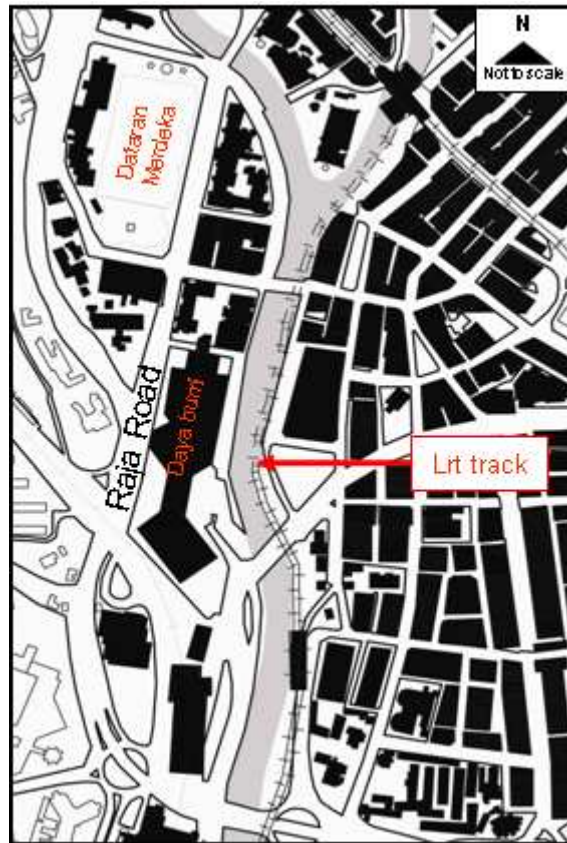


Figure 68 The Lrt track is being located at the the area the called the ‘back’ of the city

1.10 Factors that affect the level of contextual integration towards the urban river

The research discovered mixed levels (high, medium and low) of contextual integration throughout all the attributes evaluated in all zones (Figure 69). These attributes, which are familiar in the context of western countries, are also considered relevant in the Kuala Lumpur context. However, based on the earlier discussion, it can be surmised that the factors affecting the low level of contextual integration result in a poor response of the waterfront to the urban river. This is because they stimulate poor meaning (poor association, poor awareness and poor use) of the urban river by the user (Table 16). The findings highlighted three attributes, which have factors that have the greatest affect on the level of contextual integration between the waterfront and the urban river in the Kuala Lumpur context: i) ‘direct access to

water’, ii) ‘physical character of water’, and iii) ‘development oriented towards the water’ (Figure 69).

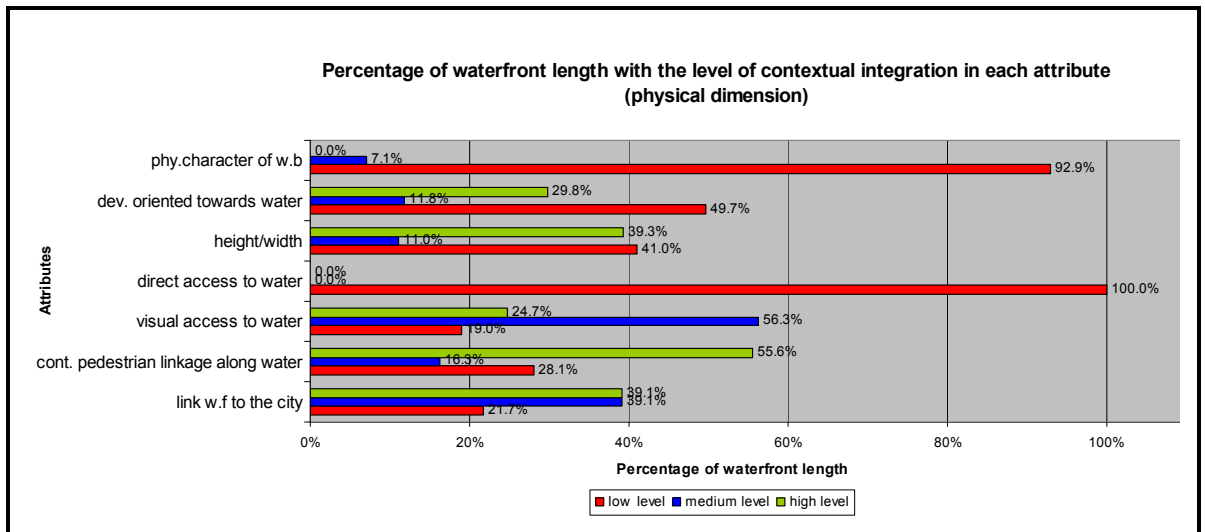


Figure 69 Percentage of waterfront length with the level of contextual integration in each attribute (physical dimension) at the Kuala Lumpur waterfront

The findings also suggest that four (physical character of the water, building form that is oriented towards the water, building enclosure, and direct access to water) out of the seven attributes evaluated have factors that relate to the concern for safety. This may further reduce the meaning of the place because it is directly related to the poor use of the area (Table 16). It may prevent people from staying long or coming to the waterfront, which eventually distances people from the urban river. This may also indicate that safety issues are one of the major concerns of the waterfront user. These findings support Carr et al. (1992) who highlighted that one of the most important aspects of a positively meaningful place is a sense of safety. Furthermore, it can be inferred that there are eleven factors identified that affect the low level of contextual integration in the context of Kuala Lumpur and which contribute to the poor use of the area (Table 16). In addition, three main factors: i) the highway/heavy traffic roadways; ii) buildings built abutting the river, and iii) fenced private property up to the edge of the river bank, affect the low level of contextual integration repeatedly in four (1)(2)(3)(6) out of the seven attributes evaluated (Table 17). This may indicate the severity of the impact of these factors on the contextual integration with the urban rivers, as well as a possible strong relationship among these attributes that share common factors and which affect their level of contextual integration.

Table 16 The factors that affect the level of contextual integration

	Principle/ Attribute	The factors that affect the level of contextual integration			Meaning		
		Good Form	The factors	The responses	Association	Use	Awareness
1	Physical character of the water body	Concreted riverbanks in all zones		People are not interested because it looks like a drain Worry of safety- dangerous due to the monsoon drain function			
		Both rivers are polluted		Do not want to touch water Do not stay long – foul odour			
2	Development oriented towards water	Buildings backing onto the river with only pathways in between the building and the river.		Worry of safety – not many people walk in the area			
		Buildings backing the river with backyard in between the building and the river (fenced).		Dirty walkway – will not stay long			
		Building backing the river with road in between the building and the river.					
		Building built abutting the river edge and backing onto the river.					
3	Enclosure (Ratio of Height and Width)	Buildings being too high with a too narrow width of space in between the building and river		Worry of safety – will not stay long			
		Building built abutting the river edge and backing onto the river.		Limited views			
		Buildings which are over the river.		Claustrophobic			
Legibility							
4	Direct access to water	Only one access		Difficult to access Unclear character of access Uninviting/ hostile – avoided area			
		No direct access to water's edge in the rest of the zones along the waterfront		Dangerous – avoided area			
5	Link waterfront to the city	One entry point without any alternative access going to the area from the city		Limited access			
		No entry point to waterfront area	Private property fenced till the edge of the river bank.				
			The Highway				
			Buildings built abutting the river edge				
6	Continuous pedestrian linkage	Private property fenced up to the edge of the river bank.		Difficult to connect to river			
		Buildings built abutting the river edge		Difficult to move from one zone to the other – worry of fast vehicle			
		The highway					
7	Visual Access to water body	Private property fenced up to the edge of the river bank.		Do not feel the presence of river			
		highway.		No view of the river			
		Building built abutting the river edge and backing onto the river.					
		Building built over the river.					
		Building which has back lane that is rarely use by public					
					1	14	6

The research further explored the reasons why the factors that contributed to the poor contextual integration of the urban river exist in the Kuala Lumpur context. The findings can be categorised into eight key themes (Table 17): i) lack of planning – policies, laws, guidelines, master plan, ii) condition of the river, iii) limitation of funds iv) introduction of other transportation systems, v) lack of awareness, vi) political will vii) lack of management and viii) market demand. Based on Figure 70, it can be concluded that the most important reason lies in the lack of planning, policies and guidelines of which urban design may be a part.

Table 17 The key themes of why the factors that affect the level of contextual integration exist

Principle		Factors that affect the level of contextual integration existed	The key themes of why the factors that affect the level of contextual integration existed	Themes						
				Intro. of other transport system	Planning, policies, law, guidelines	Management	Condition of river	Limitation of fund	Market demand	Awareness
	Good Form									
1	Physical character of the water body	Concreted river in all zones (1)	intro. of other transportation system							
			Rapid development							
			Flood							
			Absence of policies and guiding principles							
			Lack of awareness							
			Limited fund							
		Both rivers are polluted (2)	Lack of initial planning							
			Lack of awareness							
			Lack of coordinated management							
			Political will							
2	Form oriented towards water	Buildings backing onto the river (3)	Initial planning							
			intro. of other transportation system							
			Inadequacy of policies, absence of detail guidelines, law							
			Lack of awareness							
			No market demand							
			Condition of the river							
3	Enclosure (Ratio of Height and Width)	Buildings built too high with too narrow space between (4)	Initial planning and demand for higher structures							
			Absence of policies, law and guidelines							
			Lack of coordinated management							
		Buildings built abutting the river edge. (5)	Flood mitigation							
			Initial planning							
			Natural movement of river							
		Buildings built over the river.(6)	Limitation of fund and space							
	Legibility									
4	Direct access to water	Only one access / no direct access (7)	Condition of river							
			Intro. of other transportation							
5	Link w.f to the city	One entry point (8) / No entry point to waterfront area	Rapid and ad hoc development							
			Absence of policies and guidelines							
6	Continuous pedestrian linkage	Private property fenced up to the edge of the river bank. (9)	Absence of policies and guidelines							
			Limitation of fund							
			Flood mitigation							
		Buildings built abutting the river edge.	Initial planning							
			Natural movement of river							
		The highway (10)	Initial planning							
			intro. of other transportation system							
Limitation of fund										
Political will										
7		Visual Access to water	Private property fenced up to the edge of the river bank.	Absence of policies and guidelines						
	Limitation of fund									
	Initial planning									
	highway.		intro. of other transportation system							
			Limitation of fund							
			Political will							
	Building built abutting the river edge and backing the river		Flood mitigation							
			Initial planning							
			Natural movement of river							
	Building built over the river.		Limitation of fund and space							
	LRT tunnel (11)		Limitation of fund and space							
			Political will							
			Lack of awareness							
Number of key themes			5	19	2	9	8	2	4	4

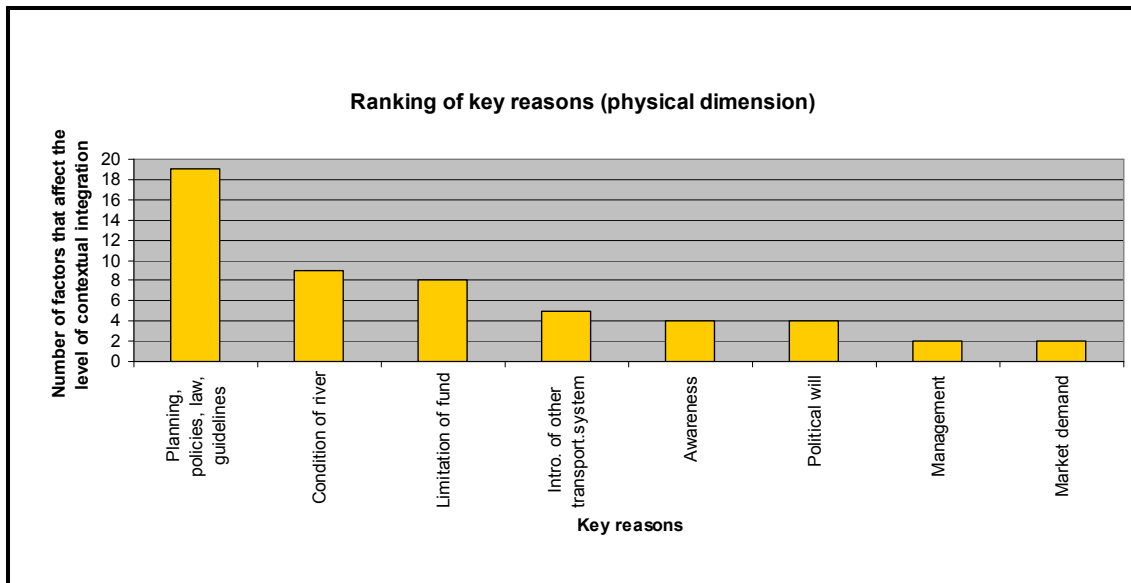


Figure 70 Ranking of the key themes why the factors that affect the level of contextual integration exist in the Kuala Lumpur waterfront

1.11 Conclusion

This chapter aims to examine the level of the physical dimension at the waterfront by identifying the factors that affect the level of contextual integration and why they have affected the levels in addressing the first research question. The chapter also addressed the third objective and sub-research question by establishing the key reasons to the non-contextual integration between the waterfront and the urban river. The evaluation of the attributes in the physical dimensions indicates that there is a mixed level of contextual integration between the waterfront and the water. This indicates that the statement by Salim (1993), and Shamsuddin and Sulaiman (2004) that assumed that the waterfront is not contextually integrated with the water in Kuala Lumpur cannot be accept holistically but have to be explored according to each attribute. It can be inferred that there are three main attributes that have the greatest affect on the level of contextual integration in the physical dimension: i) ‘direct access to water’, ii) ‘physical character of water’, iii) ‘development that is oriented towards the water’.

Although the attributes concerning the physical dimensions examined are familiar in western countries, they are also found to be vital to achieve contextual integration

with the urban river in Kuala Lumpur. However, the criteria of evaluation must be suited to the local context, such as the type of waterfront treatment and climate. Furthermore, the findings revealed that the attributes and measurements that are adopted from other public spaces, which include three physical attributes ('enclosure', 'direct access to water', 'link the waterfront to the city'), are vital to achieve contextual integration between the waterfront and the water. These findings strengthen the theories, which, before this, only discussed the importance of these attributes in general in the waterfront context.

Through the cross analysis of interviews (authority and producers), content analysis and morphological analysis, these evaluations also identified the key reasons why the factors that affect the level of contextual integration with the water exist in Kuala Lumpur. The eight key reasons identified are lack of planning – policies, laws, guidelines, master plan; limitation of funds; condition of the river; introduction of other transportation systems; lack of management; political will, lack of awareness and market demand. The findings will be cross related to the findings in the next chapter, which will investigate the importance of the functional dimensions in contextual integration and finalise the key reasons why the waterfront is not contextually integrated with the urban river.

CHAPTER 7

FACTORS THAT AFFECT THE LEVEL OF CONTEXTUAL INTEGRATION IN TERMS OF FUNCTIONAL DIMENSION

7.0 Introduction

Chapter Six discussed in detail the level of contextual integration in terms of the physical dimension. It identified the factors that affect the level and established the key reasons why they exist. This chapter will address objectives 2 and 3 to answer sub-research questions 2 and 3 (Refer Chapter 1, p.8). This is done by evaluating the level of contextual integration through the functional dimensions by cross analysing four types of data – field observations, plan measurements, mapping technique and focus groups (Table 2, Chapter 4 for coding of respondents). Finally, the key reasons why these factors exist will be established by cross analysing three main techniques (interview, morphological analysis and content analysis). Similarly, as in Chapter 6, the confidentiality of those interviewed is retained by using codes for the quotations (Appendix 13 for coding). The evaluations are based on the framework stated in figure 4 (Chapter 3) and indicators were developed for each of the dimensions based on the literature. Similarly, as in Chapter 6, the discussion covered the whole 9km of Kuala Lumpur waterfront. However, an example of both physical and functional evaluation done in one zone can be seen in Appendix 18.

7.1 Functional dimension

As mentioned in Chapter 3, the level of contextual integration between the waterfront and the urban river in terms of the functional dimension can be evaluated based on two main principles: i) ‘**vitality**’ comprising two attributes: continuous activities and diversity of use, and ii) ‘**comfort**’. ‘Comfort’ is discussed here because of its unique characteristic, which can be achieved through ‘*a pleasant state of physiological, psychological and physical harmony between a human being and the environment*’

(Slater, 1985). It is an important principle in the functional dimension to create a public realm (Carmona et al., 2003). However, due to the scope of this research, only the physical attributes of comfort will be covered, which consist of four main attributes: 'seating areas', 'shade', 'lighting' and the 'universal design environment'.

Using a similar method as used to evaluate the physical dimension, the initial idea of the factors involved that may affect the level of contextual integration will be derived from the '**meaning**' of the functional dimension based on three attributes – association, use and awareness – which will be gathered through the focus groups. The discussion will initially start with the explanation on how the indicators are determined for each attribute for each of the principles. Similar as in the physical dimension evaluation, the indicator for the non-contextual integration is represented by the 'low level of contextual integration' in each attribute.

7.1.1 Vitality

a) Continuous activities along waterfront

Indicators for evaluating level of contextual integration

As part of an integral dimension to achieve vitality at the waterfront, 'continuous activities along the waterfront' is the next dimension that will be evaluated (refer p.59-62). Some of the indicators mentioned in relation to continuous activities are the 'continuous walls', 'frontage character' (Trancik, 1986) and the position of the buildings. Either the buildings are spaced closely or far apart (Owen, 1993). In the context of waterfronts, 'continuity of walls' and 'frontage character' can be related to the physical aspect of the contextual integration in terms of how the development is oriented towards the water and building enclosure. These two attributes were discussed in detail in the previous chapter. The 'walls' that face the river either fronting or backing onto the river and either close or far apart may affect the generation of different activities in various forms, scale and location (Petrillo, 1985) along the waterfront.

The generation of various activities along the waterfront can be categorised as either static or dynamic activities (McCluskey, 1992; Rapoport, 1987), which is also similar to the 'necessary', 'optional' and 'resultant/social' activities mentioned by Gehl (1986). Based on the above indicators, the category of activities (static and

dynamic) generated in the area is deemed to be a suitable indicator to evaluate the 'continuous activities along the waterfront' in the area in terms of vitality. This is because it indicates the type of activity generated in an area. According to McCluskey (1992), a good townscape whose major concern is in creating a sense of place, should aim to increase the static activities (optional or resultant/social activities). Hence, areas that generate more static activities may contribute to the high level of contextual integration between the waterfront and the urban river. It should also aim to reduce the dynamic (necessary activities) aspects of space. Areas that generate more dynamic activities may contribute to a medium level of contextual integration because although they bring people to the area they do not allow people to stay longer to enjoy the urban river. Finally, if the area does not generate any activity it may contribute to a low level of contextual integration. The percentage of the coverage lengths of activities are measured based on the length of the waterfront that allow activities to happen compared to the river length in each zone.

Level of contextual integration for continuous activities along the waterfront

'Continuous activities along the waterfront' is an important attribute in many waterfront developments (refer p.59-62). Is this attribute important in the context of Kuala Lumpur to contextually integrate it with the urban river? The participants from both focus groups stated that most of the time they only used the riverfront as a means of getting to another destination (for dynamic activities). One of the respondents noted (supported by a few):

'I do not stay around here long because there is nothing much to do along the way. I walk at the riverfront everyday (Zone 4a) because it is the fastest route to get to the office from the LRT.' (M3)

The statement suggests that there is not much activity for them to do and not much that attracts them to stay, and that they only use the route because of its convenience for daily necessity. Furthermore, in Zone 4a-right bank, the buildings are mostly backing onto the river and have back lanes for users to use. This indicates that there are no continuous activities at the ground floor level and that they only allow for people passing by (dynamic activities).

Only a few used the waterfront for static activities such as meeting friends at certain nodes along the waterfront. This includes Zone 1a, which has a terrace and also Zone

4b at the plaza below the Pasar Seni LRT station. A few highlighted that the plaza at Zone 4b is a good place to meet but not to stay. They will move to other places from there. Why is this so? One respondent highlighted:

'There is nothing much to do there. It is worse at night time. I would rather go to the Central Market area where there is much to see and a lot of things to do.' (F6)

This may indicate that the plaza or terrace may offer a place for people to meet but not to stay because it does not have any other activity close by and people tend to avoid these areas at night time. Many from both groups expressed their feeling that they would try to avoid the waterfront area at night. Why do they feel this way? One female respondent stated:

'...there are no other activities there. I do not feel safe.' (F4)

This may imply that they do not feel safe without other activity around and the area is avoided due to safety reasons. This may reduce the use of the waterfront for people to enjoy the river at night.

The results from the focus group are parallel with the observation. The waterfront in the study area offers more dynamic activities (54.5% of the waterfront length) compared to static activities (16.8% of the waterfront length), which may give a high level of contextual integration. This is because most of the areas only have walkways without any activity close by. Approximately 28.7% of the length of the waterfronts does not have any activity (Figure 100). This may cause the level of contextual integration to be low. In Zones 3a and 3b-left bank, there were no dynamic or static activities generated next to it throughout the length of the waterfronts (Figure 71). Why is this so? This may be due to these banks being aligned by highways. Other similar areas involved are Zones 3c and 7.

Why can it not generate activities? It was observed that there is no pedestrian walkway along this kind of road (Figure 72). The focus group clearly stated that they avoid those areas due to the danger of fast moving cars. This indicates that this kind of road does not allow for any static or dynamic activities.

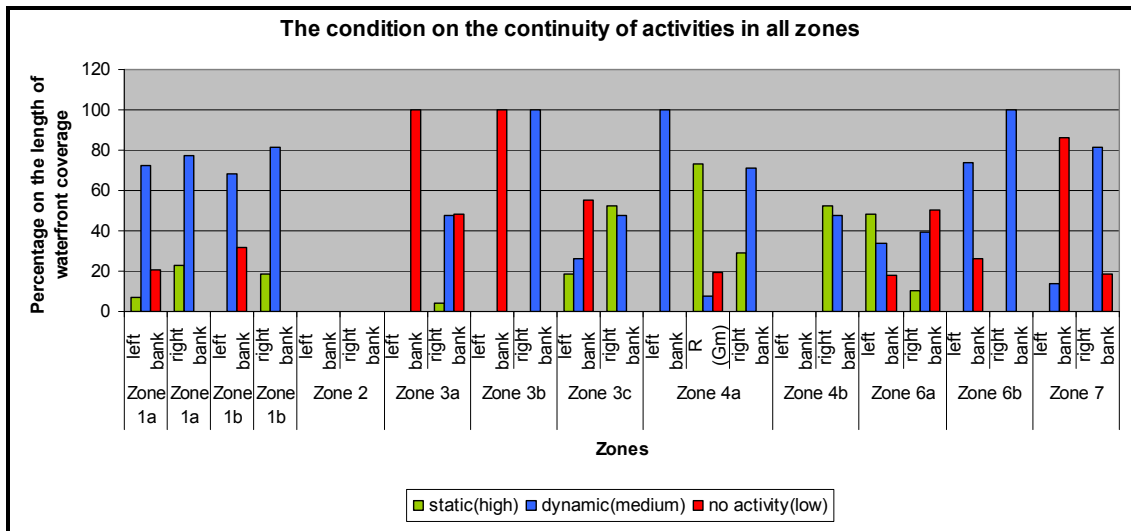


Figure 71 The condition of continuous activities along the waterfront in all zones



Figure 72 No activities generated along the highway (AKLEH on the left bank) in Zone 7

It is different compared to Zone 6a-left bank, which has the provision of a restaurant. Why is this so? The male participants stated that if they are hungry in the middle of the night, they will head to the 24 hour restaurants, which are known for their good food. There are a lot of people that come to that place at night and most of them are males. The females will always have someone accompanying them. One male respondent pointed out:

The food there is good. A lot of people come to these restaurants even at 3 o'clock in the morning. Sometimes you can even see artists stop by to have some drinks (M6)

The statement may indicate that the variety of food related activities can attract people to come to the waterfront area and generate more static activities near the river. This may increase the level of contextual integration to become high. However, the female group highlighted that they will try to avoid being in the city after 8pm when most of the shops are closed due to safety reasons. This may indicate that

without continuous activity in the area (when the shops are closed), the place may be avoided by people, especially by the ladies.

The participants remarked that the areas that they avoid are areas that do not have any alternative for public access or do not have any activity that attract them. This includes some part of 3a (right bank), for example, one respondent highlighted:

'If you get down at Sultan Ismail Station, there is only a school and houses in the area (Zone 3a-right bank). Nothing else you can do in the area. I just walk past them everyday to work. Why stay?' (F4)

Why is this so? Zone 3a-right bank is where school buildings and old flats are located, other building use are separated apart (Figure 73). Furthermore, the buildings are built abutting the river edge. This may indicate that without a continuous choice of activities, it may not allow people to stay to generate static activities but only allow dynamic activities to happen. It is further exacerbated by the buildings abutting the river's edge, which prevent any continuous activities or static activities being generated.

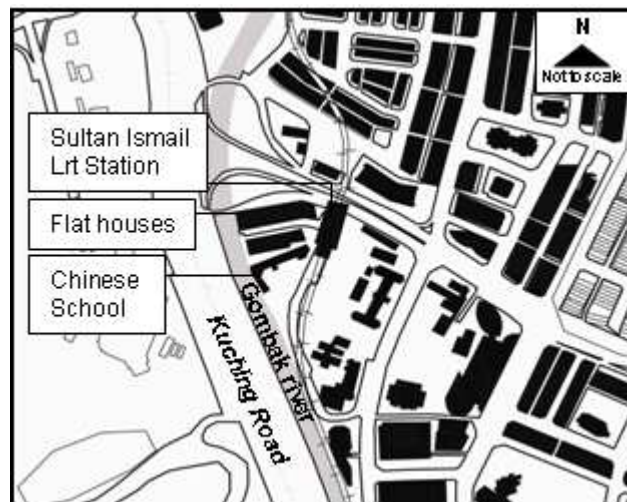


Figure 73 Limited building use in Zone 3a-right bank

A further area highlighted by the focus group as having no activity available in the area is Zone 6a-right bank. Why is this so? This area has private property that is fenced up to the edge of the river. This may indicate that areas that do not have any continuous activities with other places tend to be avoided. This finding is similar to Luymes and Tamminga (1995) who highlighted the importance of other activities along the waterfront for them to feel invited or safe in an area.

The statement mentioned by Trancik (1986) concerning the importance of the continuity of walls in providing a setting for activities to happen at the ground floor can be demonstrated by the situation in these zones, which do not have a continuity of walls. The areas that do not offer any continuous activity were observed to cause the level of contextual integration with the urban river to become low because they cannot generate any activity. This may result in poor use of the area. Furthermore, the findings support McCluskey (1992) who mentioned the importance of having more static activities compared to dynamic activities for a successful urban space – in this case to contextually integrate the waterfront with the urban river.

From the discussion, the factors that affect the continuous activities along the waterfront comprise four main factors: i) no access area, ii) highway along the river reserve, iii) buildings built abutting the river's edge, and iv) the existence of private properties fenced up to the edge of the river. These factors are similar to those that repeatedly affected the level of contextual integration for several other attributes discussed earlier in Chapter 6 (link to the city, continuity of walkway, direct accessibility and development that is oriented towards water and visual access). This also indicates that there may be a strong relationship between these attributes with continuous activities along the waterfront. As it has been discussed in detail previously (refer Chapter 6), it will not be discussed further in this chapter.

b) Diversity of use

Indicators for evaluating level of contextual integration

In evaluating the diversity of use, it is integral to have the water-dependent uses (water use), water-related uses and water-independent use (land use) in an area in order to allow people to be reconnected with the water (Hoyle, 1994; Wrenn et al., 1983). Water-dependent building uses are the ones that are dependent on the availability of the water for the building to function. Without the water the building cannot function. Examples of these types of building uses are marinas, jetties, boathouse, and water-taxi stations.

The second category is water-related uses. These are types of buildings that will benefit from close proximity to the water but can also function in other areas. Examples of these types of buildings/ developments are restaurants, open

spaces/parks/terraces and resorts/hotels. Finally, water-independent uses are those buildings that can function equally the same in other areas of the city without the water. Examples of these types of developments are 'shophouses'/shopping complexes, offices, workshops, mosques, residential, schools and clinics (Wrenn et al., 1983).

Therefore, a high level of contextual integration in terms of 'diversity of uses' is achieved if it comprises a mix of land and water uses (a mix of water-dependent use, water-related use and water-independent use) (Mann, 1988; Hoyle, 1994). This is because it will facilitate various choices of activities at the waterfront including physical interaction with the urban river. It also allows the public to move from one activity to another, hence, it lets them stay longer in the area. However, it will be categorized as medium level contextual integration if the area offers a mix of only land based uses with some buildings that relate to the water (a mix of water-related and water independent building use). This still enables a variety of activities, views towards the river but no physical interaction with the river. Finally, it may contribute to a low level of contextual integration if an area only offers building uses that are not related to the water (independent building use). This will give limited choices and does not allow the public to have direct interaction with the water or stay longer in the area. The percentage of the coverage of waterfront use is measured based on the length of waterfront that has these types of waterfront uses compared to the river length.

Level of contextual integration for diversity of use

'Diversity of use' is one of the attributes that are important in promoting the contextual integration between the waterfront and the urban river. The observation shows that all zones have a mix of water-related use and water independent use (Table 18). If we look at it in detail in each of the zones, there are four zones that have mixed building use (water-related and water independent building use) concentrated on one side of the bank only. These are Zones 3a (right bank), 3b (right bank), 4a (left bank) and 7 (right bank), which may cause the level of contextual integration to be categorised as medium. The other banks have water-independent use only. This may affect the level of contextual integration to become low. None of the zones has all three mixes of use.

Is diversity of use important for the user in the context of Kuala Lumpur? One female respondent pointed out the importance of the diversity of use (the same point was also raised by a male respondent and supported by others):

'It depends on what our purpose is for going there. Multi activities are good because it gives multi choice and we can choose the place we want to go and it will allow us to do many things' (F5)

'If I want to relax, I would prefer a quieter area but it would be nice if it is closer to other activities too that I can reach within walking distance' (M6)

This statement may indicate that a mixed use of activities is important because it can provide different choices, fulfil different individual needs and make them stay longer in the area. It was also observed that areas that are closer to other water related activities generate higher static activities. Why is this so? Comparing the static activity of both banks in Zone 1a, there is more concentration of people on the right bank where there is more water-related use in the area (Figure 74). This may demonstrate that it is also important to have other water-related building use in the area to generate static activities.

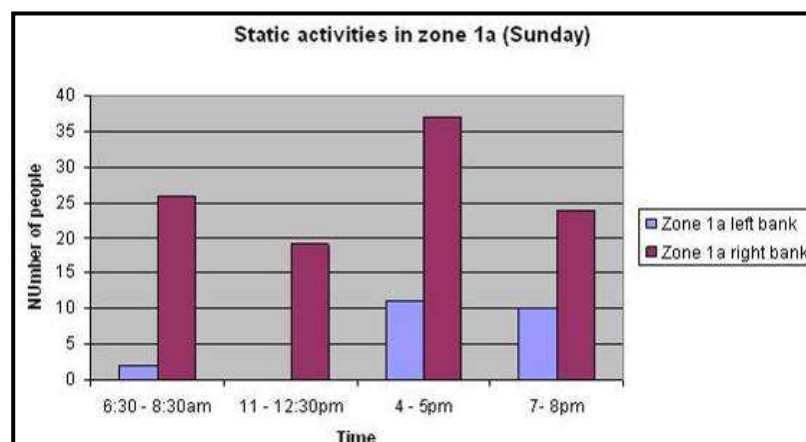


Figure 74 Higher static activities on the right bank of Zone 1a compared to the left bank of Zone 1a

Water-Dependent (H)				Water-related(M)			Water-Independent (L)							
	Marina	Jetty	Boathouse	Restaurant / food court	Park/ Terrace/ plaza	Hotel	Public Transport	Shopping shops/ complex	Offices	Workshop	Mosque/ Church/ temple	Residential	Clinic	School
Zone 1a				✓			✓		✓					
Zone 1a				✓	✓	✓		✓	✓	✓		✓	✓	
Zone 1b					✓	✓		✓	✓			✓	✓	
Zone 1b					✓				✓			✓		
Zone 2														
Zone 2														
Zone 3a														
Zone 3a						✓	✓					✓		✓
Zone 3b														
Zone 3b							✓	✓	✓					
Zone 3c				✓							✓			
Zone 3c				✓					✓					
Zone 4a									✓	✓	✓			
Zone 4a								✓	✓	✓		✓		
				✓	✓	✓	✓	✓	✓					
Zone 4b														
Zone 4b				✓	✓	✓	✓	✓	✓			✓		
Zone 5														
Zone 5														
Zone 6a				✓		✓	✓	✓	✓		✓	✓		
Zone 6a				✓			✓		✓					
Zone 6b				✓				✓	✓			✓		
Zone 6b						✓	✓	✓	✓				✓	✓
Zone 7				✓			✓	✓	✓			✓		
Zone 7							✓	✓	✓					
Zone 8a														
Zone 8a														
Zone 8b														
Zone 8b														
Zone 8c														
Zone 8c														

Table 18 Diversity of use in all zones

Furthermore, the provision of day and night activities is another aspect that is observed as being important to generate activities at the water-related building use. This can be seen in Zones 6a (left bank), 4b (right bank) and 3c (left bank)(Figure 78). This is similar to the findings in the evaluation of ‘continuous activities’, which highlighted the importance of day and night activities. What is the common use that these places have?

These areas have restaurants/eating areas (water-related building use). The restaurants in Zones 6a and 4b are open 24 hours and allow people to come to the place and provide the opportunity to view the river. This is also the case with the restaurant in Zone 3c, which also has a restaurant that only closes after midnight. This type of building use invites people to ‘hang out’ in the area until late at night and creates an overspill of optional/static activity at the pedestrian walkway or outdoor spaces along the waterfront (Figure 75) and (Figure 76).



Figure 75 Overspill of static activity in front of the restaurant in Zone 6a in day time



Figure 76 Overspill of static activity in front of the restaurant in Zone 6a at night time

Is there any difference if it has water-related use that only offers day activities? This situation can be observed in Zone 1b (left bank), which also has a restaurant. There were no static activities recorded in the area at night on weekdays because the restaurant only opens in the day time. Whereas at the weekend, there were static activities recorded as it opens until night time (Figure 77).

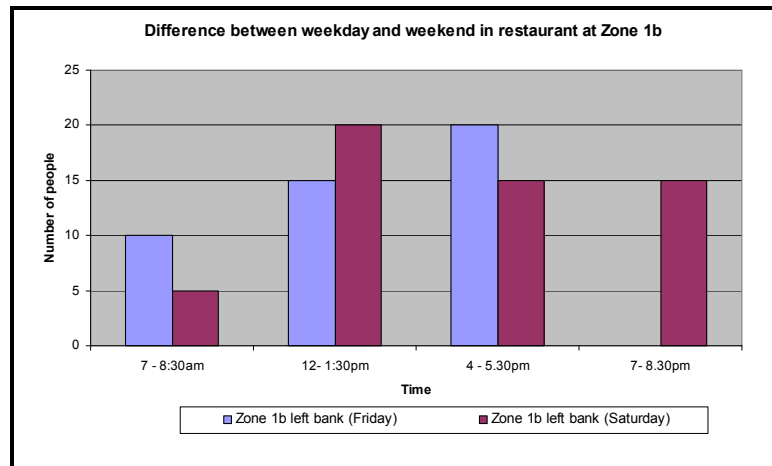


Figure 77 Difference between weekday and weekend in Zone 1b

Based on the observation, most of the static activities in Zones 6a (left bank), 4b (right bank) and 3c (left bank) take place throughout the day and night on both weekdays and weekends (Figure 78). This illustrates that the day and night activities are important to allow people to stay longer in the area.

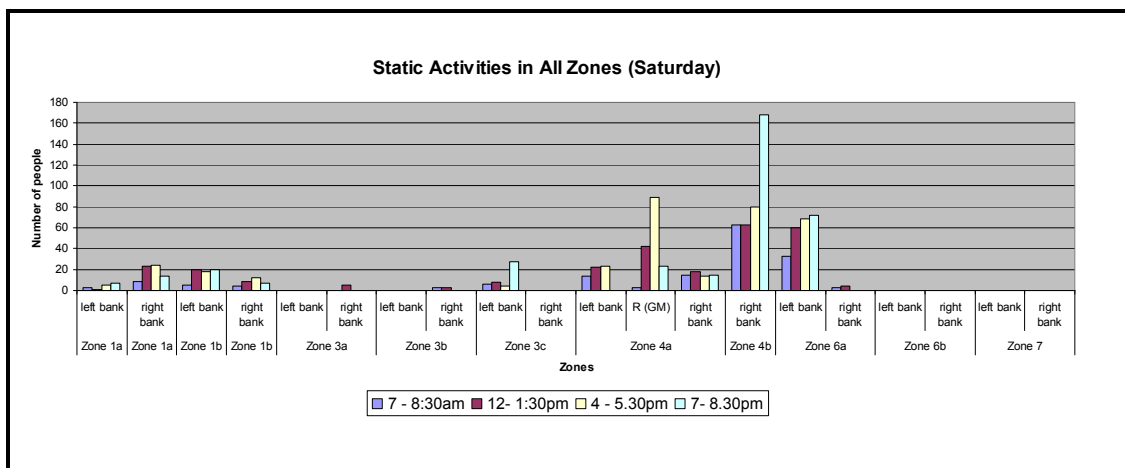


Figure 78 Static activities on a weekend

A contrasting example was observed of a green pocket space (water-related use), which is isolated from the main pedestrian route and other water-related uses. How is it different? The space was not able to generate much static activity. Even on weekends, not many users come to these green pocket spaces; in Zone 1b (right and left bank) less than 10 people came on Sunday and no people came to Zone 3c (right bank) (Figure 78).

Furthermore, in Zone 1b (left bank) and Zone 3c (right bank), the surrounding buildings are all water-independent building uses, which are widely separated from

one another and do not create a sense of enclosure. It has the potential to offer a nice break in the city and can create the opportunity for contextual integration between the waterfront and the urban river. However, most of the time during the observation, the isolated green pocket space was dominated by homeless people (Figure 79).



Figure 79 Green pocket space that is isolated from the main pedestrian route

Why is this so? This may illustrate that although it is water-related use, if it is away from other water related activities it may not be able to generate many activities. Manley and Guise (1998) stressed that an area that is isolated and does not have many people can also create a potential ambush area. This was personally experienced by the author when two of the field assistants were attacked while trying to collect data in this area. Through observation, when the number of public in the area increased, the homeless were not seen in this place. However, they will return when no other public are present. This finding is similar to Whyte (1980) who mentioned that homeless people will eventually go away if there are people/activities in the area. This may also illustrate that the area can also be prone to crime because there are not many people around.

What about the water independent building uses, can they contribute to the integration between the waterfront and the urban river in the context of Kuala Lumpur? Some water independent building uses were observed to contribute indirectly. Examples of these are public transportation stations, shops/commercial nodes and mosques. These buildings have the strength to pull the concentration of people due to the activities they offer, which are part of daily life necessities. Although much of the literature highlighted the importance of public transportation

and shops to bring people to the waterfront, it contributed more to the necessity/ dynamic activity rather than static activities in the context of Kuala Lumpur. This can be seen in zones: (1a (right bank), 3b (right bank), 4a (right bank), 4b (right bank) and Zone 7 (right bank)(Figure 80). It was also pointed out by the focus groups:

'In Zone 6a there are a lot of shopping activities. None related to the river. We usually do other things without bothering to really appreciate the river.' (M1)

This may illustrate that if there is only water-independent building use in the area, people might not notice the river and would be busy with that activity alone. This situation can be seen in Zone 6a, which has a bazaar. Furthermore, the place does not have any open space, seating, or other water-related use that addresses the river to allow people to appreciate the urban river.

There was a consensus from both groups that various choices of activities will make them stay longer at the waterfront area. The availability of activities that are related to the river is also important for them to appreciate the river. The female respondents unanimously agreed that they would feel safe in the area if there were other people/activities around. Once again the safety factor was highlighted as one of their main concerns (Whyte, 1980; Luymes and Tamminga, 1995).

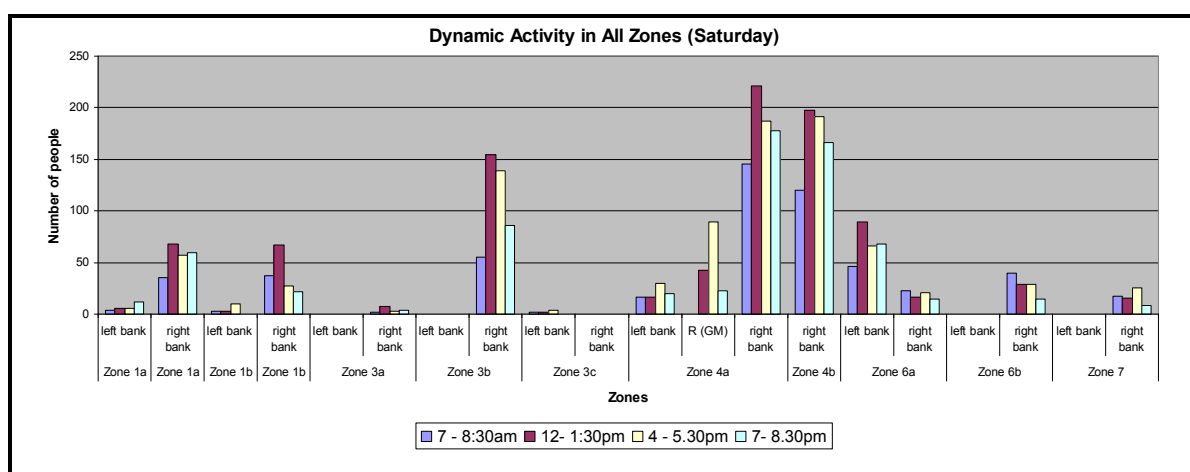


Figure 80 Higher dynamic activities (passing by only) in areas that have a public transportation station

The findings demonstrate that the opportunity for various activities, as one of the most important aspects for a place to be meaningful, as pointed out by Carr et al. (1992), is also vital in the context of the Kuala Lumpur waterfront. Based on the

findings, i) 'Banks which have water-independent use only', ii) 'lack of day and night activities', iii) 'no water-dependent use in any of the zones', iv) 'lack of continuity with other water-related activities', are factors that may cause the level of contextual integration between the waterfront and the urban river to be low in this attribute. This is because it might not be able to generate static activities and further reduces the awareness and use of the urban river. Why do the factors above (i, ii, iii, iv) exist in the context of Kuala Lumpur? There are five key reasons established from the discussion below: a) introduction of other transportation systems, b) condition of river, c) political will, d) lack of detailed guidelines and e) no market demand.

Introduction of other transportation systems; condition of river; no market demand

Why do some of the zones, such as 4a (left bank), only have water-independent use? According to the first morphological period, 4a (left bank) was developed by the British as the administration zone. Most of the buildings in this zone are government offices. Based on the archival records, there were a mix of water-independent, water-related and water-dependent buildings in this zone but the building use was later changed to water-independent use when the river was no more the main transportation mode. As for Zone 4a (GM), which is situated at Masjid Jamek, although the mosque is a water-independent building, the way Masjid Jamek functioned before involved the urban river because it has direct access from the river. At that time, there were many building uses and types of development along the river that were water-dependent. There were quays and jetties (water-dependent use) along the river when the town was the trading post for tin ore and the river was still the main transportation mode (Gullick, 2000). It was also the recreational area for many. However, this situation changed when the water transportation system changed to land. What were the changes?

The second morphological period saw the change in the building use at the waterfront with none being water-dependent, as the river was no more the main lifeline of the city. The only building uses available along the waterfront at that time were water independent building use only. This situation was followed through into the third morphological period until the current situation. When the river is not the main lifeline of the city, it is less appreciated by people and later becomes the

backyard of the city. People start to throw rubbish and it has become very polluted over the years (OA1). Due to the polluted condition of the river, the developers are not interested in integrating their building use with the urban river (DV2, DV5), especially when it may affect their profit making.

The river is not clean enough for us to integrate it with our development. That is why we had to cover the river with a green park to give a better view to the apartment buyers. We are not interested in the idea if we cannot sell the project (DV2)

This implies that there is no market demand by the private sector to integrate the use with the river if they are not convinced that it can bring profit to them. The key consideration of the private sector's property portfolio is '*profit maximisation*' (Henneberry, 1998 in Carmona et al., 2003, p.222).

What about in the policy or structure plans, is there any proposal to revert to water-dependent use? Although there was no proposal for water-dependent use in the KLSP1984, there were attempts in 1992 to turn the waterway into an alternative transportation system. The Deputy Prime Minister at that time, called on the private sector to study the feasibility of implementing a water-transportation system as an alternative to land transportation. However, the result of a study by a transport consultant firm showed that it was unsuitable because the development and maintenance of the river would be expensive, especially in raising the water up to a certain level (Anon., 1992).

The water level of the river in the city centre has become shallow over the years. Why is this so? This is because the straightening of the river, as part of the flood mitigation strategy, let the water flow too quickly downstream; over a half century before the same waterway was full of 'tongkang' and boats plying through (Mabbat, 1965). Does this affect the building use? LA2 and LA13 stressed that, at the moment, the water-dependent use is not suitable for the city centre although there were some proposals by the private sector to do so. OA1 mentioned that although there are proposals for water-dependent use coming in, he stressed that the river is not currently in the position to do that because the main function of the river in the city centre now is for flood mitigation. No structures, such as jetties, are allowed to be constructed within the river channel, as it is feared they may obstruct the flow of

the water during heavy rain and, thus, lead to flooding. Is there any alternative solution?

OA1 added that the flood problem needs to be solved first by retrofitting the old and new buildings with the urban storm water management system. This shows that it is quite difficult to return the water-dependent use to Kuala Lumpur if the condition of the river is still shallow and the problem of the water run-off is not solved. Although there are high aspirations for this situation to happen there are major hindrances in relation to the condition of the river that need to be solved before this situation can proceed.

With the SMART tunnel in place, can water-dependent use be reintroduced? LA3 and LA7 lamented that DID would not permit water-dependent use at the waterfront even though the SMART Tunnel was already in place to handle the flood. From their statement it implies that they are not really aware that the rivers still need to play the role as part of the flood mitigation system although the SMART tunnel is already in place. OA4 stressed that the calculation for the SMART tunnel was designed to take up the water run-off together with the capacity of the existing concreted river channel. Without the channel, the capacity of the SMART tunnel is inadequate to take up the water-run off from the city during heavy rainfall. LA13 supported and added that the process has to be done step by step and it will be materialised if all sectors work together towards achieving this goal. This indicates that the potential to return the water-dependent building use to the river may be possible in the future.

Political will

Is there any other proposal to return the water-dependent use? In 1998, there was another proposal to return the water-dependent use to the city. It was a mega project known as the Kuala Lumpur Linear City – a 1.8km long multi-development project known as Gigaworld that comprised a massive apartment-hotel-office retail and recreational area that would be integrated with an elevated People-mover Rapid Transit System (PRT) situated on top of the river (Chew, 2001). This project was so controversial and was opposed by many, even the KLCH officers because it would cover most of the river; nevertheless, it received approval from the Federal Government (LA5, AR1). However, due to the economic downturn in 1998, the

project was shelved. Subsequently, with the release of KLSP 2020, future projects are not allowed to be built on top of the river anymore (KLCH, 2004b). LA5 stressed:

'We specified it clearly in the KLSP2020 because we do not want that kind of project anymore in Kuala Lumpur.' (LA5)

This statement may indicate that the awareness concerning the importance to return the function of the river had already started to increase when KLSP2020 was enacted. Although it does not clearly state that water-dependent building use is to be returned to the city, it does mention in sub-section 685 that it aims to have a diversity of use in its environment that blends the land and natural forms as part of the identity and image of Kuala Lumpur. This may open up an opportunity for this aspect to develop further. KLCH had become very careful in evaluating the type of building use proposed and will try to omit projects that they think may 'disrupt' the natural condition of the river in the future. However, their power seems limited if there is political intervention from the Federal Government.

LA13 added that, recently, there was another proposal by the private sector, which cost MYR3 billion to raise the level of the water by building a dam for transport navigation. The proposal had gone to the Economic Planning Unit (EPU) (refer Appendix 15) at the Federal Government level and now EPU is studying it. This proposal was not supported by those from DID, because the idea to raise the water level only focussed on the area within the Kuala Lumpur City centre boundary (OA1). He mentioned and was supported by OA4:

'We need to stop looking at the river in segments. We have to learn from the mistakes of the past. The solution needs to be an integrated solution with the rest of the Klang River.' (OA1)

'We don't agree...it is purely a business proposition by the developer, they do not look at the river as a whole...ten years from now they will come back and say it is not efficient only in one part of the city and will propose it for other parts as well...it will not be sustainable. But the Federal government still wants to consider it. What can we do?' (OA4)

This illustrates that although DID (as the advisor from the government agency on rivers management) argues that the project will not be sustainable in the long run, the Federal Government still proceeded to study its potential. The concern is that if there is a green light from above, the project will still go ahead with or without the consent of the rest of the government agencies. This demonstrates that political will has the overruling power to steer the direction and decision on the future use and

development of the city centre as a whole and in particular the waterfront area (refer Appendix 15 and Figure 25, p.135).

Absence of detailed guidelines

What about the building use that offers day and night activities or the concern about the continuity of water-related building use? According to LA2, the land use plan for Kuala Lumpur has been there a long time, since the 1984 Structure Plan, as a guideline to determine the type of building use that should be or should not be in an area within the city centre including along the waterfront. LA10 added that it largely depends on the suitability and compatibility of the building use to the area, which will be decided by the One Stop Centre Committee (OSC) in KLCH before the development order is released. However, OA9 argued that the current land use plan is in zoning instead of according to lot, therefore, it is still difficult to control. This may be why certain zones only have water-independent building uses. As mentioned earlier, this may indicate that there is still a lack of detailed guidelines and development control to determine the appropriate development use for the waterfront, and which may need to have a mix of water-independent, water-related and water-dependent use to achieve the aim for diversity of use, as stated in sub-section 685 (KLCH, 2004a).

7.1.2 Comfort

The principle of comfort is another principle which is important in the functional dimension. It will discuss four main attributes which are seating, shade, lighting and universal design

a) Seating

Indicators for evaluating level of contextual integration

In the context of waterfronts, the water is a view for people's enjoyment (refer p.68). Therefore, to create integration with the water, seating areas can be arranged to face the water to allow the maximum view for the public. This was stated by Carr et al. (1992), who opined that the orientation of the seating is a proper response to the surrounding is an important factor to integrate with the river. The importance of seating is also stressed by Burton and Mitchell (2006) who suggested that seating should be provided every 100m to 125m along a street. Porta and Renne (2005) measured seating in their study of the urban sustainability by making a distinction

between primary and secondary seating. Primary seating comprises objects that are designed or made for sitting. Examples of these are benches and movable seating. However, secondary seating includes objects that are not specifically made for seating but may be used by people to sit on. Examples of these are planter boxes, fountains and boulders.

Therefore, the indicators employed for this research are as follows: areas that may contribute to the high level of contextual integration are those that provide primary seating within the 100-125m; medium level are those that provide secondary seating within the 100-125m and areas will be categorised as low level if they do not have any seating. Waterfront lengths that had provision or no provision were identified during fieldwork and measured using AutoCAD. The measurements were later compared with the river length within the zone to determine the percentage of length coverage.

Level of contextual integration for seating

Based on the discussion in Chapter 3 (refer p.68), the findings by Whyte (1980), after some years of research on plazas in New York, confirmed the importance of seating or ‘*sittable space*’ as a principle design factor in determining the social success of areas that allow people to stay longer. Is it as important in the context of the Kuala Lumpur waterfront? The discussion on seating prompted the comment by a respondent (and was supported other participants):

‘I definitely think there should be more seating as it is so difficult to find – sometimes we just sit anywhere that it is possible to sit such as bollards or planter boxes or the tree roots. If there is seating people can sit and rest. I surely hope there would be some provision in the near future.’ (F5)

The statement may indicate that there is minimal provision of seating along the waterfront that allows people to pause and relax comfortably. It may also imply that the need of it is high as they expressed their hope for its provision in the future. This is supported by the physical observation, which shows that only certain banks in the zones evaluated have some provision of primary seating (in Zones 1a (left bank); 3c(left bank) and 6a (left and right) and secondary seating (in Zones 1a, 1b, 3c, 4a, 4b, 6a). Other zones have no provision of seating (Figure 81).

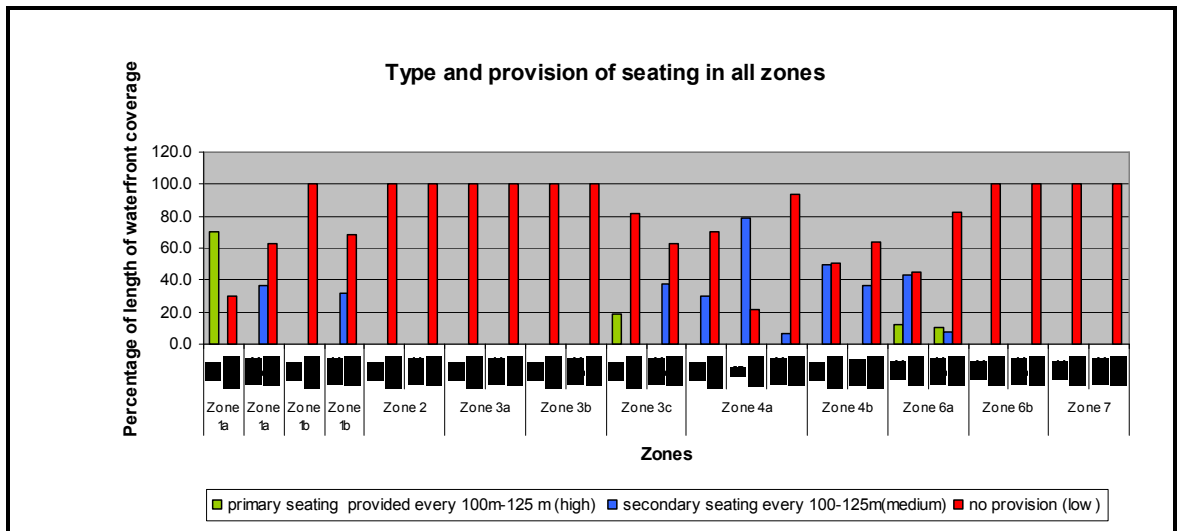


Figure 81 Type and provision of seating in all zones

It was also observed that areas that have primary and secondary seating generate many sitting activities (Figure 82). However, there are zones such as Zone 1a-left bank, which have primary seating (consists of 60% of the waterfront length in the zone) (Figure 81) but have minimum activities recorded in the area, the question arises why is this so? These areas may suffer because of the lack of accessibility and link with the city [refer to 6.2.2 (b)- ‘link the waterfront to the city’, Chapter 6] and, furthermore, it lacks static activities (Figure 74) that might attract people to the area. This may reduce the use of the place and prevent people from sitting in the area to appreciate the river.

Another intriguing question arises as to why there are sitting activities recorded in areas that have minimal or no primary or secondary seating, such as in Zones 3a and 3b-right bank. It was observed that the migrant workers, for example, those coming from Nepal, would even sit on the pavement. Interestingly, the pavement is not categorised as secondary seating in this research because it is part of a walkway albeit considered suitable for seating by some. That is why seating activities were recorded in this area (Figure 81 and Figure 82). However, some of the respondents in the focus group, who are all Malaysian, stressed that they are very particular as to where they sit and try to avoid sitting in areas that are stepped on by others. This maybe much related to the culture and background of individuals, which is a subject that is not covered in this research.

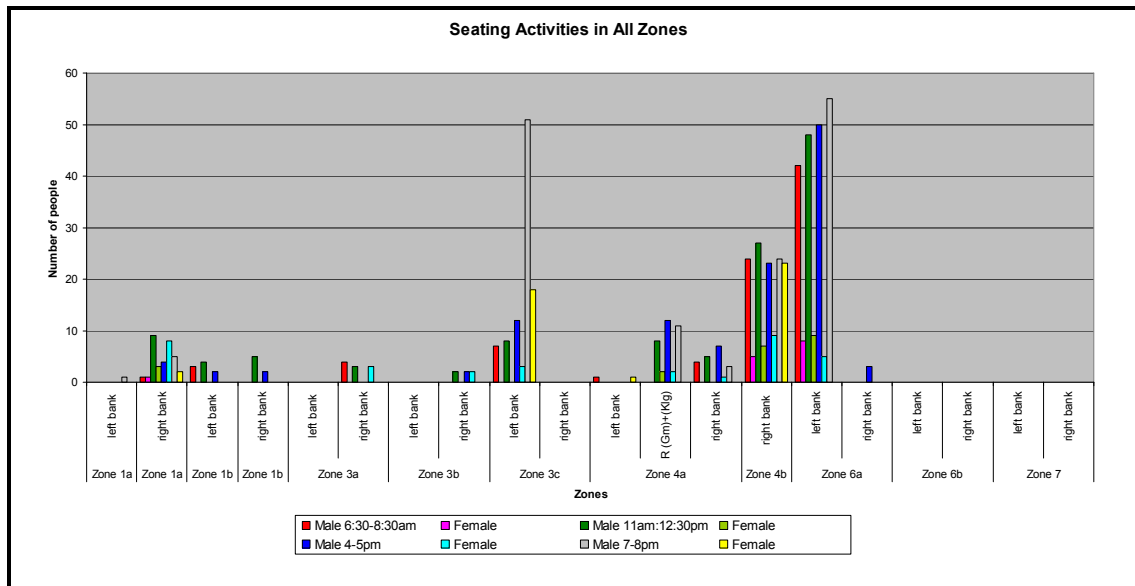


Figure 82 Sitting activities in all zones (Monday)

Furthermore, the urban river can be enjoyed when the seating is shaded and oriented towards the urban river. These situations can be observed through the comparison between Zone 1a (right bank), Zone 4b (right bank) and Zone 6a (left bank at bazaar area). In Zone 1a (right bank), there are ample seating places that are shaded and oriented towards the river. The urban river can be viewed directly and most of the time there are also people sitting and fishing at the terraced area (Figure 83). This is parallel with the findings by Carr et al. (1992) who mentioned that the orientation of the seating in response to the environment is important for the public to enjoy the view.



Figure 83 People sitting and fishing at the terrace addressing the urban river (Zone 1a right bank)

In contrast to Zone 4b, there is ample space/plaza provided below the Light-Rail Transit (LRT) station next to the river. However, none of the seating (primary or secondary) provided is oriented towards the river or shaded. This may be the reason

why people do not sit facing the river. Although there are many people sitting in this area, it was observed that they are only sitting in shaded seating areas and facing away from the river (Figure 84).



Figure 84 People are sitting and facing away from the river

This situation can also be observed in Zone 6a (bazaar area). This area has one of the highest numbers of passers by – more than 700 people crossing the area (recorded in a duration of 15 minutes) during peak hours. The pulling activity may be very much due to the LRT station nearby with shopping areas along Melayu Road and Masjid India Road. However, there are no people recorded sitting along the river. It was observed that this might be due to the non-provision of open space and seating in the area that faced the river (Figure 85).



Figure 85 No seating addressing the river in Zone 6a-bazaar.

Although many agreed that the provision of seating is important and very much lacking throughout the waterfront, one male respondent argued:

'With the condition of river not being very nice to see I do not think there is a need to have seating because no one will sit or stay long.' (F3)

The statement may indicate that it will be more meaningful to have seating if the condition of the river is better. As pointed out by Pidwill (1993), an improvement in water quality is one of the key aspects in the redevelopment to attract developers and public alike to the place. Nevertheless, the discussion inferred that the provision of seating is crucial in order for them to stay longer in the area. The lack of seating has reduced the use of the place and may affect the level of contextual integration with the river to become low. This is exacerbated when the available seating is not shaded, has no access and is not addressing the river in some of the areas. This explains the claim by Whyte (1980) who stressed the importance of the provision of seating for a public place to be successful to contextually integrate the waterfront to the urban river in the context of Kuala Lumpur. Therefore, it is further explored to determine why some areas do not have any seating. Three main reasons were established: i) initial planning, ii) absence of detailed master plan, and iii) lack of coordination between departments in KLCH and other agencies.

Initial planning

Based on the morphological analysis, there was minimal seating along the river from the beginning. The only place mentioned was near the market place where there used to be a gambling place for people (Gullick, 1988). Other than that, there were no records of any seating provision along the waterfront. This was even more apparent during the second morphological period when the river was treated as the backyard of the city, as, except in Zone 8, no recorded provision of seating was found. According to AR2, there were benches provided along the waterfront before AKLEH was constructed. This was also recorded in Anon.(1960). The riverfront along the Klang River in Zone 8 was developed to be a recreational area for the community, which includes the provision of a seating area. However, there were no records in the rest of the zones. Five years after the KLSP 2020 were gazetted, the primary seating facilities are provided along the waterfront in three zones (1a-left bank, 3c-right bank, 6a-left and right bank). Why were so few of the zones provided with seating? LA5 claimed and supported by LA4:

'There is only narrow strip of the waterfront left for the upgrading because some of the river reserve is already next to the road or very busy highway.' (LA5)

'Sometimes the space for pedestrian walkways are too the limited, no space to put seating.' (LA4).

This may indicate that in the initial planning there was little consideration of seating at the waterfront. Some of the areas were already taken up by other infrastructure, and, therefore, limited the remaining areas available for the provision of seating.

Absence of a detailed master plan

Since KLSP 1984, and as included in KLSP 2020, the river corridor has been recognised as an important element to be upgraded along with its facilities. LA6 pointed out that the policies to upgrade all amenities were rather general in the hope that everyone that refers to it would be able to interpret the importance of the provision of amenities including the seating (Policy UD 15, sub-section 700, KLSP 2020). She stressed:

'There is no detailed master plan for the waterfront. Things are done on an ad hoc basis as need arises. Therefore, it is difficult to make this provision.' (LA6)

This may imply that although there is a policy, without a detailed master plan for the waterfront, sufficient seating is unlikely to be provided. However, the guideline by TCP (2002) on the 'River reserve as part of public open space' does mention the possible provision of seating in all river reserve development. Can this be the guideline for all? OA2 commented and supported by OA3:

'The only problem is, the guideline is not widely used by all the related agencies. Each department has their own guideline and there is not one comprehensive guideline that governs all. Some ministries would use part of the guideline and later if they did a more thorough study on certain things they would develop a new guideline, which they would refer to.' (OA2)

'This guideline is for internal use (within department) only because if it is to be accepted by other agencies, they have to get the approval at the Cabinet level, which is quite a difficult process to go through.' (OA3)

This may imply that although there are guidelines available, they are only used within each department. This may also indicate that the difficult process to get the guideline approved at Cabinet level discourages the department from requesting it and ends up with the guidelines only being used internally. Furthermore, until now

there is still no master plan that can guide the continuous development along the waterfront.

Lack of coordination between department and agencies; ad hoc development

LA13 and LA3 highlighted that another reason is the lack of coordination between departments (refer Figure 25, p.135). One example can be seen in the project done on the left bank of Zones 4a and 4b, which does not have any seating. According to LA6, the walkway above the submerged LRT tunnel was developed as soon as the tunnel was completed. She added that the project by Prasarana Berhad (a government agency, which is the asset owner of two LRT lines), an engineering based agency, was in charge. Due to the nature of the project, which is an infrastructure project, the department in charge of monitoring this project under the KLCH is the service department of which the majority are also engineers. They do not consider urban design principles. Does the Urban Design Unit give any advice? LA6 added that the urban design or the landscape perspective is only considered in the last stage of the project. The available amenities were all done on an ad hoc basis without any proper master plan after the rest of the project is completed (LA3). This may imply that the reason why there is no provision of amenities such as seating is that not much can be done if there is not much space left for amenities. This may also illustrate that the coordination between departments that have the expertise was also absent in this project, which was completed in 1998.

LA4 stated that there is no department in charge of the waterfront development. Each of the departments has their own issues to address, which do not include the waterfront development. Why is this so when in KLSP2020, the waterfront is identified as an important area to increase the quality of living in the city? LA13, LA4 and LA3 highlighted that this is very much related to the multi-tasking work that each of the departments is doing at the moment and, consequently, limits the effectiveness of looking at details. Therefore, many of the matters that are not a priority are put aside. These include seating, which is not a pressing need at the moment as no complaints have been received from the public regarding this matter (LA13, LA3). However, this assumption by the decision makers contrasts with the

findings from the focus group session, which identified the importance of seating along the waterfront.

Furthermore, LA13 added that this is because each department has certain expertise. Irrigation and Drainage Department (a department within KLCH), which is given the responsibility to manage the river, mainly focuses on the maintenance and flood mitigation of the Klang and Gombak Rivers in terms of its engineering aspects because the whole department is engineering based. However, LA13 stressed that although the provision of amenities along the river, which includes seating, is within the remit of Irrigation and Drainage Department it is not their expertise; it is the Urban Design Unit's or the Landscape Department's. Therefore, collaboration with other departments is needed because the provision of funds for the amenities at the riverfront will come through the Irrigation and Drainage Department. Without enough funds, the other departments will not be able to add any amenities in the area. LA4 lamented:

'There is no focus...the problem is the system in KLCH, we stick to profession...Meaning, landscape department will only do landscape work...whereas now, we should look at projects as teamwork...Multi discipline teamwork...what we have here, single discipline with multi task.. That is why it is very difficult to have a quality project...we run from one job to another... That is the main problem...I have 50 projects under my belt at the moment!' (LA4)

This may illustrate that each department only looks into their own scope of work without any consultation between departments. This may result in matters of detail such as seating being overlooked. Is there any effort to improve this situation, as it seems that everybody realises that the problem lies in the system? LA13 admitted that the realisation of the importance of these matters were amiss, but were slowly improving as better teamwork was now in place. This may indicate that there are positive improvements in the collaboration between the departments, which it is hoped will result in the better provision of amenities, including seating, in the future. LA4 explained:

'Yes, everybody realizes this is the main problem. But, this organization is like a big spider entangled in its own web...if it moves...it will get entangled even worse... If change were to happen...it has to be a total reengineering of not only the organisation but the mindset of all who are working in the organisation. I have been here more than 30 years, and there were no major changes throughout those years. You can imagine the amount of work that needs to be done to do the changes!' (LA4)

This discussion clearly indicates that there is a problem in the KLCH system, which lacks collaboration between the different departments. Although seating is not considered a pressing need for the waterfront by the decision maker, this contrasts with the finding from the focus group, which expressed its importance. However, this discussion has identified a major contributory factor concerning the absence of important amenities, which is the KLCH system itself.

b) Shade

Indicators for evaluating level of contextual integration

Shade may be provided by the planting of trees that have a large canopy or by providing a covered walkway (refer p.68-69). In the context of Kuala Lumpur, which has a tropical climate, the provision of trees will not only provide shade but may contribute to the cooling of the temperature in a place (Gill et al., 2007, p.128) and increase the comfort level of an area. Therefore, it may be necessary to have trees along the waterfront in order to create a comfortable environment that will encourage the public to stay longer in the area and be connected to the urban river. Although the provision of a covered walkway is also an option, the material use for its roofing will need to be considered to ensure its suitability to the climate, if unsuitable it may contribute heat to the area on hot days.

A high level of contextual integration in terms of shade may be provided by trees with a large canopy, followed by a medium level if the area has a covered walkway and, finally, the area will be evaluated as low level in contextual integration if it does not have any trees or a covered walkway. Through the examination of the physical observation and detailed measurement using AutoCAD, the percentages were derived from the length of the waterfront, which either has or does not have trees or a covered walkway, compared to the river length within each zone.

Level of contextual integration for shade

Based on the discussion in Chapter 3 (p.68-69), one of the factors that was found to be important in order for people to be satisfied with an area is the provision of shade (Rutledge, 1975 in Carr et al. 1992, p.93). Is this important in the context of the Kuala Lumpur waterfront? The focus group highlighted its importance; one male respondent pointed out (supported by many):

'Not only important. It is very important because our climate can be very hot. Trees are important because they can absorb heat. Compared to covered walkway – the heat is trapped underneath it, furthermore the materials used are those that trap heat. If we stay under a tree it is cooling and comfortable. If possible, I would like to sleep under the trees. However, there are not that many that allow us to do so.' (M1)

The statement might indicate that shade is a crucial attribute at the waterfront area in order to make them feel comfortable. It also implies that trees are preferred, especially on hot days, compared to covered walkways due to the cooling effects they bring to the area. As mentioned by Chronopolous-Sereli et al. (1999), an area that is covered by vegetation will lower the temperature in the area. This was also reflected in the comment by another male respondent:

'To me, if we walk at noontime, it is very hot. If possible, I would prefer to have more trees along the waterfront to absorb the heat. The green gives a nicer environment along the waterfront too. If there is none, I would prefer not to walk in the area.' (M2)

This may indicate a very strong need for trees along the waterfront and the scenic view they create. This statement is supported further by the observation of people who appear more relaxed and stay longer in the places that are adequately shaded compared to places that have minimum shade. This situation can be seen by comparing Zones 4a (right bank) and 4a (Gm) at the same noontime. Zone 4a (right bank), which has only small trees and palm trees does not provide much shade for people to rest. In contrast, 4a (Gm) has many trees that provide shade, and many people sitting and relaxing underneath the shady trees by the river were observed (Figure 86 and Figure 87).



Figure 86 No static activity is happening in this open space in Zone 4a (right bank), which does not provide much shade.



Figure 87 At the same time, many people are sitting in the shaded area in Zone 4a (Gm).

It was also observed that in some places, such as 6a (left bank-along Sri Bunos Road), which does not have trees with large canopy or a covered walkway outside the buildings, the spill over of static activities outside the buildings can be seen more during the late afternoon (4-5pm onwards) when it is more shaded compared to noontime (11-12:30pm) (Figure 88 and Figure 89). This might be because in late afternoon it is more shaded and comfortable to sit outside and this will also allow more use of the waterfront.

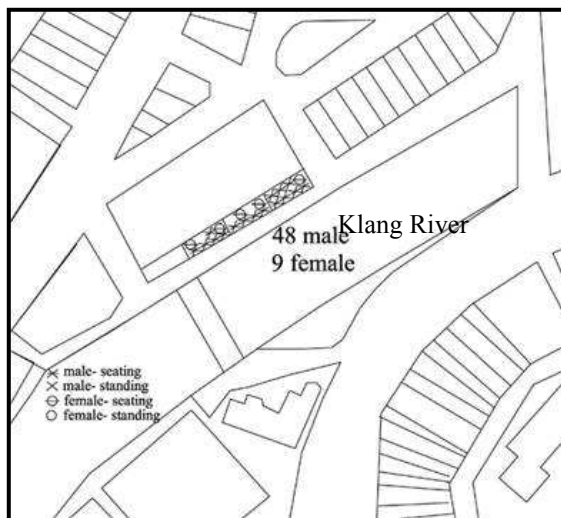


Figure 88 No static activities outside the buildings; Static activities at noon time (11-12:30pm, Friday)

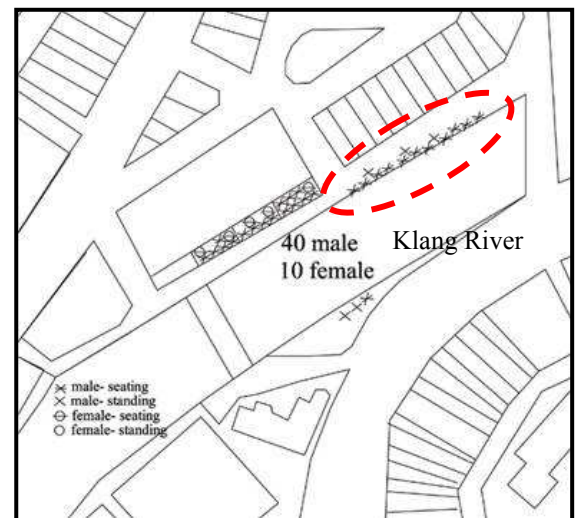


Figure 89 Spill over of static activities outside the buildings in the evening (7-8pm, Friday)

In a city like Kuala Lumpur which experiences a hot and humid climate throughout the year, the findings indicate that the lack of trees or covered walkways in most of the areas may contribute to the low level of integration and may result in poor use of the urban river because people will not stay long in the area. This concurs with the major factors of comfort highlighted by Carr et al. (1992) in that relief from the sun is applicable in the context of the Kuala Lumpur waterfront.

This is worse when the trees and covered walkway are not well provided throughout the waterfront; only 35.2% of the waterfront length has trees, 19.6% has a covered walkway and about 46.9% has neither trees nor a covered walkway (Figure 100). Why is the percentage with neither the highest? It was observed that the non-provision of trees or covered walkways are due to three main factors – fenced private property, buildings built abutting the river and highways. Again, the same reasons for the non-continuous activities also affect this attribute. Since they have been

discussed in detail previously (refer ‘development that address water’, ‘direct access’ and ‘continuity of walkway’ in Chapter 6) they will not be repeated here. However, several other reasons were raised by the interviewees that will be further explored in the following discussion.

According to the morphological analysis, in the first period, natural vegetation provided shade to the earlier two-foot pathway made along the waterfront. In the second morphological period, trees were also planted during the 1930s along the riverbank some of which can still be seen along Mahkamah (Holland) Road.

‘If you look at the area along Holland Road, the huge rain trees were planted in the British era. At that time, consideration of the importance of trees along the waterfront was recorded.’ (LA7)

This may indicate that the importance of trees along the waterfront was recognised in the earlier days. There was also evidence of instructions given to plant trees along the river at Lornie Road in 1937 (Shariff, 1989). In the third morphological period, since the KLSP 1984 there are policies and guidelines concerning the provision of trees (known as the green network) along the river. This was continued in the Policy on Urban Design 11 and Sub-section 707 in KLSP 2020 (KLCH, 2004). This also included the provision of covered walkways, as stated in the Policy on Urban Design 17 (KLCH, 2004a). With the policies in place, why are many areas still lacking the provision of trees and covered walkways? According to LA8:

‘A lot more trees will be planted along the river and more covered walkways are coming. This is because of the recent comments received from the administration of KLCH, public comments and also their own department’s initiative in making research and study on possible areas that needed shade.’ (LA8)

The statement above implies that there are plans and a new proposal to increase the shade along the waterfront. The interview was conducted in midyear 2008 and the statement was confirmed as being true, as during the three-year research period, it was observed that there have been continuous additions of trees and covered walkways along the waterfront.

Initial planning and absence of policies and guidelines

However, LA3 added that some of the areas do not have any trees because of the limited or narrow areas available, which prevented them from providing trees beside the pedestrian walkway. Why are there areas that are too narrow? LA3 added that

this is because the realisation concerning the importance of the waterfront only came in the third morphological period. Unfortunately, in some areas (such as in Zones 1a, 3b), the initial planning of the development did not provide adequate space along the waterfront for the public use. This was supported by AR1 who mentioned that such a policy was absent when the development was done in the 1970s.

LA4 added that when the waterfront was upgraded within the green network policy, they had to make full use of what was available on site. Sometimes, only a very narrow strip of space was left, which could only accommodate a two-foot pathway; no trees could be planted if the area was too limited. This statement indicates that the initial planning of the development at the waterfront, which did not consider it as a public place, affected the spaces that can be provided with trees or covered walkway in the current context.

Lack of coordination between department and agencies

There is long stretch along the right bank of Zone 4a that is not shaded by trees. Why is this so? According to LA7, the reason is that the tunnel for the LRT that was completed in 1998 is beneath this zone. Therefore, only small trees can be planted and no plants with deep roots that can give more shade can be planted on top of it. This fact was supported by LA3 and LA6. The landscape was not well coordinated in the earlier part of the LRT project. LA5 pointed out that, at present, work towards achieving a systematic and holistic development is not in place. Why is this so? LA10 added that each of the departments or agencies (refer Figure 25, p.135 and Appendix 15) would have their own guidelines regarding their concern, therefore, each of them were trying to impose their individual guidelines without looking at the picture as a whole. Therefore, in the end not much can be done on a site except piecemeal development including the planting of trees along the waterfront. From the discussion, it may be surmised that the lack of coordination between the different government agencies and departments within KLCH had once again become a reason for the lack of the provision of trees and covered walkways. However, it is one of the important attributes highlighted by the focus group to achieve contextual integration with the urban river.

Limitation of funds and absence of a detailed master plan

LA3, LA5, and LA7 mentioned that much of the land along the waterfront is privately owned and that if they were to be acquired it would cost billions. They added that this is not possible at the moment because the funds available are limited.

LA6 highlighted:

'Due to the limitations of cost and without a detailed master plan, much of the planning was done in an ad hoc manner in accordance with the availability of funds. That is why some of the areas were planted with trees and some were not.' (LA6)

This statement suggests that there are limitations concerning the available funds and without a proper master plan this may result in the low provision of trees and covered walkways. However, LA3 added that with the recent policies in place, costs can be saved by requiring private developers to provide trees in every new development. Has this been implemented? AR4 mentioned that this was part of the requirement in his latest project at the waterfront (completed in 2007) and was also confirmed by DV3. LA3 mentioned that some of the developments are still under construction. Improvements are expected to be seen in the new projects coming up. These statements may indicate that with the enforcement of the new policies, many improvements concerning the provision of trees and covered walkways are going to be seen in the future.

c) Lighting

Indicators for evaluating the level of contextual integration

As discussed earlier in Chapter 3 (p.69-71), lighting is important in experiencing public places. It has the capacity to give the '*maximum sense of identification to form the place itself*' (Peters, 1983, p.5) and a sense of safety to the visitor (Farrington and Welsh, 2002; Painter, 1996; Luymes and Tamminga, 1995). It is also able to stimulate activity and attract people to an area, thus, encouraging people to stay longer and connect with the urban rivers. The level of contextual integration between the waterfront and the urban river can be increased by lighting up both the waterfront and the water's edge for the public's visual access at night time. This will allow activity to happen on both land and water. The presence of activity and people will increase the feeling of safety by people towards an area.

Therefore, the indicator to evaluate the level of contextual integration in terms of lighting was developed based on the above factors and the waterfront situation in Kuala Lumpur, where most of the buildings are located a short distance from the water's edge (within the 50m distance). A high level of contextual integration can be achieved if lighting is provided for both the buildings and the water's edge. This will increase the integration between the land and water because it can encourage activity to happen on both the land and the water. The medium level of integration is when the lighting is only provided for the buildings which may connect people to the water indirectly by being at the waterfront but might not allow people to appreciate the water visually (Peters, 1983). The low level of integration is when there is no provision of lighting at all and total darkness will make people stay away from the area because it is considered unsafe, especially by women (Luymes and Tamminga, 1995)

Level of contextual integration for lighting

The discussion on lighting highlighted the respondents view concerning lighting in association with darkness and safety. One of the female respondents commented:

'We try to avoid these places at night, although there is lighting around, not many people are around because many shops close at 8pm. It can be dangerous' (F4).

The statement suggests that at night, even when there is lighting, if there are not many activities going on and not many people in the area, the places are still avoided due to safety concerns. It also indicates that it is related to the available activities in the areas. This is supported by the observation which shows that quite a significant length of the waterfront (48.2%) only has lighting for the buildings and 38.6% of the waterfront length in the zones evaluated have lighting for both the buildings and the water's edge; only 13.2% has no lighting (Figure 100).

However, it was observed that even where lighting is provided at both the waterfront and the water's edge, if there are no other activities that invite the presence of people in the area, the areas are still avoided at night. For example, in Zone 1b, although lighting and green pocket spaces are provided, less static activities (less than 10 people) were recorded (Figure 90) in the area at night. This may be because there is no other continuity of activity in the area. As Whyte (1980) suggested, the presence of people is a self-reinforcing factor, which is essential in promoting safety. This

shows that the presence of people is vital for inviting other people to the place. This can be related to Luymes and Tamminga (1995) who opined that the presence of activity will attract other people because it will make them feel safer.

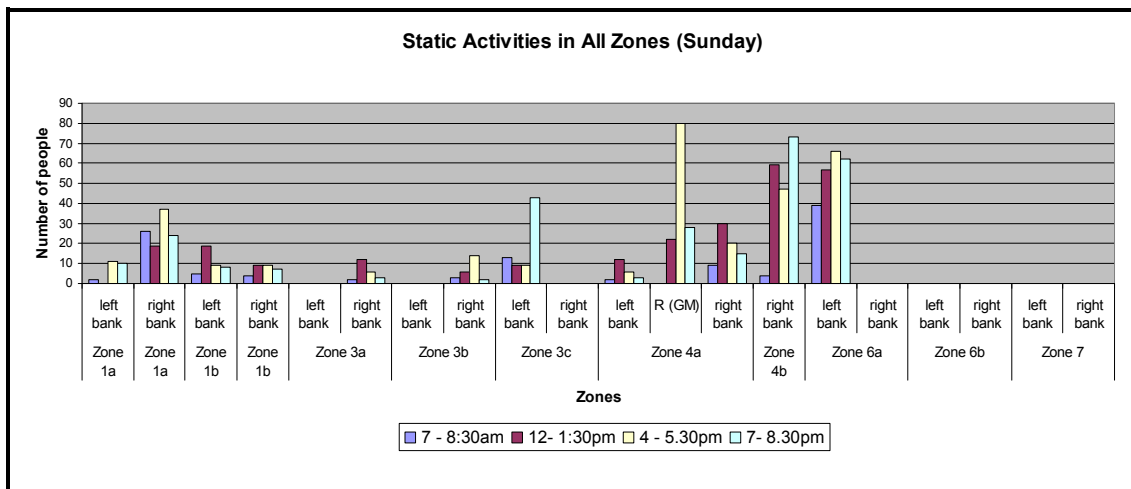


Figure 90 Static activities in all zones (Sunday)

If the presence of people is important, why are some areas such as Zones 1b and 4b, which are adequately illuminated at night and have people ‘hanging out’ at night, avoided by public? The participants claimed that these areas are known to be hostile when it comes to night time. One male respondent raised a point:

‘You do not want to be at Pasar Seni Station (Zone 4b) after 11pm. Although there is lighting, the activities and the type of people that hang out in the area are those that you do not want to meet.’ (M3)

This statement may indicate that although it is lit, there are areas that people will avoid after 11pm, especially areas that have many homeless and drug related activities in the area. This situation may result in poor use of the place to the users. Carr et al. (1992) mentioned that the presence of negative activities could give a negative meaning of the place to the user. Other than the type of people in the area, why are some lighted areas avoided? There are areas where both the waterfront and the water’s edge are lit; however, due to poor lighting quality (for example in Zones 1b, 3c, 4b) they are viewed as being dangerous even by the male group (Figure 91). This is similar to Marcus and Francis (1998) who mentioned the importance of lighting levels for parks or public places being as bright as those in the street for safety reasons. Related to this are also the studies by Farrington and Welsh (2002); Painter (1996); Luymes and Tamminga (1995) who stressed the importance of lighting for psychological comfort in terms of security and safety.



Figure 91 Dim lighting at the water's edge in Zone 1b is considered dangerous by the participants

This raises an interesting question as to why some areas, although not fully lit at the edge of the river, have many activities recorded in the evening such as in Zone 4a (Gm)(Figure 90). This area is an exception because it is a mosque area for the muslims, they will come to observe their 'maghrib' (evening) prayer regardless of whether there is lighting at the water's edge. This may indicate that if the activity is the priority, lighting at the edge of the river is not a major necessity. What about areas with no lighting? This example is found in Zone 2, which has more than 90% of the waterfront length unilluminated (Figure 92). Although the activities in Zone 2 are not recorded, based on the advice of the police, the areas without lights may make it easier for crime to occur.

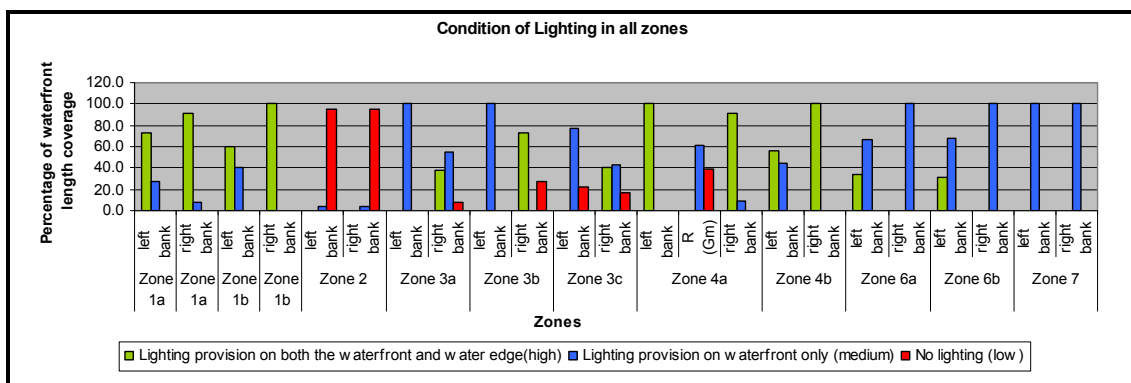


Figure 92 The condition of lighting in all zones

From the discussion it can be inferred, that although activity or the presence of other people (positive activities) is found to be the pulling factor for people to be in the

area, lighting is an important element at the waterfront for safety reasons and to stimulate activity. Poor lighting quality or non-provision of lighting may result in an area being totally avoided, which may give poor use to the area and lower the level of integration with the urban river, however, exceptions may occur, for example, if there is priority activity in the area such as mosques. In general, the findings suggest that activity and physical design have to be complimentary to create a good contextual integration with the urban river. Why are some of the areas along the Kuala Lumpur waterfront not lit? Three main reasons have been established from the discussion: i) Absence of a detailed master plan, ii) limitations of cost, and iii) low water quality.

Absence of a detailed master plan

In the first morphological period, there was no any electrical supply; only kerosene lamps were used in the town. In the early twentieth-century, street lamps were introduced throughout the town including the residential buildings (Khoo, 2004). It was recorded that streets lamps were added at that time at the river near Market Street, which was one of the busiest areas in the town during that time for trading (Abidin, 1990, p.46) (Figure 93). What about in the second morphological period? Was there any policy concerning this matter?

There were no archival photographs or documents available during the second morphological period that showed the provision of lighting along the river. However, this does not prove that there was no lighting at the waterfront but simply that no record was found. After the enactment of the policy in the KLSP 1984, which aimed to provide better amenities along the riverfront, which was continued by the KLSP 2020, improvements were carried out along the river in relation to the lighting (LA3). But why are there still areas with no lighting?

'There was no detailed master plan available regarding this matter. The provision is patchy and ad hoc.' (LA3, LA6)

This may indicate that the absence of a detailed master plan may affect the provision of lighting along the waterfront.

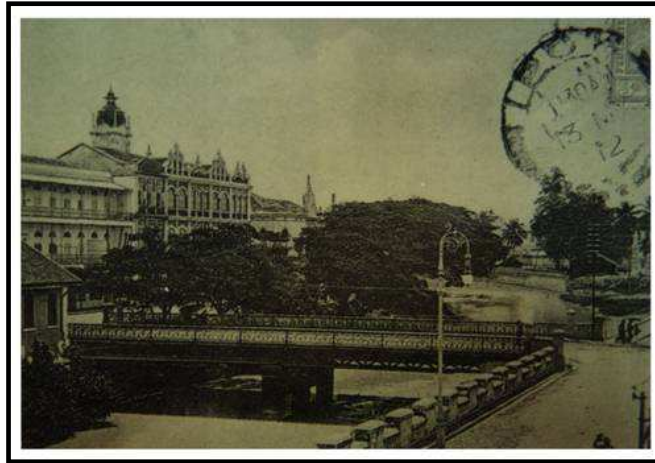


Figure 93 Lighting along the water's edge along the river in early twentieth-century. (Source: Anon., 1904)

Limitations of cost and water quality

Is there any other contributory reason? LA13 stated:

'It is the limitations of cost. With the situation of the riverfront, which is still not attractive enough to attract people to the area, lighting along the riverfront is not the priority at the moment.' (LA13)

This may indicate that limitations of cost limited their provision to those amenities in the priority list and that lighting at the water's edge is still not considered a priority because the condition of the water is claimed to be too poor to attract people to the area. Do they think it is important to stimulate activity in the area?

'We know it is important, but it has to be done in stages. Once the quality of river is better the provision will be revised.' (LA3 and LA11)

This may imply that although they realise its importance, the improvements have to be done in stages. Efforts can be observed in some of the areas, for example, in Zones 1a and 1b. Furthermore, most of the available lighting was put up when the pedestrian walkways along the waterfront were upgraded in the 1990s. However, because of the limitations of cost to install and maintain them, some areas were omitted and some were even reduced! (LA12). LA10 highlighted, and as agreed by LA1, that they were aware that the lack of lighting created an unsafe area for people at night, however, some of the areas do not currently have any other attraction. Therefore, they had to reduce some of the lighting or dim the lighting to save cost. DV2 added that it is not necessary to install expensive lighting to light up something

that is not attractive for people to see; this was supported by DV5 who highlighted that the provision of lighting at the waterfront, which is not very attractive at present would be a waste.

The discussion above may imply that most of the interviewees feel that it is not worth putting up lighting in areas that are not very attractive at present because of the condition of the water and lack of other activities. Furthermore, when cost is at stake, they have to prioritise, which is parallel with the feedback from the participants in focus group who do not have any interest to go to the illuminated areas if there is no other activity.

d) Universal design environment

Indicators for evaluating the level of contextual integration

The provision of the universal design environment is another attribute that may contribute to the contextual integration between the waterfront and the urban river in relation to the principle of comfort (refer p.71-73). Manley (1998) mentioned that through the universal design environment, more multi-layers of society might be invited to the area. In respect of the waterfront, multi-layers of people could be brought to this place thereby enabling them to enjoy the water. As mentioned by Dai (2009), the process in achieving the universal design environment is a continuous process. For the purpose of this research, the evaluation technique by Manley and Guise (1998) was found relevant. Direct observation with an indicator checklist was adopted and modified with the scale used by Lynch et al. (1976). Some of the indicators, which overlapped with other attributes mentioned above, were omitted from the list. Symbols were used to map the elements during field observation (Appendix 07). Thirteen characteristics were evaluated in each bank according to the checklist. The percentages of the high, medium and low level were calculated based on the number of characteristics present in each zone compared to the thirteen characteristics.

Level of contextual integration for universal design environment

Most of the participants highlighted that, except for a few factors that interrupt their walk, they find walking at the waterfront comfortable. One of the female respondents mentioned low branches (also mentioned by a male respondent):

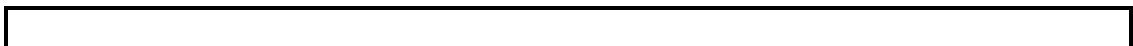
'If the area is too narrow and there are trees planted in the area, sometimes it creates a problem due to the obstacles of the branches while we are walking (Zone 3b).' (M2)

Others highlighted the broken pavements and worn drain covers (Zones 4a and 3b), which may collapse any time and were deemed unsafe while walking. There were also those who mentioned the unmaintained pavements and railings in areas that have fewer passers by:

'In the areas that not many people walk, the pavements are not very well maintained compared to areas that have many people. Even the railings are not maintained.' (Zone 6b) (F6)

Their statements identify three main factors – overhead obstacles such as low branches, unstable drain cover and the broken pavement. What about the aspects that affect people with disabilities (PWD), old people or women with baby strollers? From their discussion, they do not realise that these aspects will become an obstacle for the PWD to use the place such as no alternative at the change of levels, no drop at kerbs or even the rough surfaces resulting from the material used. This may be because they themselves are not in the condition to experience these situations. People with wheelchairs, old people or those using strollers were not seen using the waterfront area during the field observation period.

Nonetheless, most of the conditions in all zones have characteristics listed as important (high level) in universal design (Figure 94). However, each of the zones still has a few characteristics that are in the low category for universal design (Figure 94). Why is this so? Zones 3a (left bank), 3b (left bank) and 7 (left bank), are excluded as there are no readings due to the existence of the highway, which does not allow any space for pedestrians (Figure 94).



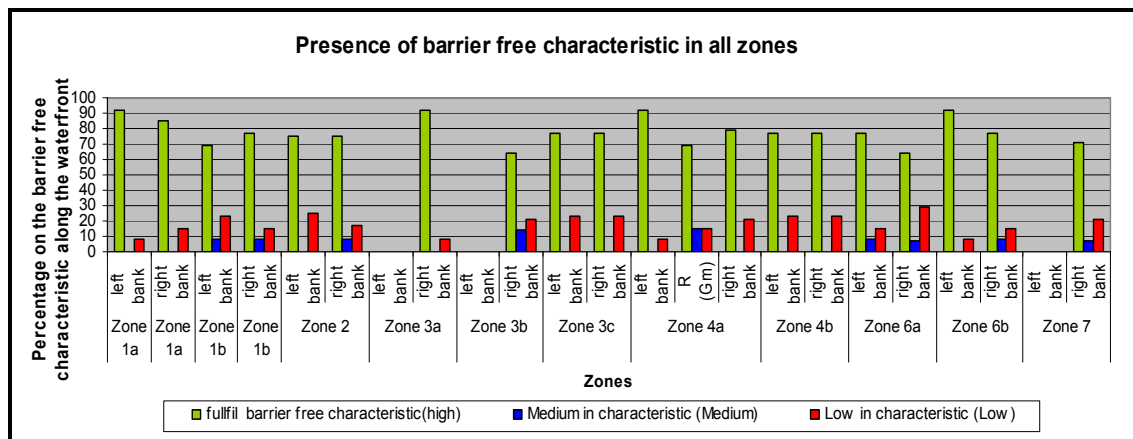


Figure 94 Presence of universal design characteristics in all zones

It was observed that there is ‘no alternative at the change of level’ in almost all zones. These situations are apparent in Zones 1b (both banks), 2 (both banks), 3b (right bank), 3c (both banks), 4a (right bank), 4b (both banks), 6a (both banks) and 7 (both banks). For example in Zone 1b (both banks), the bridge built to connect the right and left bank is a good attempt at increasing the continuity of the pedestrian linkage and activities between the two banks. The way up to the bridge is by using steps, and although ramps are provided as an alternative, bollards with less than a 500mm gap have been installed, thus, preventing wheelchair users to use this bridge (Figure 95) and (Figure 96).



Figure 95 Steps going up to the bridge in Zone 2



Figure 96 Alternatives built are not usable by wheelchair users due to small gaps between the bollards

The lack of provision of ramps at kerbs is also observed. These situations are obvious in all zones. Although there are some attempts to drop the kerb in several Zones: 1b (right bank), and 6b (right bank), the finishes were not well treated making it unusable by wheelchair users. Furthermore, there are areas with an uneven surface

making it difficult for wheelchair or stroller use. These include surfaces that have not been paved or are unsurfaced, as in Zone 2 (left bank), Zones 3b (right bank) and 4a (left bank). This also includes coarse road surfaces that are not well treated, such as in Zone 6a (right bank).

What other factors are highlighted? An isolated area was another factor highlighted in the discussion of the universal design environment. As mentioned by a male respondent (supported by many):

'I do not feel safe because there are not many people in the area and some of the areas are secluded.' (M5)

The statement clearly indicates that isolation from the main pedestrian route is perceived as being dangerous even by a male user and makes people feel insecure due to the threat of a potential ambush.

Do they feel safe to walk alone? With the current condition of the waterfront, both groups prefer to walk in groups. One respondent shared an experience of a friend being attacked at the space between the Central Market and the river. They are extra careful in areas that they know have a lot of crime. The areas mentioned included the Kondo Bistari area (Zone 1b), the back lane behind the HSBC area (Zone 4a) and the pathway between the LRT tunnel wall and the river (Zone 4b), which is frequented by snatch thieves and pick pockets.

Examples of secluded routes were also observed under the bridges, which do not lead to any activities for the public, as in Zone 2 (both banks), and below elevated highways or roads, as in Zone 4b (left bank). There are several areas that have isolated routes behind buildings, which are backing onto the river and isolated routes, which are away from the main pedestrian routes (Figure 97).

Although the percentage of the characteristics that affect the level of contextual integration in terms of universal design (potential ambush area, no alternatives at the change of level, no provision of ramp at kerb, uneven surface) is low, they still reduce the use of some areas at the waterfront. They also prevent a more multi-layer of people from enjoying the urban river, which adds to the low level of contextual integration between the waterfront and the urban river. Why are these situations

found at the Kuala Lumpur waterfront? There are three main reasons established from the analysis: i) absence of policy and master plan, ii) lack of coordination between departments and iii) lack of awareness.



Figure 97 Potential ambush areas in a secluded pathway in Zone 3b between the back of a building and the river

Absence of policy and master plan

According to LA10, before the 1990s, there were no policies or specific master plan for universal design. AR1 added that it was not a requirement in the 1970s, 1980s or the 1990s. It was not even a concern in the KLSP 1984. When did it become a concern? Only recently, new developments are required to include a universal design environment. The awareness slowly increased with the release of Malaysian Standard MS1184 in 1990, which is a Code of Practice for Access for Disabled People to Public Buildings (revised as MS1184:2002)(SIRIM, 2002), followed by Malaysian Standard, MS1331 in 1993, which is Code of Practice for Access of Disabled Persons Outside Buildings (now revised as Malaysian Standard 1331:2003 (SIRIM, 2003; Gaik Bee, 2009).

In KLSP 2020, this matter is a serious concern and is discussed at length in its objective 14.2 in sub-section 684 and 706, which highlights the aim of enhancing the city's living environment (KLCH, 2004a). Sub-section 706 specifically focuses on the policy concerning a barrier-free environment with high consideration for disabled people. Furthermore, the Person with Disabilities, which was recently enacted in 2008, stresses the compulsory provision of access to public facilities, amenities and

services and buildings. These requirements include outdoor environments, which may include the waterfront. How is the implementation now?

According to LA5 and supported by information in Lee (2010), pedestrianisation with the consideration of a universal design environment is the priority of the local authority at the moment. All new developments are required to fulfil this requirement for the issuance of Development Order (DO). This fact was confirmed by AR4 who completed his project in 2008 and DV3 whose project is still under construction. This may indicate that there is positive progress to include a universal design environment. What other efforts have been made? According to LA10, now, many of the pathways with cluttered street furniture have been identified. They are in the process of upgrading area by area. Is there any master plan in place? According to LA12, a detailed plan of each area has been prepared and is awaiting the process of execution.

The discussion above demonstrates that there was no policy or master plan before Malaysian Standard MS1184 in 1990. Therefore, many of the developments, which took place at the waterfront before that did not take this matter into consideration, and these developments are still standing today. Furthermore, only after KLSP2020, which was enacted in 2004, did this aspect become a requirement for the approval of development orders. The good news is that there is detailed planning being prepared to upgrade area by area. Although it may take sometime to rectify, at least it is progressing in the right direction.

Lack of coordination between department/agencies and ad hoc solutions

LA6 highlighted that some of the parameters are still lacking in these areas because there is a lack of monitoring on site. Why has it become so?

'A few different agencies doing it at different times with different sub-contractors, which makes the quality quite difficult to control.' (LA6)

This statement may imply that each department or agency is doing their own scope of work with little coordination with other relevant parties. LA3 added:

'For the moment, most of the jobs done are according to ad hoc solutions. Usually no proper detailed planning of the place is prepared. Additions or improvements are being done as necessity arises.' (LA3)

LA4 agreed on this matter by highlighting that ad hoc solutions on the universal design environment can be quickly solved and improved if things are done in a more integrated and coordinated manner between the agencies and departments involved (refer Figure 25, p.135 and Appendix 15). This may indicate that there is a lack of coordination between the different agencies and departments involved to solve this matter. This was also mentioned by Manley (1996) as one aspect that needs to be improved, because a lot of work being implemented at the street level, which involves various parties, is done without going through proper planning approval and is executed according to necessity. Although the local authority have a clear commitment concerning this matter, if a comprehensive framework to implement it is not established, it can only provide its statutory responsibilities minimally (Manley, 1996).

Lack of awareness

Why have some of the developed areas become potential ambush areas? LA1 highlighted that sometimes, certain areas were developed without enough awareness concerning the potential of the place to become unsafe to the public in the future. Good intentions on paper sometimes resulted otherwise in the real situation. LA4 agreed that there are secluded areas at the waterfront that should be linked to the rest of the main pedestrian route to avoid dangerous points for the public.

According to LA10, many negative spaces, such as areas below the elevated road, are being upgraded phase by phase with landscaping and are linked with other spaces, however, he admitted that many more needed to be looked into in the future. These statements may indicate that these areas were all developed without realising the possibility of them becoming dangerous to the public. Lack of awareness is also obvious among the developers and other agencies. DV2 and DV3 mentioned that they do not know much about this and would let the architects handle the details of such matters.

What other efforts are being taken to tackle this matter? OA2 mentioned that usually the detailing aspect of universal design is looked into by the local authority during the planning approval process and the awareness on this matter is slowly increasing within other government agencies with the gazetted Person with Disabilities Act

2008 (Act 685, 2008). LA4 added that tremendous work has been done to create awareness and to improve this matter, including awareness training, formation of Access Advisory Group/Technical Committee, the appointment of access consultants and many more. This may indicate that the previous areas, which do not include a universal design environment, are due to the lack of awareness at the decision making level. However, with the continuous training and exposure, the concern for these matters may be increased in the future.

e) Other findings

Other attributes that were raised during the focus group sessions were related to social dimensions. Although the social aspects are not being discussed in detail in this research, it acknowledges a few factors that may affect the comfort of the public at the waterfront and, thus, lower the level of contextual integration between the waterfront and the urban river. The factors identified were graffiti, public urination, homeless people and drug addicts. According to the participants in both groups, they were disturbed by the factors mentioned above, throughout, their experience at the waterfront. These factors can be found in some parts of the waterfront.

a. Graffiti

During the period of research, graffiti has increased in a few places at the waterfront. It is very apparent in Zones 4a and 4b. Some of the graffiti that is nicely drawn has become an attraction to many people but some of them contain negative words and images, which are rather disturbing (Figure 98). One respondent pointed out this matter:

'Graffiti that portrays negative words are visually disturbing. If it is nicely drawn such as in Zone 4b it is fine. But a lot of the areas have negative words written on the wall.' (M6)

This may reduce the use of the waterfront and, thus, affect the integration with the urban river because it makes people feel uncomfortable to stay long in the area. Why are these graffiti not erased? LA4 stressed:

'When they start, we have to paint back. We keep on painting back. However, there are cost implications. That is why some we cannot keep on painting back. It is very expensive.' (LA4)



Figure 98 Graffiti along the waterfront in Zone 4b

This statement may indicate that when the cost to remove them becomes too high, it may be very difficult to control. Wilson and Kelling (1982) highlighted this matter – the presence of soliciting by prostitutes or graffiti will allow hardened offenders to come and take advantage of the breakdown in control. There are possibilities that a situation can become worse if there is no prompt action taken on even minor signs of decay in one community.

b. Drug addicts and homeless

Furthermore, the presence of drug addicts and homeless people can be observed in various points at the waterfront, especially at isolated areas (under the bridges in Zones 4a and 2) or isolated corners (Zones 3c-right bank, 4b-both banks, 6b-right bank), which are rarely used by passers by (Figure 99). Some of them have made these isolated corners their ‘homes’ and it is very uncomfortable for the public. This was further stressed by a male respondent:

‘The drug addicts and homeless people sleeping along the waterfront are very disturbing. I try to avoid this area.’ (M6)

This may indicate that some of the public avoid the area due to this factor. Is there any action taken against these people? LA11 stressed:

‘Actually we (KLCH) can only help the Welfare Department. This is their scope of work. If we were to catch them where do we put them? Sometimes we help the police force by using our own enforcement officers. Usually, during operations we are asked by the police force to prepare food, sometimes we think why has our role become so? It is a dilemma either to help or not... it is not our scope of work but we still help out based on social responsibilities. We do not have any power on this but we will help other authorities in charge as much as we can.’ (LA11)



Figure 99 Clothes hung by the homeless on the railing along the waterfront. They are making the space underneath the elevated road in Zone 4b their 'home'

This may imply that the cooperation and coordination of many agencies have to be maintained to eradicate the problem. However, a few opined (LA3, LA4, LA11) that activities and the public have to be brought into these areas, then the problems may be solved.

'You have to have people congregate to have activities, they can come here for discussion, play music and others. Make it so lively, make it so functional, for all age groups, then these people will go away.' (LA3)

This may imply that some of the officers realise that by bringing activity into the area might eliminate the problem of the homeless or drug addicts, as stressed by Whyte (1980). However, the reasons discussed (7.1.1.b) in 'diversity of use' have to be considered in order to introduce these activities.

c. Urination in public

In addition, the focus group highlighted the foul odour resulting from urinating in public, which can be found at isolated corners along the waterfront (Zones 2-both banks, 3c-right bank, 4a-right bank, 4b-right bank). A respondent expressed his disappointment at this situation:

'The smell from urination can be smelt at several points along the waterfront. Sometimes I wonder if the tourists that come to the area can smell, it is really disappointing. It is not comfortable to be there' (M4)

The statement implies that these aspects may affect the public's comfort and result in poor use of the waterfront, which may lessen the public's interaction with the urban river.

These four factors are negative attributes highlighted by the respondents, which may result in poor use of the area. They may have to be eliminated in order to increase the level of contextual integration between the waterfront and the urban river in the future.

7.2 Factors that affect the level of contextual integration towards the urban river

The findings suggest that there are also mixes of various factors that contribute to high, medium and low level contextual integration in all areas (Figure 100), as in the findings from the evaluation of the physical dimension. Similar to the physical dimensions the factors contributing to the low level of contextual integration also result in a poor response of the waterfront to the urban river (Table 19). They also weaken the meaning (association, awareness and use of the user) of the urban river. Comparable to the physical dimensions evaluated earlier, they mostly affect the use of the place (Table 19), thus, it makes people avoid or not stay long in the area.

Furthermore, there are ten factors that affect the contextual integration in ‘vitality’ and ‘comfort’. However, three factors, as mentioned earlier in Chapter 6: i) the highway/heavy traffic roadways; ii) buildings built abutting the river, and iii) fenced private property up to the edge of the river bank, also affect the level of contextual integration in two of the attributes evaluated (Table 20). This may indicate that these factors have a serious impact on the contextual integration with the urban river because it affected most of the attributes evaluated.

Four (diversity of use, continuity of activities, lighting and universal design) out of six attributes evaluated have factors that relate to the concern for safety. This may reduce the meaning of the place because it is directly related to the poor use of the area (Table 19). It may prevent people from staying long or even coming to the waterfront, which eventually distances people from the urban river. This may also indicate that the safety issue is one of the major concerns for users of the waterfront.

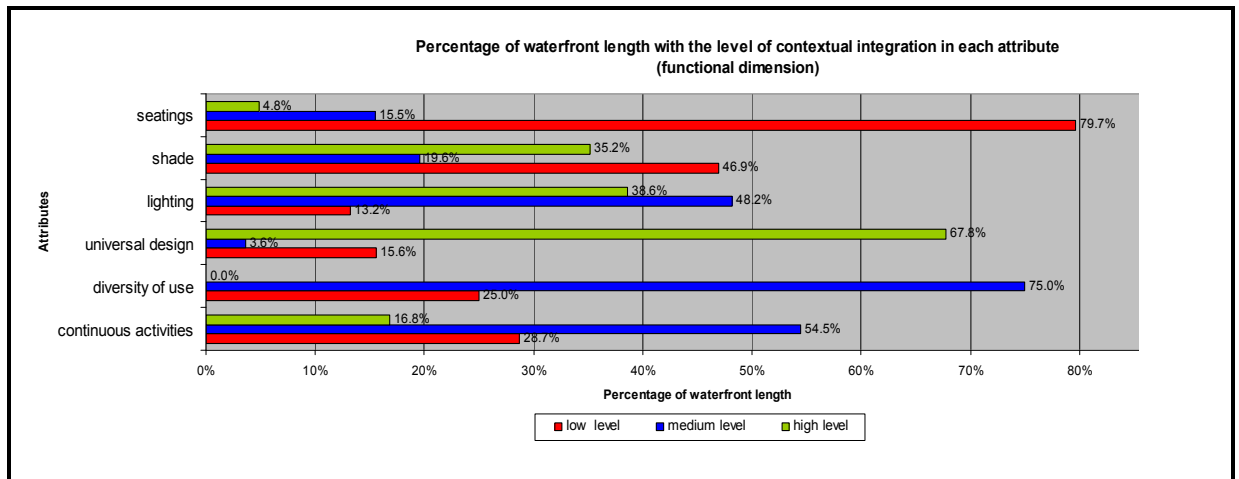


Figure 100 Percentage of waterfront length with the level of contextual integration in each attribute (functional dimension) at Kuala Lumpur waterfront

The findings also exposed an additional four social factors (graffiti on the wall at various places at the waterfront, traces of urination in public (foul odour), the homeless and also the drug addicts), which may lower the level of contextual integration between the waterfront and the urban river.

In exploring the reasons why the factors that affect the contextual integration with the urban river exist, surprisingly, eight of the key themes uncovered overlapped the findings in the evaluation of the physical dimension. These are: i) lack of planning – policies, laws, guidelines, master plan, ii) limitations of fund, iii) lack of management, iv) condition of the river, v) introduction of other transportation systems, vi) political will, vii) lack of awareness and viii) market demand (Figure 101). These may imply that there is a strong relationship between all the principles evaluated and achieving contextual integration between the waterfront and the urban river. Finally, the ranking of the key reasons also indicates that the problems mostly relate to the planning, policies and guidelines, which may imply that there is a clear gap for the urban design consideration to fill (Figure 101).

Table 19 The factors that affect the level of contextual integration

Principle/ Attribute		The factors that affect the level of contextual integration		Meaning			
	Vitality		The responses	Association	Use	Awareness	
1	Diversity of use	Water-Independent use in one banks	Do not relate with water – does not notice the river				
		No water-dependent use	Lack of choice for activities				
		Lack of day and night activities	People avoided the area				
2	Continuous activities along waterfront	The highways.	People do not stay long – nothing to do Avoided area: Domination of the negative activities				
		Building abutting the river	Worry of safety – no people/ activity				
		Private property fenced up to the edge of the river bank..	Worry of safety				
Comfort							
3	Shade	Private property fenced up to the edge of the river bank	Will not stay long				
		Building built over the river.					
		Highway					
4	Seating	No seating	Cannot stay long Cannot rest				
5	Lighting	No lighting	Worry of darkness and security - avoid No activity around -avoid				
6	Universal design	Potential ambush area.	Worry of safety – avoid areas				
		No alternatives at the change of level	Obstacle : (not comfortable)				
		Uneven ground surface	original ground	Uprooted trees			
			drain covers which are worn out and may collapse any time.	Eye level branches			
			not well treated drop at the kerb				
Other social factors							
		Graffiti	Not comfortable with negative graffiti - avoid area				
		Homeless & drug addicts	Avoid the area				
		Traces of urination in public	Do not stay long				
				1	17	2	

Table 20 The key themes why the factors that affect the level of contextual integration exist

Principle	Factors that affect the level of contextual integration existed		The key themes of why the factors that affect the level of contextual integration existed	Themes						
				Intro. of other transport system	Planning, policies, law, guidelines	Management	Condition of river	Limitation of fund	Market demand	Lack of Awareness
Vitality										
1 Diversity of use	Water-Independent use in one bank (1)	Intro. of other transportation system								
		Absence of detail guidelines								
		Condition of river								
		Political will								
		Lack of market demand								
2 Continuous activities along waterfront	Building built abutting the river edge (2)	Flood mitigation								
		Initial planning								
		Natural movement of river								
	Private property fenced up to the edge of the river bank (3)	Absence of policies and guidelines								
		Limitation of fund								
	Highway (4)	Initial planning								
		Intro. of other transportation system								
		Limitation of fund								
		Political will								
Comfort										
3 Shade	Building built abutting the river edge	Flood mitigation								
		Initial planning								
		Natural movement of river								
	Private property fenced up to the edge of the river bank	Absence of policies and guidelines								
		Limitation of fund								
	Highway	Initial planning								
		Intro. of other transportation system								
	No trees or covered walkway (5)	Political will								
		Initial planning – absence of policies and guidelines								
		Limitation of cost								
4 Seating	No seating (6)	Lack of coordination between agencies								
		Initial planning and absence of detail master plan								
		Limitation of fund								
5 Lighting	No lighting (7)	Lack of coordination between department/ agencies								
		Absence of detail master plan								
6 Universal Design Environment	Potential ambush area. (8)	Limitation of cost and water quality								
		Absence of policies and master plan								
	No alternatives at the change of level (9)	Lack of coordination between department/ agencies								
		Lack of awareness								
	Uneven ground surface (10)	original ground								
		drain covers which are worn and may collapse any time.								

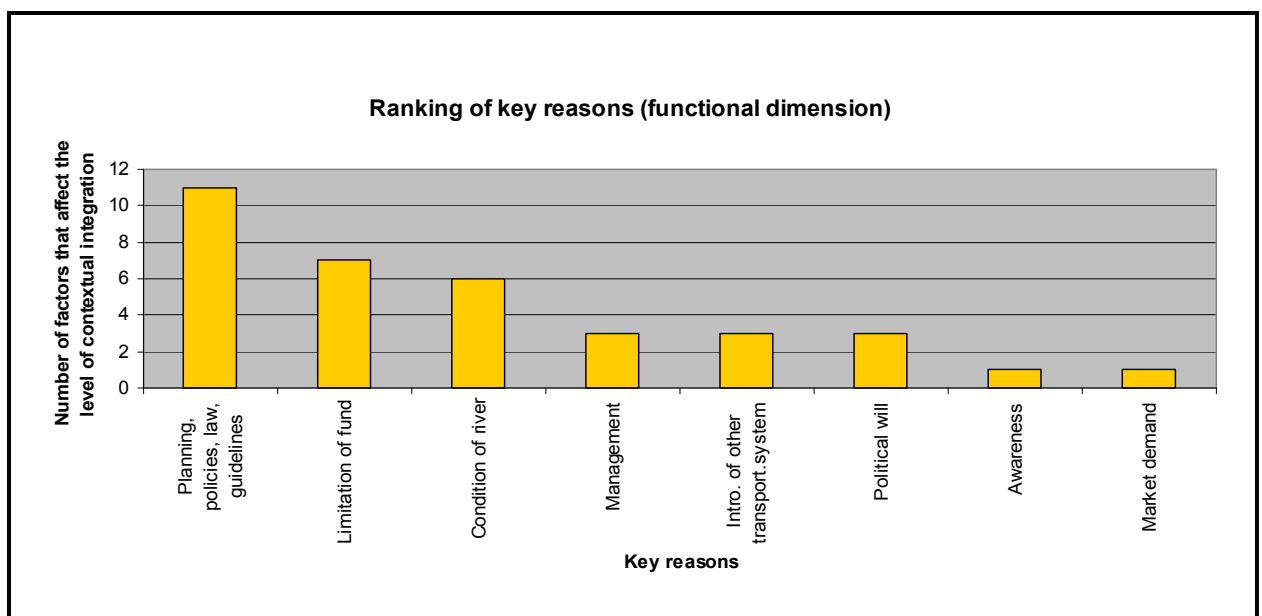


Figure 101 Ranking of the key reasons (functional dimension) why the factors that affect the level of contextual integration exist at the Kuala Lumpur waterfront

7.3 Conclusion

This chapter continued the previous chapter's evaluation of the level of contextual integration at Kuala Lumpur waterfront but focusing on the functional dimensions perspective. It aims to identify the factors that affect level of contextual integration and why they affect the levels– to address the second research questions. This chapter also addressed the third objective and sub-research question by establishing the key reasons to the non-contextual integration. The functional dimensions comprise of two main principles – ‘vitality’ (with two attributes) and ‘comfort’ (with four attributes). Through the evaluation of these principles, it exposed significant similarities with the findings in chapter 6 (evaluation of the physical dimension). First, there are mix levels (high, medium and low) of contextual integration throughout all the attributes evaluated were identified. Factors that affect the low level of contextual integration (non-contextual integration) also result in a poor response of the waterfront to the urban river.

It can be inferred that not all the attributes evaluated cause the level of contextual integration between the waterfront and the urban river to become low. There are two main attributes that have the greatest effect on the level of contextual integration in the functional dimension: ‘seating’ and ‘shade’. Third, the issues of safety were also highlighted as one of the main concerns of the users. Fourth, the three main factors – highway/heavy traffic roadways; buildings built abutting the river and fenced private property up to the edge of the river bank – that affected four of the attributes in the physical dimensions also affected the level of contextual integration in two (‘continuous activities along the waterfront’ and ‘shade’) of the attributes evaluated here.

Furthermore, the findings revealed that the attributes and measurements that were adopted from other public spaces (three attributes belong to the physical dimension were discussed in the previous chapter), which include ‘seating areas’, ‘shade’, ‘universal design environment’, ‘continuous activities’ are vital to achieve contextual integration between the waterfront and the water. Again, these findings add to and

strengthen the theories that previously only discussed the importance of these attributes concerning the waterfront context in general.

Finally, the key reasons why the waterfront is not contextually integrated with the water also overlapped the key reasons gathered in Chapter 6. These similarities strengthen the theories that physical and functional dimensions are interrelated with one another to achieve contextual integration. Furthermore, this showed the significance of these key reasons and these findings fill the gap in the many unanswered queries of why the waterfront development is not contextually integrated with the urban river in the context of Kuala Lumpur. Comparable to the findings in the physical dimension, the lack of planning, policies and guidelines is *the* main reason why the waterfront is not contextually integrated with the urban river.

CHAPTER 8

CONCLUSION AND RECOMMENDATIONS

‘Rivers are the last open valleys of the urban terrain, the last remaining paths where man may re-establish his rights of access and enjoyment’ (Mann, 1973, p.20)

8.0 Introduction

This chapter presents a summary of the research findings, conclusion and recommendations for future research. It is divided into four main parts. The first part presents a summary of the research agenda and the approaches taken. The second part presents a summary of the research findings. The third part will explain the limitations of the research, significance of the research, implications of the findings to the study area and the contribution to the body of knowledge. Finally, the chapter ends with the research recommendations and suggestions for future research followed by the conclusion.

8.1 Research Agenda

This research aims **to evaluate the level of contextual integration and establish the key reasons that influence the level of contextual integration of the waterfront with the urban river**. The three main objectives and the approach taken to achieve each it are:

i) To examine the physical dimensions of the waterfront concerning its level of contextual integration with the urban river and identify the factors that affect the contextual integration.

The level of contextual integration between the waterfront and the urban river in terms of physical dimensions were evaluated based on the principles established in the integrative theory of urban design by Sternberg (2000), Porta and Renne’s (2005) method of evaluation and the scale used by Lynch et al. (1976). The results were cross-analysed with the data from the functional evaluation and the data from the focus group sessions to identify the factors that affect the level of contextual integration between the waterfront and the urban river.

ii) To investigate the functional dimensions at the waterfront concerning its level of contextual integration with the urban river and identify the factors that affect the contextual integration.

Time interval sampling observations and activity mapping were employed to record the activities. The level of contextual integration of the functional dimensions were evaluated based on the principles in the integrative theory of urban design by Sternberg (2000), Porta and Renne's (2005) method of evaluation and the scale used by Lynch et al. (1976). Finally, to identify the factors that affect the level of contextual integration between the waterfront and the urban river, the results were cross-analysed with the data from physical evaluation and the data from the focus group sessions.

iii) To establish the key reasons for the existence of factors that affect the level of contextual integration.

In-depth interviews with the decision makers were conducted based on the findings from objectives (i) and (ii) to achieve this objective. The data from the interviews were later cross-analysed with the data from the content analysis and morphological analyses. This is to establish the key reasons behind the existence of the non-contextual integration between the waterfront and the urban river, thus addressing the main research question.

1.12 Main Research Findings

The findings of the research are discussed below.

a. level of contextual integration of the waterfront to the urban river in terms of physical and functional dimensions

This research took the stance that the response of the waterfront to the urban river could be evaluated through its level of contextual integration and the non-contextual integration is represented by the 'low level of contextual integration' in the indicators for each attribute.

i) The findings inferred that there is a mixed level of contextual integration among all the attributes evaluated (low, medium and high). Therefore, the general statement made by Salim (1993), and Shamsuddin and Sulaiman (2004) that the waterfront is not contextually integrated to the urban rivers in Kuala Lumpur, could not be accepted in its entirety but had to be explored according to each attribute.

ii) This research highlights that although the attributes evaluated for the contextual integration between the waterfront and the water are borrowed from the research in the western countries, these were found to be relevant to the Kuala Lumpur context. However, the evaluation criteria have to suit the local context. This finding confirms the theory by Fagence and Craig-Smith (1995) and Riley and Shumer-Smith (1988) who mentioned that although waterfronts are a global issue, they must be treated on a case-by-case basis because of the different local conditions and constraints that need to be considered.

iii) The findings also highlight that the indicators for the evaluation of the seven attributes ('enclosure', 'direct access', 'link to the city', 'seating areas', 'shade', 'universal design' and 'continuous activities') borrowed from other public places is applicable to achieve contextual integration between the waterfront and the urban river. This paralleled the theory of Tibbalds (1992) concerning the similarity of the importance of waterfronts and urban rivers with any other public place. In addition, it also strengthen studies, such as Pidwill's (1993), which are only based on their experience in practice, in discussing the importance of these attributes to contextually integrate the waterfront with the water.

iv) Although each of the attributes evaluated has factors that affect the level of contextual integration between the waterfront and the urban river, there are five main attributes that have the highest percentage concerning the low level of contextual integration. These are (in particular order) i) 'direct access to water', ii) 'physical character of water', iii) 'seating', iv) 'development/building that oriented towards the water' and v) 'shade'. Interestingly, these attributes, which have been mentioned by other scholars (Hoyle, 2000; Wakefield, 2007; Fainstein, 2001; Whyte, 1980 and others) concerning their importance to waterfront development in the western countries, are also found to be vital to achieve contextual integration with the urban

river in the context of Kuala Lumpur. This finding strengthens the previous theories by providing a guide for future waterfront development in Kuala Lumpur to prioritise the attributes that need the most attention to achieve contextual integration with the urban river, and which has not been done before. This may also help to avoid ad hoc development at the waterfront.

v) The findings also suggest that although there are attributes that score highly in the level of contextual integration, the existence of other factors that cause low levels of contextual integration in the same context, can still influence users to stay away from the urban river and adversely affect the waterfront response to the urban river. However, the exact percentage of an impact has been left for future research. This shows the importance of having a high level of contextual integration of all attributes evaluated to have a good waterfront response to the urban river. Although these findings have not been researched before, this study does not suggest that they be implemented monotonously along the waterfront.

b. factors that affect the level of contextual integration

i) There are twenty-one factors that affect the contextual integration in terms of the physical and functional dimension in the context of Kuala Lumpur. However, there are three factors reoccurring in seven out of the thirteen attributes ('development oriented towards the water', 'enclosure', 'link waterfront to the city', 'continuous pedestrian linkage along the water', 'visual accessibility', 'shade', 'continuous activities along the water') evaluated, these are: i) existence of highway/heavy traffic roadways; ii) buildings built abutting the river, and iii) fenced private property that is fenced unto the edge of the river. This may indicate the severity of the impact of these factors to the contextual integration between the waterfront and the urban river.

The existence of highways and fenced private property has been mentioned in much of the literature (such as Chang and Cervero, 2008; Tunbridge and Ashworth, 1992; Boyd, 1985 and others) as being an obstacle to the contextual integration between the waterfront and the water. However, the problem of buildings built abutting the river edge is peculiar to the Kuala Lumpur context. This is because although other cities

may have buildings abutting the river edge it may not become a factor that contributes to the low level of contextual integration with the urban river.

ii) The findings also determined that there is a high concern in relation to the issue of safety. It was mentioned in eight ('physical character of the water', 'development oriented towards the water', 'enclosure', 'direct access to water', 'lighting', 'universal design environment', 'diversity of use' and 'continuous activities along the water') out of the thirteen dimensions evaluated. This finding supports much of the literature (such as Carr et al., 1992; Carmona et al., 2003; Oc and Tiesdell, 1997; Jacobs, 1992 and others) which highlighted safety as one of the major concerns of users in order for them to be connected to a place. However, the findings that show the concern of safety in both the physical and functional dimensions, contrasts with Luymes and Tamminga (1995) who assume that activity may be more important than the physical aspect of the urban environment in giving sense of safety. It may be possible in other situations but it is not possible to achieve contextual integration between the waterfront and the water. This infers that to achieve the contextual integration between the waterfront and the urban river, the functional and physical dimensions are interrelated.

iii) The finding also corresponds with much of the other literature (such as Kotval and Mullin, 2001; Hoyle, 1994; Wakefield, 2007 and others) concerning the importance of water-dependent use in the contextual integration between the waterfront and water. This finding also supports much of the literature (such as Fagence and Craig-Smith, 1995 and others) that highlighted the existence of areas that only have water-independent building/development may reduce the level of contextual integration between the waterfront and the urban river. However, this study discovered that some water-independent buildings can attract public concentration (such as mosques and transport station) and may still allow contextual integration with the water, if they allow for: ground floor activities facing the water, visual access of the water with the provision of seating facing the river and the provision of shade.

iv) The findings also paralleled McCluskey (1992) who stressed the importance of static activities in creating a sense of place. The findings demonstrate that by only

having dynamic activities at the waterfront does not allow people to stay long in the area. Without static activity being generated there will be less integration between the waterfront and the urban river. This shows the importance in achieving contextual integration between the waterfront and the urban river by promoting static activities to allow people to stay longer at the waterfront.

c. The key reasons that influence the level of contextual integration of the urban river

i) Eight key reasons have been established as to why the waterfront is not contextually integrated with the urban river: i) lack of planning – policies, laws, guidelines, master plan, ii) limitation of funds, iii) condition of the river, vi) introduction of other transportation system, v) lack of management, vi) political will, vii) lack of awareness, and viii) market demand. The following discussion will summarise each reason.

a) The findings indicate that ‘lack of planning – policies, laws, guidelines, master plan’ is *the* main reason why the waterfront is not contextually integrated to the water in the context of Kuala Lumpur. It affected all thirteen attributes that were evaluated. There are six related findings in relation to this reason: i) absence of policies and guidelines before the third morphological period, ii) lack of a detailed master plan for the Kuala Lumpur waterfront, iii) the policies and guidelines in place are general and mostly in zones rather than according to plots, iv) the existing policies and guidelines are isolated by different government agencies, v) lack of suitable guidelines for the Kuala Lumpur waterfront, and vi) relevant non-statutory guidelines, which make implementation difficult.

The absence of policies, guidelines, a master plan and the law before the third morphological period has resulted in planning being done ad hoc and according to necessity. This has influenced the factors that contribute to the low level of contextual integration. For example, some of the waterfront areas are: i) not well linked to the city, ii) there is private property that is fenced unto the edge of the river, and iii) the construction of the concrete banks for flood mitigation. However, even when the policies and guidelines were introduced, they were mainly general in nature

and mostly in zones rather than according to plots. This has resulted in difficulty in monitoring and controlling development.

There is also a lack of suitable guidelines for the Kuala Lumpur city centre context and a lack of a detailed master plan, which results in ad hoc and piecemeal implementation on the ground. Furthermore, some of the guidelines, which are not legally binding, made it difficult for the implementation to be carried out and results in factors that contribute to the low level of contextual integration between the waterfront and the urban river. In addition, many of the existing guidelines are implemented in isolation within the department that produced them. This has resulted in a lack of holistic development of the waterfront. The findings agree with Carmona et al. (2003) who highlighted the importance of having the same objective and understanding of the policies and guidelines by the various parties involved. These findings also show that there are clear weaknesses in the policy formulation, which lacks appraisal and a framework or master plan for the specific area. This was stressed by Punter et al. (1996) as being significant in the policy formulation and its implementation.

b) This study supports the findings by Malone (1996), and Hooimeijer and Toorn Vrijthoff (2008), from the viewpoint that a developing country with a strong political will and awareness of the importance to positively transform the waterfront to be contextually integrated with the urban river may come with the provision of a budget or funds from the Federal Government. The findings show that many of the programmes that are related to the improvement of the contextual integration are suspended because of this.

c) The findings suggest that the condition of the river affects nine out of the thirteen dimensions evaluated. These include the physical character of the water body, form which addresses the water, building enclosure (height and width), direct access to water body, continuity of pedestrian linkage along the waterfront, visual accessibility, lighting, universal design environment, diversity of use and continuity of activities along the waterfront. The condition of the river with its continuous occurrence of flooding has affected the physical character of the water body, which was changed from the natural to a concrete riverbank. In this case, Kuala Lumpur is

quite similar to many cities around the world where flooding has become a challenge and resulted in a change to their waterfronts (Bechtol et al., 2005).

The condition of the riverbanks, which were concreted, also affected the direct access to the water body when it was deepened and the riverbanks were designed vertically. The banks used to be low and allowed easy access to the water. When it was concreted, the banks were changed to high and inaccessible banks. Furthermore the channelled river became a dangerous place to access due to its capacity, which can allow water to fill the channel within a period of two hours during heavy rainfall. This can be dangerous for the public to access.

The polluted water also prevented people from touching the water. The condition of the river, which was always flooding and polluted also, changed the diversity of use in the area. The function of the river changed from a water transportation system to a flood mitigation system. Therefore, no structures or activities are allowed to interfere in the river channel including water-dependent use. With the channelled and straightened river, the water level became very shallow in the city centre during dry weather due to the quick flow of the water downstream. According to Burby in Bechtol et al. (2005), the solution may prevent the flood from a particular area but may threaten other people downstream. In addition, the shallow water does not allow any water-dependent use to exist.

The condition of the water also affects the lighting dimension. One of the reasons why there is no provision of lighting in some areas is due to the quality of water, which was considered not worth illuminating at present.

The flooding and the polluted river also affect the form of many buildings. As many of the buildings were designed backing onto the river as part of the 'defence' against flooding. For example, some buildings were built with the ramp of the buildings facing the river and the car park to be on top to prevent the properties being damaged during floods. Some tried to 'cover' the view of the river due to its pollution with car parks and others backed onto the river to avoid the polluted river, which may reduce the value of the building. Furthermore, some built solid walls at the edge of the river to prevent floodwater from overflowing into their premises.

Moreover, the natural movement of the river was 'blamed' for the properties being threatened by the river. This resulted in some parts of the river being widened and some buildings abutting the river. Consequently, some of the spaces between the buildings and the river, which might have given the sense of enclosure, were lost. The abutting buildings also affected the continuity of the pedestrian walkway, visual accessibility and continuity of activities at the waterfront. It prevented a smooth flow of pedestrians along the waterfront and blocked the view towards the river, and, at the same time, prevented any activity from happening between the waterfront and the urban river.

iii) From the findings it appears that the situation in Kuala Lumpur is quite similar to the problems faced in other major cities in the world, which identified the introduction of the rail and motor systems as factors that influenced the transformation of their waterfront (Keating, 2005). With the introduction of the land transportation system the importance of the waterways as the main transportation system was diminished and resulted in rapid development with increased population and development to the city centre. Consequently, there was higher water-run off from the development, which contributed to flooding. This phenomenon affected the waterfront area, which was once a very important place for trading as well as being the birthplace of the city. As part of the flood mitigation strategies the physical character of the water body was changed from natural to a concrete channel.

The introduction of other transportation systems also changed the way the building form addresses the water. There used to be buildings that faced the river, having double frontages and direct access from the water when the water was the main transportation mode in the city. However, this changed when the road system was introduced. More buildings were governed by the road and backed onto the river, thus, having the river as the backyard. As Tunbridge & Ashworth (1992) mentioned, the construction of highways to accommodate cars deteriorated the link between the city and the water. This is because the waterfronts were '*stripped and sliced apart*' to allow space for massive highway projects (Breen & Rigby, 1996).

This was also the case with the diversity of uses, the introduction of other transportation system had changed the existence of water-dependent use to the non-existence of water-dependent use. It also changed some of the banks from having a mixed use development to only water-independent use that can stand on its own with or without the river. The introduction of other systems also affected the continuity of activities along the waterfront. Static activities that used to happen along the path at the waterfront were lost when the road system, which is bigger and hostile, were introduced and replaced the footpath.

e) The findings also reveal that Kuala Lumpur is facing similar problems to other developing countries such as Zanzibar as mentioned by Hoyle (2001) concerning the confusion, duplication and lack of coordination between the different branches of the administration in achieving contextual integration. Based on the findings, the lack of coordinated management can be categorised into three parts:

- Between different authorities

The different agendas that each of the local authorities have, which look at the river locally (within their political boundary), makes it difficult to manage the river, especially in terms of its pollution and flood problems, which need to be tackled holistically. This finding is important because it shows that the most important aspect in the management of the river as one single system, as stressed by Lynch et al. (1976), is not happening in Kuala Lumpur.

- Between different agencies

There are various government agencies in charge of the river, which sometimes creates overlapping work and problems in the management of the river and results in a lack of enforcement and control. This supports West (1989) who mentioned that it is crucial for the key players to be able to come together to organise and plan for the recycling of these potentially very valuable properties in order to have a well integrated waterfront and urban river.

- Between different departments within KLCH.

At the moment there is no master plan for the development at the waterfront and there is no single department in charge of looking at the waterfront development as a whole. As a result, there is lack of monitoring and it is difficult to control.

f) The findings identified two levels of a lack of awareness. These are the public and the decision makers. The lack of awareness among the public can be seen through the pollution, which is experienced by many waterfront cities. The lack of awareness among the decision makers can be seen through the absence of policies and guidelines concerning the contextual integration between the waterfront and the urban river before the third morphological period. The lack of awareness can still also be seen after the existence of the policies and guidelines. This is much related to the way the policies and guidelines are implemented, which transpired through some recent waterfront development that is not contextually integrated with the urban river.

g) There are two findings in relation to market demand. First, is the high market demand to built higher structures in Kuala Lumpur before the third morphological period. This phenomenon is closely related to the Comprehensive Development Policy. The policy that was implemented by the local authority encouraged new development to be built higher to boost the city's economy. These developments, which include the waterfront, blocked and severed the relationship of the activities in the city with the waterfront and the river. This was also related to the lack of awareness concerning the importance of preserving the waterfront area for the public realm at that time.

Second, after the policies concerning the importance of the waterfront for public realms increased, there was a dilemma in the market by the developer on whether to contextually integrate their development with the water or not. This is due to the condition of the river, which looks like a monsoon drain, and is polluted and flooded from time to time. They were concerned that these factors may devalue their development. Some of the recent developments have opted not to take the risk and 'buffered' their projects from the river. Although the problem of flooding had been tackled by the construction of the SMART tunnel in 2004, some developers are still not convinced about contextually integrating their development with the river. This is

due to their concern about possible flooding in the future, the existing polluted and concreted river. This finding shows that the market demand in Kuala Lumpur also relies on the condition of the river, physical appearance of the river and the water quality. Interestingly, this is similar to the findings by Syms (1993) concerning the situation in the UK.

1.13 Limitations of the research

Limitations of the research are as follows:

The study limits the research to contextual studies, which involved the physical and functional dimensions only. Social, cultural, political and economic dimensions, which are acknowledged as important in contextual issues, are not covered by this research.

The study encountered difficulties during the collection of data for the interview of the decision makers, which took longer than planned. It also had to be done in several phases due to the tight schedule of the interviewees, especially the producers. Therefore, only limited numbers of producers (five architects and five developers) were interviewed. However, it does not jeopardise the validity of the research because in obtaining the information from interviews it is not the number that counts but the relevance of the people interviewed, as stated by Flick (2009). Those interviewed for the research were the key people involved in the waterfront projects.

There is also limitation in the focus groups which only comprises of participants that are about the same range of age. Different age groups would be able to give a richer data. However, this does not affect the data because it is only supportive data to the visual survey, activity observation and AutoCAD measurement.

Another limitation is the area covered for fieldwork. Not all areas throughout the length of the waterfront in Kuala Lumpur were covered due to safety factors. Areas that were considered too dangerous to stay in for a long time due to the high crime rate had to be avoided as advised by police officers. Details of the areas covered are explained in Chapter 4. Nevertheless, it does not have any effect on the research

because the physical conditions of the areas were recorded on site, measured using AutoCAD and later compared with other areas that have similar attributes. Focus groups were also asked regarding these areas. Then the answer to why these areas were avoided by the pedestrian could be gathered. Most importantly, the attributes that contributed to the non-contextual integration with the urban river could be identified. Questions regarding these attributes and the areas were also posed to the decision makers. Therefore, cross-analyses can still be done to obtain the answers for the research questions.

There might be other reasons involved in the existence of the factors that affect the level of contextual integration because the data depended very much on the cross-analysis of the techniques employed and the feedback from the interviewees. Maybe if other techniques were employed further findings could be derived.

1.14 Significance of the research

This study is significant and timely because of the mushrooming waterfront development around the world, which replicates the design without consideration of the local context and has a poor response to the water. It is vital and urgent to establish the key reasons why this situation is occurring so that future waterfront development can take into account the factors involved to prevent this situation from continuing. Otherwise, if the situation continues, future waterfront development may lose its sense of place, its local identity and will not be culturally sustainable.

Furthermore, in the context of Kuala Lumpur, waterfront development was announced in October 2010 as one of the nine Entry Point Projects to stimulate the Economic Transformation Programme of Malaysia in achieving a developed country by 2020. However, the draft local plan, which is supposed to detail the policy and guidelines for waterfront development has still not been produced. In addition, there is still no masterplan in place for the waterfront. This year (2010) alone, several other cities in Malaysia, such as Putrajaya, Johor and Negeri Sembilan, have started to show their interest in connecting/re-connecting with their waterfronts in an effort to increase the liveability in their cities by next year. With the lack of literature and

international and local studies concerning this area, this research is designed to make available the insights gained from the vantage point of the international perspectives to the local context. It is hoped that the findings will be useful for the local authorities in developing policies and guidelines, as well as for the developers and professionals in developing future urban waterfronts. It may also be used as a reference for other cities in a similar context.

1.15 Implications of findings

The findings of the research have certain implications for urban design and planning implementation concerning waterfronts in city centres in developing countries. It is discussed in relation to the context of Kuala Lumpur but may also have implications for other city centres in the same region or with a similar context. The four main implications are:

i) Need for a detailed appraisal, framework and master plan from the decision makers

The findings may affect the way the policies are implemented in the future. The existence of laws alone without the policies and guidelines in the second morphological period (when the river was not used as the transportation mode anymore) has shown how detrimental it can be for the development of the waterfront. This situation contributed to the development of many waterfront treatments that demonstrate a poor contextual response to the urban river. Although the policies and guidelines became available during the third morphological period, they were still general in nature and there was a lack of a detailed appraisal, framework or master plan for the waterfront areas. This resulted in new developments that were not contextually integrated with the urban river. Therefore, these findings have shown that it is important to have a framework and master plan in order for a detailed appraisal to be effectively used in each area to enable future development to be developed in accordance with the need and potential of the area and, thus, be contextually integrated with the urban river.

ii) Coordinated management of the waterfront development

The findings have shown that the lack of coordination between the decision makers has affected some of the dimensions that contributed to the low level of contextual integration between the waterfront and the urban river. This was found at several levels – between different authorities concerning the management of pollution and flood mitigation within the Klang River and its tributaries, between different agencies in terms of the maintenance and flood mitigation of the two main rivers in the city centre, and between different departments within KLCH concerning the implementation of the waterfront development. Each has its own way of doing things. These findings may have implications for the future management of waterfront developments. It is obvious from the research that a coordinated management approach between all stakeholders that have the same objective is crucial to gain a better contextual integration between the waterfront and the water.

iii) Education and awareness

The findings from this research revealed the need to increase awareness of the importance of the contextual integration between the waterfront and the urban river. This is crucial for a more sustainable development of the city centre. The importance of it encompasses the benefit of a better quality of life for the city folk. Although much effort has been done before to increase the awareness of the river, the existence of the low level of integration between the waterfront and the urban river in the existing situation shows there is still the need to increase awareness at all levels of the community including the decision makers, such as the politicians, key players in the built environment and users at large. Problems such as sandwiching the river in the middle of elevated highways that block all physical and functional integration of the river, pollution and flooding may be avoided if there is increased awareness. With awareness, there might also be an increase in the allocation of funds to improve the contextual integration between the waterfront and the urban river. The implications concern the continuous effort to increase the awareness of the physical environment from school age.

1.16 Contribution of knowledge

There are three major contributions of this research to the body of knowledge:

a) Theory

This research fills the gap in the body of knowledge relating to contextual studies on the waterfront area. The contextual study, which is one of the key areas of urban design, covers studies on the relationship across property boundaries. Although the research in contextual studies involves both the physical and functional relationship of a development with the surrounding (Carmona, 2003), many earlier studies in contextual integration concentrated on the relationship between man-made and other man-made environment, for example, between one building and another or between buildings and open spaces. Furthermore, they discussed the principles (good form, legibility, vitality, comfort and meaning) relating to contextual integration in isolation. This can be seen in some of the earlier studies by the classic writings of urban design such by Sitte (1965) on good form, Lynch (1982) on legibility, Jacobs (1961) on vitality in the city and on meaning by Norberg-schulz (1980). Later writings on contextual studies such as Groat (1994) and Childs (2009), which developed from the earlier writings also discussed the principles in isolation, however, Sternberg (2000) tried to bring them all together in the integrative theory of urban design upon which this study is based. However, he only discussed it in general and did not specifically discuss them in the context of the relationship between man-made elements and natural elements in the city.

The contextual studies between the man-made and natural elements or, particularly the water bodies, started to evolve when many started to realise the importance of the relationship of the built environment with the water bodies towards the living quality of the city residents. However, these writings still discussed the principles related to contextual integration in isolation. For example, studies relating to good form at the waterfront have been covered by Moughtin (2003) and Owen (1993). Wrenn et al. (1983) and Campo (2002) concentrated on waterfront use, May (2006) gave specific attention to legibility at the waterfront and Sairinen and Kumpulainen (2006) focused on the social impact at the waterfront development. However, this thesis contributes to the gap by bringing all the principles in contextual integration in both the physical and functional dimensions together. The research reveals that the relationship of both

the physical and functional dimensions is vital to achieve contextual integration between the waterfront and the water.

Furthermore, many contextual studies in waterfront areas were done in the context of western countries. Some contextual studies concerning the waterfront context of Asian cities are available but minimal studies have been done in the context of Malaysia, which is different in its cultural context, values, political culture, and public awareness. This is largely because it comprises three different major ethnic groups (Malay, Chinese and Indian), which have different cultural values compared to western people. Furthermore, the political culture, which includes the local council officers being appointed by the Federal Government, is different compared to many western countries, which have elected local councils. In addition, the level of public awareness concerning the importance of the waterfront is still at an early stage compared to the western public awareness, which with their influence had many policies concerning the waterfront revised. Furthermore, it has a tropical climate (hot and humid), and, consequently, the need for shade is also different compared to the needs of western countries which have temperate climates with four seasons. By undertaking this research, in this context, it contributes to the gap in the theories of waterfronts in an Asian city centre.

At the moment, four different studies on waterfronts in the Malaysian context are being conducted, however, the others are looking at the waterfront in Malaysia as a whole and looking at the pattern and trends of waterfront characteristics and policies. This research contributes to the specific study on the relationship between waterfront development and water bodies (one of the key aspects in contextual integration at the waterfront) in a city centre, which is only mentioned in general in their studies. Following this, this research further contributes to the design of the evaluation criteria because the different situations in the city centre context of an Asian city influence the design of the evaluation criteria. It had to be carefully designed according to the context of Kuala Lumpur even though the theories were based on the research of the western countries due to the limited related studies in this context. The method to design the evaluation criteria can also be a guide to design the evaluation criteria for similar research of other cities in a similar context because there are still no studies in the context of Malaysia, which attempted to evaluate the

level of contextual integration between the waterfront and water. Furthermore, this study has improved the evaluation of the level of contextual integration by Lynch (1976), which only focuses on the waterfront use (which is part of the functional dimension), by including the evaluation of both the physical and functional dimension at the waterfront. Lynch (1976) is still referred to because, to date, there are no other studies that have attempted to evaluate the level of contextual integration between the waterfront and water.

b) Practice

By looking at a case study of an emerging Asian city, it further contributes to the practice, particularly, in Kuala Lumpur, and other similar cities, generally. The current practice in Kuala Lumpur, which still has a gap in the: i) lack of planning – policies, laws, guidelines, master plan, ii) limitation of funds, iii) condition of the river, vi) introduction of other transportation system, v) lack of management, vi) political will, vii) lack of awareness, and viii) market demand, has resulted in most parts of the waterfront development having low levels of contextual integration with the water body. These problems are still occurring even though the water body (in this case the rivers) had played a very important role in the morphological development of the city and the importance of the relationship with the water body are vital for the quality of living of the city's residents.

Although some of the decision makers realised the above problems (i-viii), in the current practice, the majority of the decision makers are only aware of the problem in isolation, for example, only as it pertains to their department. There are no studies that have tried to document and establish the underlying problems in relation to the contextual integration with the water. This has resulted in the same mistakes being repeated again and again. This research contributes to this gap by uncovering the problems underlying the current situation in Kuala Lumpur. The result from this research can help practitioners to realise the actual problems, which may guide them to correct the mistakes of the past so that future waterfront development will be more integrated with the water body. Furthermore, the evaluation method employed is able to contribute to the practice, because, through the evaluation, specific attributes needing the most attention (that resulted in the non-contextual integration) in an area can be identified and the reason for the mistake can also be established. This can also

guide the decision makers in making decisions for future waterfront development in specific areas along the waterfront.

c) Policy

Currently, policies and guideline documents in Malaysia only address the aspect of contextual integration between the waterfront and the water for Malaysia in general. Most of them do not specifically concentrate on the context of Kuala Lumpur. Whereas the importance of waterfronts and the river as part of the public space to increase the living quality in Kuala Lumpur city has been acknowledged since 1984. This research can contribute to the gap by guiding the decision makers in understanding the problems of contextual integration between the waterfront and the water in each particular area and the result from this research can also guide them to design the policies, guidelines and detailed plan in each area to address the problems related to the contextual integration between the city, the waterfront and the water.

Finally, the eight key findings on the problems [i-iiiiv in (b)] of the current practice from this research are very important and are urgently needed to guide the design of future policies and guidelines. This is because Kuala Lumpur is already gearing the waterfront development as one of its nine main entry point projects in the Economic Transformation Programme (ETP) launched by the Prime Minister in 2010. Furthermore, the 'River of Life' International Competition on the Kuala Lumpur waterfront masterplan, which was launched on 13th April 2011, is presently ongoing. Although the government's action to develop the Kuala Lumpur waterfront is a positive attempt to regenerate the waterfront, it is worrying when they are still looking to develop Kuala Lumpur waterfront in isolation from the whole 120km Klang River system. This is an example where the findings from this research can contribute to the gap in the design of the future policies and guidelines for the Kuala Lumpur waterfront because this thesis has identified that it is crucial to look at the whole Klang River system as *one system*. Although the masterplan of Kuala Lumpur waterfront will be ready soon, it is hoped that the government will take more time to study and strategize the integration of Kuala Lumpur waterfront with the rest of the Klang river system and try to address the key related problems identified before the project is executed in order to have a more sustainable waterfront development in the future.

1.17 Research Recommendations

i) It is hoped that by understanding the key reasons (the root of the problem) a better framework can be designed to tackle this problem in order to have more sustainable development rather than an ad hoc design solution in the future.

ii) It can be inferred that the most important reasons are the lack of planning, policies and guidelines. This provides a big gap for urban design to be considered for future waterfront development in Kuala Lumpur.

iii) The findings highlighted five attributes with factors that most affect the low level of contextual integration between the waterfront and the urban river in the Kuala Lumpur context: i) 'direct access to water', ii) 'physical character of water', iii) 'development that addresses the water', iv) seating and v) shade. These may be considered as the vital attributes to be examined to increase the level of contextual integration with the urban river in Kuala Lumpur.

iv) Interestingly, the focus groups opined that seating is an important attribute to increase the contextual integration with the urban river, however, it was not thought so by the decision makers. This may indicate that there are still problems concerning the inclusion of the user in decision making. This may also indicate that extra measures have to be taken to understand the needs of the user.

v) The level of contextual integration in seven out of the thirteen attributes evaluated are affected by these three main factors: i) existence of highway/heavy traffic roadways; ii) building built abutting the river, and iii) private property that is fenced unto the edge of the river. This may indicate the severity of the impact of these factors on the contextual integration with the urban river and the implications of avoiding these situations in future policies.

vi) There should be a shift in attitude with intensive and continuous effort at all levels— political, institutional, economic, technical and community – to achieve a coordinated management in accomplishing contextual integration between the waterfront and the water.

1.18 Suggestions for further research

Based on this research several suggestions for further research are proposed:

First, for this particular research, the focus of the principle of comfort was mainly on the physical and functional dimension, which included shade, seating, lighting and universal design. Therefore, it is recommended that other dimensions in relation to the psychological and physiological dimension of comfort should be included in future research.

Second, the findings from the focus group had highlighted four other social dimensions that weaken the meaning of the contextual integration between the waterfront and the urban river: the existence of the homeless, drug addicts, graffiti and public urination. Since this research does not focus on the social aspects, further research can be done on why these factors exist in the context of the waterfront in Kuala Lumpur.

Third, it is acknowledged that Kuala Lumpur has a multi-ethnic population. The cultural dimension is also another dimension that may influence the contextual integration between the waterfront and the urban river. This is also another dimension that can be further researched.

Finally, the findings from this research highlighted that one of the key reasons that affects the low level of contextual integration of waterfront development in Kuala Lumpur is the lack of a comprehensive framework encompassing the policy and the implementation. Future studies on the policy implementation on issues concerning the waterfront are recommended.

1.19 Conclusion

The summary of the research findings, conclusion and recommendations for future research were presented in this chapter. This research which addresses the issue of contextual integration of the waterfront and urban river concurs with the recent aim to make the Kuala Lumpur waterfront one of the nine Entry Point Projects in the Malaysian Economic Transformation Program. The aim of the program is to spur economic development and increase the quality of the living environment in the city. It is important to understand the key reasons that discourage the contextual integration of the waterfront towards the urban river. This research has explored this issue with the purpose of facilitating future development in avoiding the mistakes of the past. Twenty-one factors that prevent the contextual integration between the waterfront and the urban river in Kuala Lumpur were identified.

The research also established eight key reasons why these factors existed. These are due to the lack of planning – policies, laws, guidelines, master plan; limited funds; condition of the river; introduction of other transportation systems; lack of coordinated management; political will; lack of awareness and market demand. The findings have identified the ‘lack of planning – policies, laws, guidelines, master plan’ as *the* main reason preventing contextual integration. This indicates that contextual integration should be considered in future planning to address the gap in urban design (which is part of planning). It is hoped that these findings will be seriously considered by those involved in the decision making as a guide for facilitating future waterfront developments to be more contextually integrated with the urban river.

The research suggests that although the reasons discovered are local with regard to issues and setting, they are also pertinent to the global waterfront context. The significant contribution of this research to the body of knowledge is that it has examined the issues of waterfront development from the contextual integration of the physical and functional dimensions with the water, which has not been addressed by previous researchers. In addition, the key reasons discovered contributed to why the waterfront is not contextually integrated with the water from the perspective of a major city centre in an emerging Asian country.

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APPENDIX 1

Author	Subjects	Attributes									
		natural riv	address w	enclosure	Direct acc	view	link to the city	cont.along	mix use	cont. of activ	meaning
Donald Wood/ 1965/ US	Land economics	•	•			•	•	•	•		
James B.kenyon/ 1968/ US	Land use admixture					•					
Eckstut,S/ 1986/ General	Urban design in waterfront	•		•	•		•	•	•	•	•
Yehuda Hayuth/ international/1988-	Factor that effects changes on waterfront				•		•				
Roger Bristow/ 1988/ Hong Kong	Market forces on w.f				•						
Roy B. Mann/ 1988/ International	Ten Trends of w.f	•	•	•	•	•	•	•	•	•	•
David Pinder, Kenneth Rosing/ 1988/ Rotterdam waterfront	Public policy and planning	•	•			•	•	•	•	•	
David Pinder/ brian Hoyle/ Sohail Husain/ 1988/ International	Retreat, redundancy and revitalisation		•				•				
John Tunbridge/ 1988/ North America	Comparative on Policy of North America	•	•		•	•	•	•	•	•	•
Hoyle/ 1989/ International	Port-city interface, trends, problems								•		
Niels West/ Europe & North America/ 1989	Geographic problem – urban w.f dev – economic rent	•	•	•	•				•		
Hoyle/1992/ Europe:	city & sea.change & dev						•				
Josef W. Konvitz/ Glasgow/ 1992	Missing the boat on w.f dev						•		•		•
Bert van der Knaap and David Pinder/ 1992/	Policy evolution		•			•	•		•	•	
Nicholas Falk/ British/ 1992	British experience in regen docklands	•	•	•	•		•	•	•	•	•
David Pinder & Hance Smith, International	Naval heritage & challenge		•				•		•	•	
Hoyle/ water Transport/1993	Water Trasport								•		
Syms, P/ Manchester/	Urban renewal	•		•					•		
Hoyle/1994					•		•	•	•	•	
Andrew Jones/ 1998/ UK	Waterfront issues						•		•		
Nobuyuki Takahashi/ Tokyo/ 1998	Changes in Tokyo W.f	•			•		•				
Roman Cybrisky/ 1999/ Tokyo & NY	Changing pattern of urban public space						•	•	•	•	
Hoyle/ Port City/ 2000	Global& Local change of waterfront portcity			•	•	•	•			•	•
Hoyle/ Lamu/ 2001	Urban design		•		•		•				
Hoyle/ Zanzibar/ 2002	Waterfront revitalisation			•	•	•	•			•	•
Minnesota Planning/ 2002	Waterfront redevelopment	•	•	•		•		•	•	•	•
Keith Bassett, Ron Griffiths, Ian Smith/ Bristol/ 2002	Urban regen			•	•	•	•	•	•	•	•
Peter Bosselmann/ Copenhagen/ 2002/	Transformation & City Extension-Morphology		•	•			•		•		
Uli Hellweg/2002/	Berlin- rebirth of public water transport							•	•		
* Chunsong Wang/ Inter/ Msc/ 2002	Waterfront Regenration		•		•		•	•	•		
Rompannen/ Helsinki/2004	Monitoring physical structure – space syntax							•			
Andres E.Muego/ 2004/ Philipphine	River Rehab	•									
Lindsay Ryan/ Cape Town/ 2005	Identity, conflict.memory						•		•		
Rachel May/ 2006/ International	Connectivity – very important	•	•	•	•	•	•	•	•	•	
S.Samant/ India/ 2007	Urban design		•	•		•	•	•	•	•	
A.Friedman/ Ontario/2002	Urban&Archi guideline for rehab						•				
C. Hagerman/ Oregon/ 2007	Urban political ecologies on neighbourhood & nature						•				
Lin, Zhong-Jie/ Tokyo/ 2007	Transformation of mega structure At Tokyo Bay				•	•	•	•		•	
Carlos J.L. Balsas/ Lisbon and Porto/ 2007	urban regen								•		•
O'Callaghan Cian & Denis Linehan/ 2007/Ireland	Identity.politics, conflict		•			•	•	•	•	•	
Sarah Wakefield/ 2007/ Hamilton	Waterfront trail	•	•		•		•	•	•	•	

A MORPHOLOGICAL ANALYSIS OF THE WATERFRONT IN CITY CENTRE, KUALA LUMPUR

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ABSTRACT

The increasing concern for a sustainable development and the significance it should have on future waterfront, places urban design - with its key concern for contextual integration – in a uniquely important position. One of the main factors in contextual integration is the morphological evolution of the place. This paper focuses upon the case study analysing the morphology of Kuala Lumpur waterfront by adopting the method developed by Conzen (1960). Three significant periods of the waterfront development were examined and through this, nineteen waterfront treatments were identified which are suggested vital to be acknowledged for future decision making on the Kuala Lumpur waterfront.

INTRODUCTION

In the approach to achieving sustainable development of cities that have a water body, urban design factors are taken into consideration in many cities as a tool to create a better public realm at the waterfront areas (Hoyle, 2001). In the development of the waterfront area as the public realm, contextual integration is found to be a very important factor to sustain the area (Hoyle, 2000). Contextual integration in this research means the physical and functional relationship that a development/ building has with its surrounding (Carmona, 2003). The research observes in one of the most important parts of contextual integration at the waterfront which is the contextual integration with the water body itself. It is important for the waterfront to have a positive contextual integration with its water body for the public to enjoy the existence of the water body in their city. The large differences in the treatments of the waterfront to water edge will affect the quality of space in the relationship of building and water (Owen, 1993). Therefore this research aims to identify the waterfront treatments available at the Kuala Lumpur waterfront through

morphological analysis which is suggested to be vital in achieving positive contextual integration between the waterfront and the water.

METHODOLOGY

Trancik (1986:114) opined that in order to achieve the contextual relationship of a place, it is imperative to examine the historical development of the urban form because many successive layers of the most recent development are lacking in terms of the continuity of time and missing in terms of symbols and fragments of the past due to the insufficient inquiry and understanding on this matter. The systematic morphological method developed by Conzen (1960:5) which an adopted evolutionary viewpoint, in seeking explanation ‘the arrangement and diversity of an urban area in terms of plan type and resulting geographical division’ were employed. The term ‘waterfront’ in this research is the area within fifty metres from both banks (DID, 2005). Based on archival records (maps, photos and documents) the morphological development of Kuala Lumpur in relation to its waterfront is traced. The morphological periods identified can be divided into three significant eras, which are: i) Early waterfront establishment – the decline of waterfront (1857 -1910) ii) the decline of waterfront - the commencement of the ‘waterfront regeneration awareness’ (1911 – 1978) iii) ‘Waterfront regeneration awareness’ till current (1979 – 2010).

THE MORPHOLOGICAL PERIODS

Early waterfront establishment – decline of waterfront (1857 -1910)

The river which was once the main transportation mode plays a very important role in the development of Kuala Lumpur city. The river becomes the edge that separates the city (Shamsudin et.al, 2008) and the waterfront

is the nucleus of the city. This can be seen clearly in the earliest settlement. It was at the confluence of the Gombak and Klang Rivers, Kuala Lumpur was founded by Raja Abdullah in 1857 during the search of new tin mining areas. The Malay settlement concentrated at a place now called Silang Road and Rawa Village. The Chinese settlement concentrated to the south near Petaling Street. In 1880, the west bank of Klang River became the settlement for the new British residency and administration buildings (Figure 1).

In the 1890s, though Kuala Lumpur had started to establish as the trading post for tin, it was not yet a modern town. During this year, the first Sanitary Board was formed in the Malay Peninsula (Khoo, 2004) to advise the British Resident with 'day to day running of the town' (Shariff, 1989:12). The night soil service which used movable buckets was introduced, indicating the start of planning activities in the town. There was no proper planning policy available at this time and the town developed organically according to necessity (Abidin, 1990).

By 1906, major improvement over twenty six years from a small village to a township could be seen. Though the economic progress, tin field around Kuala Lumpur was held back due to the lack of communication which then relied on the river. It took three days to reach the port in Klang. The first attempt to replace the river was done by constructing a road about fifteen miles south of Kuala Lumpur. The road was replaced by the railway in 1886 which shortened the journey to forty three minutes (Gullick, 1988). Though the function of the river started to decline since then, the river was recorded to still be in use till 1910 before the train station was built.

River

The two major rivers (Klang River on the east and Gombak River on the west)(Figure 1) running through the city and merged in the middle forming a 'Y' shape and thus divided the city into three significant land parcels, then continuing southwards to Port Klang.

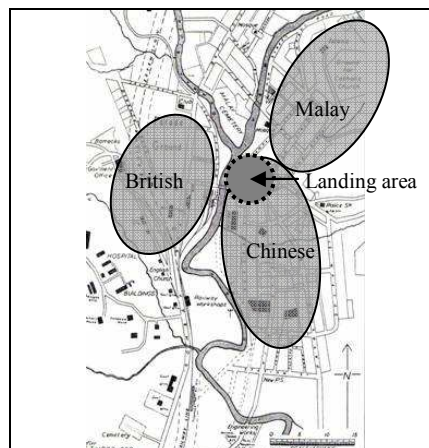


Figure 102 Kuala Lumpur in 1889.
Source: National Archive, 2008

In the north west area was the confluence of Batu and Gombak River that formed another smaller parcel (CHKL, 2008). In the beginning of Kuala Lumpur settlement (during the nineteenth century) the two main rivers were at their natural state meandering from north to south with multiple bends. The two biggest bends were located at the south part, better known as the 'S' bend. The structure of the Klang river started to change when one bend of the river was straightened in 1890s to make way for the railway good yard and to provide space for an engine shed (Gullick, 2000). The meandering bends of the Gombak River were still intact during this period. An embankment was constructed nearby the original landing place (Market Quay) to secure the area from flood. Based on Swettenham's report, river banks were also improved in 1887 (Gullick, 1988:82).

Street

From the original landing place at the waterfront area, there were two foot tracks along the east bank of the Klang River, one going upstream towards Ampang, another towards Petaling tin-mining area (Gullick, 1994). A new settlement grew nearby the landing place in the shape of a square which developed into a market place- better known as the Old Market Square (Figure 1). By 1875 there were already a few streets established around it which include the Cross Street on its north and Market Street on its south which both ran straight down to the river (Gullick, 1994). Both streets were perpendicularly connected to the High Street which ran parallel with the river. Market Street was also connected to Petaling Street. Cross Street was

later connected to Pudu in the east, also towards a mining area. Ampang Street and High Street were crossed by Jawa Street in the northeast which also ran straight down to the river (Gullick, 1994). Some of the early roads were very narrow, only about 12 feet wide.

Plot

Plots, areas which were confined by the streets that existed during this period, were as irregular as the street itself. As the streets developed and crossed each other, plots were formed in between in various sizes. Many of the large plots which comprised smaller lots accommodated the linked shophouses (Gullick, 2000)(Figure 103).

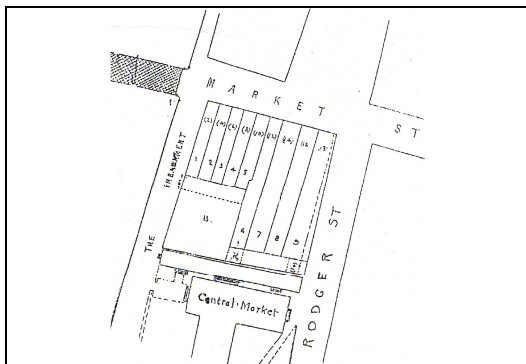


Figure 103 Plots in 1885. Source: National Archive, 2008

Single building also varied but most were at the centre of the plot. The earlier plots formed were at the Market Street south of the Old Market Square and next to the river where the nucleus of the city started. These plots had very narrow frontage and a great depth towards the back to make the most of its location (Figure 103).

Building

a) Residential and shops

Kuala Lumpur in the early days comprised of buildings which were made from wood and palm thatched roof. The Malay settlements were of single stilted buildings arranged organically according to the topography and some were abutting the rivers. The Chinese, linked their houses along like a street system on the ground with a narrow street in between (Shariff, 1989). The houses that were built with low quality material were engulfed by fire in 1881. For safety purposes the material of the houses was replaced with mud. In the same year, flood occurred and destroyed all the

houses that were constructed from mud (Gullick, 2000).

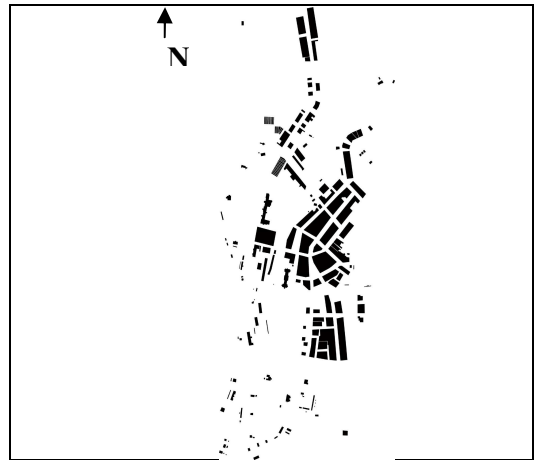


Figure 104 Figure Ground of Kuala Lumpur waterfront in 1895. Source: Author, 2009

A law was later introduced by Swettenham to develop Kuala Lumpur 'road by road' using bricks for the wall and tiles for the roofing. The first rows of shops and houses built with the new building materials were well arranged at Market Street nearby the river. This was later followed at Ampang Street, High Street and then Pudu Road (Gullick, 1988:39). With the pressure of the growing population in the limited space available, the earlier single storey buildings were later replaced by two storey and even three storey (after 1900) (Gullick, 1994:19). At the back of the building, a sanitary lane had to be provided to allow a bullock cart to go through at night to collect the night soil and at the same time provision for fire engine. By 1895, the area on the east bank of the river had become almost fully developed and started to expand to the north (Gullick, 2000) (Figure 104).

b) Public buildings

A few major public buildings were built during this period including the Sultan Abdul Samad Building (the Selangor Secretariat)(1897). The construction of this building took the double frontage approach towards the road and the river similar to the design of the Market which was constructed on the east bank next to the embankment area. Jame Mosque was designed to have the entrance steps direct from the river. Many of the public buildings are still standing today though their function had changed from time to time.

The waterfront treatment

Based on the morphological analysis for this period (1857-1910), there are six main types of waterfront relationship/treatment that can be identified (Figure 105). The first type (A1) are the residential buildings which abutted the river. These are in the early Malay settlement which depended on the river for their daily routine from transportation to washing. While the sanitary system was unavailable, the houses were built backing the river where its kitchen and bathrooms were located for easier access to the water (Hajeedar, 2008). The second type (A2) is the building that was built parallel to the river with frontage facing the street and side elevation facing the open space in between the building and the river. This is obvious for the shophouses in the earlier 'road by road' planning at end of the row of Market Street next to the embankment. The third type (A3) are buildings which had double frontage and having street/open space in between the building and the river.







Early waterfront establishment - river decline (1857-1910)		
Type	Diagram of type of waterfron treatment	Description
A1		Building abutting the river on stilts and backing it
A2		Building built parallel with the river facing the street with side elevation next to the open space in between the building and the river
A3		Building with double frontage facing the main road and at the same time having entrance from the riverside with street in between
A4		building built facing the road and backing the river
A5		Building built facing the river with street in between
A6		Building with entrance and steps directly from the river

Figure 4 Waterfront treatment between 1857-1910. Source: Author, 2009

This situation can be seen at the Sultan Abdul Samad building and the Old Market. As for the latter, the entrances were available from both Rodger Road and fthe riverside, providing direct entrance for people coming from the landing area.

The fourth type (A4) are buildings which were backing the river and faced the street. This situation is obvious for the Victoria Institution School or known by some as the 'school at the river bend' (Chung, 2000). The fifth type (A5) ia a building that has only a single frontage which faced the river but having street in between. This example can be seen at the row of buildings which were built along Holland Road where the Chow Kit Building was situated. The final type (A6) is the building which has an entrance directly from the river such as the Jame Mosque which clearly shows the importance of the river to the people at that time.

The decline of waterfront - the commencement of the 'waterfront regeneration awareness' (1911 – 1978)

By this period the city developed further away from the river which was once its nucleus. The commercial area here expanded further south towards Brickfields. Though public open space in the city centre was urgently required but it was not yet implemented even in 1948 (Hancock, 1948). Based on the documents available, none of it mentioned the possibilities of the river and its waterfront as potential public place.

By the year 1950s, the town was becoming really congested and the land price was inflated, the situation worsened when many squatters built along the waterfront. Due to the congestion and the rapid growth in the town centre, the planners decided to relocate the squatters and also the industrial development outside Kuala Lumpur into a new satellite town called Petaling Jaya (Khoo, 2004). In 1960 and 1970s, new areas were opened up for housing projects within the vicinity of the town to accommodate the growing population.

River

Continuous changes were happening at the urban rivers as well. In the year 1925, KL was hit by a severe flood killing thousands of people. The earlier proposal to straightened the

‘S’ Bend was implemented in the 1930s with the purpose to minimise the impact of the flood and at the same time the banks were raised higher to control the situation better. Continuous effort in straightening the river for flood mitigation measures can be seen throughout the following years on both Gombak and Klang Rivers. The steps taken were found to be effective during that time (Shariff, 1989). In 1971, Kuala Lumpur experienced another big flood stalled all economics and daily activities. Since then, serious attention was given to control development, upgrade and clean up the river and its waterfront (Zulkarnain, 2008). Concrete channeling of the river were proposed in 1978 for the purpose of ‘upgrading’ and for easier maintenance (Zulkarnain, 2008; Hajeedar, 2008). The solution was seen as a total engineering work to mitigate the flood. This was the start of the ‘regeneration’ of the waterfront though consideration to contextually integrate the waterfront and the urban river by creating places for the public had not yet taken place (Zulkarnain, 2008; Hajeedar, 2008; Chandran, 2008).

Street

The early 1900s saw the introduction of the motor transportation system. The road and rail systems had taken over the function of the river totally. The network system which was unplanned developed over time according to necessity and this had led to major traffic congestion in the present environment due to the concentration of vehicles in the Central Commercial Area where roads are about 30% of total land use. ‘There was no available road system master plan simply because there was no reliable master plan for Kuala Lumpur then’ (CHKL, 1977:10). The road that were designed to accommodate bullock carts, pedestrians and bicycles were now use by cars and trucks. The inefficient public transport made private transport the public’s priority.

Plot

During this period many lots were amalgamated to construct bigger buildings.

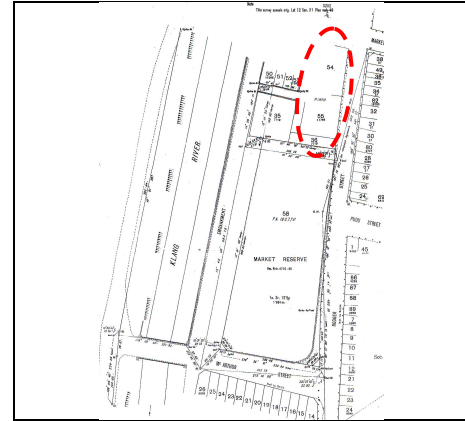


Figure 5 Amalgamated plots in 1936.

Source: National Archive, 2008

Examples of this can be clearly seen in the plots along Market Street. Four lots (6,7,8,9)(Figure 103) were amalgamated to become two lots (54 and 55) (Figure 5). This situation occurred in many parts of the city. Due to the high concern about uncontrolled development of buildings in the heart of the city, the proposal to regulate the controls on future buildings for both public and private purposes in the heart of Kuala Lumpur using plot ratio and plinth control was put forward during this time (TPD, 1960).

Building

Building development continued to be active in the 1920s but by the early 1930s the industry was halted due to the world economic crisis and by the Pacific War that occurred between 1939-1945. Some of the brick and masonry building construction continued. In the year 1936, the masonry building called the Central Market was erected replacing the previous old market with the same double frontage design (Davis, 1937). Soon after the war ended the building industry started to pick up again (Concannon, 1958).

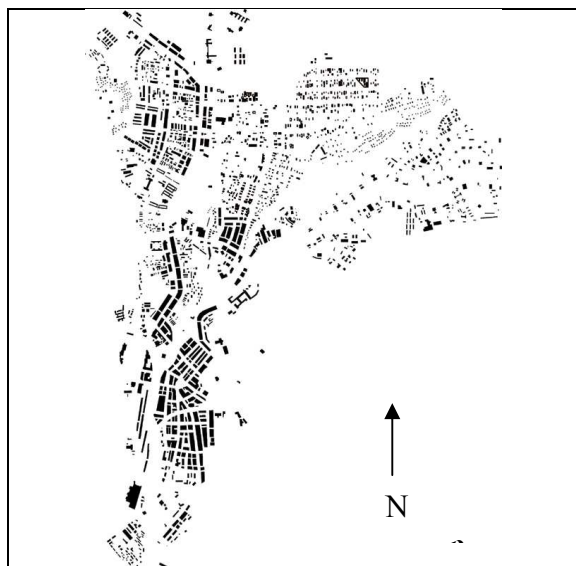


Figure 6 Figure ground of Kuala Lumpur waterfront in 1962. Source: Author, 2009

After the war, as there were great increases in population, so was the building expansion along and in between the two rivers (Figure 6). According to Concannon (1957), there were a few completed blocks that varied from five to ten storey. Further concern heightened with the continued development of the skyscrapers which were not only restricted to office building but also the residential building (Concannon, 1957).

The waterfront treatment

Based from the morphological analysis of the second period (1911 to 1978), another eight types of waterfront treatments were identified with two being repetitive from the earlier situation (Figure 7). The first type (B1) are buildings that were built to face the main road and backing the river with a backlane in between the building and the river. This situation is apparent at the shoplots which faced the Old Market Square along the Klang River. The second type (B2) are buildings that were built facing the main road, sitting paralleled to the river with having a street in between. This situation is obvious for the end lot of the shophouses at Ipoh Road.

River decline- commencement of 'waterfront regeneration' (1911-1978)		
Type	Diagram of type of waterfront treatment	Description
B1		Building backing the river with backlane in between
B2		Building facing the main street perpendicular to the river with street in between
B3, A5		Building built facing the river with street in between
B4		Double frontage with open space in between building and river
B5		Building backing the river facing the road with street in between
B6		Building backing the river with backyard in between
B7		Building facing the street and abutting (backing/perpendicular) to the river
B8, A2		Building built parallel with the river with open space in between

Figure 7 Waterfront treatment between 1911-1979. Source: Author, 2009

The third type (B3) is a repetitive situation of 'A5' (Figure 4). These were buildings built facing the river but having a street in between. Examples of this can be seen along Church Road and Ampang Road.

The fourth type of treatment (B4) is the double frontage building with entrances from the main street and the river. This type of waterfront treatment can be found at the Central Market building. The fifth type (B5) is buildings that were built facing the road, with back to the river and having another street in between the building and the river. This situation can be found in the Convent School at Church Road and the Police Station at Bandar Road. The sixth type (B6) is building which are facing the street and having the backyard in between the building and the river. This type of buildings can be seen in the houses built along Raja Abdullah Road. And the seventh type (B7) is buildings that were built facing the road, abutting and backing the river. This type of waterfront treatment can be seen in the residential buildings built along Raja Laut

Road and in Wisma Yakin on Melayu Road. The final waterfront treatment (B8), a repetitive situation with 'A2' (Figure 4), are buildings that were built parallel with the river, with side elevation facing the river and an open space in between the building and the river. Example of this situation is the HSBC building along Benteng Road.

'Waterfront regeneration awareness' till current (1979 – 2010)

By the late 1970s and 1980s, the city was congested due to population increase. As Malaysia moved towards an industrial base from an agricultural economic country, many people swamped the city centre from the rural areas in search for work (Muhammad, 1999 in Sulaiman, 2000). This had somehow increased the squatter problem in the city due to the low affordability of houses in KL. According to United Nations (1996), there were about 150,000 squatters in Kuala Lumpur which made up 17% of the total population of KL and many of them settled at the waterfront. According to Gan (2008), in the mid 1980s, massive relocations of the squatters along Klang and Gombak River were done. To reduce the congestion in the city, new development areas were opened up at the outskirts of the city (KLSP 2020, 2004). By the 1990s, with the limitation and high priced land and allowance for higher plot ratios, the buildings were built higher in storeys and some of them are evident at the waterfront area. By this period also, policies and laws started to be drafted and gazetted to promote the contextual integration between the waterfront and the river (Shamsudin et.al,2008)

River

During this time, much effort was made in cleaning and straightening the river (Refer Figure 9). The main purpose was for flood mitigation and easier maintenance. The riverbanks were 'improved' by concreting and channelizing them (Hajeedar, 2008). However, this had transformed the form of the natural banks to be a 'monsoon-drain like' feature (Star Online, 2008). It was in the late 1980s that the Mayor then make a move with the support from the Prime Minister to 'renaturalised' the river at the confluence of

the Gombak and Batu River. In the late 1980s, walkway along the river in the city centre were improved to allow pedestrian access along the river and since then buildings were encouraged to face the river (Zulkarnain, 2008).

Street

By this period, the roads in the older area remain intact but in other areas within the city centre changes were made from time to time to accommodate the increasing private transport and also provision for public transportation facilities (Juminan, 2008).

In the early 1990s the by-pass between Sultan Ismail Road and Raja Laut Road to and from Kuching Road was constructed which crosses the Gombak River as shown as 'A' (Figure 8). The years 1993 – 1998 saw the construction and completion of the Light Rail Transit (LRT) where most of the alignments of the rail tracks were constructed along the river (CHKL, 1996). The entire LRT System I was completed in 1998 which runs on a viaduct. Partial tracks of the LRT System II before point 'C' from the south also run on a viaduct and then they descended into a tunnel system for the rest of the track of system II northwards within the city centre. With the completion of the tunnel system, the pedestrian promenade above the tunnel at Benteng Road along the waterfront was also completed (CHKL, 2008). In 2001, the first 7.9km elevated highway in Malaysia known as the Ampang-Kuala Lumpur Elevated Highway (AKLEH) was completed by having the Klang River sandwiched in the middle. By 2007, many pedestrian walkways along the river were also upgraded and paved.

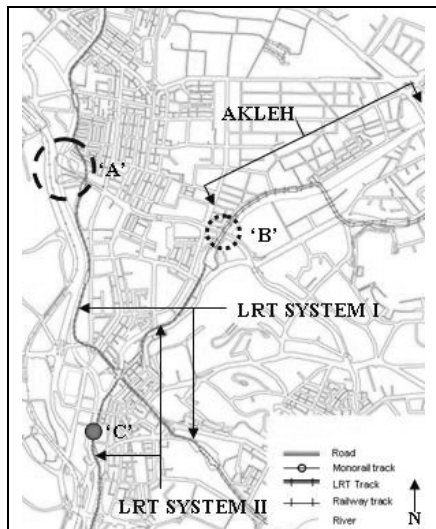


Figure 8 The road and Lrt system in 2008,
Source: Author, 2009

Plot

As in the previous period, many of the smaller plots were amalgamated to build bigger buildings. According to Hijjas (2008), it will take at least eight plots of shoplots to make up a feasible highrise building. There are also some new plots which were opened up in the late 1970s that were larger in size such as the ones along the Gombak River waterfront at Raja Laut Road. This is where many highrise buildings were concentrated in the city centre.

Building

The 1980s, 1990s and 2000s saw the mushrooming of highrises in Kuala Lumpur many of which were also located at the waterfront area. LRT stations were also built as the construction of the LRT tracks were taking place. By this time, new buildings built along the waterfront were required to address the river and this can be seen implemented at the Medan Selera Batu Road which faces the river and is landscaped and terraced (towards the river) with public space provided in between the building and the river. However, with the present requirement in place, there were also new buildings built that having their services and car park facing the Klang river.

The waterfront treatment

Based on the morphological analysis of the third period (1979-2008), another thirteen types of waterfront treatments were identified with six having repetitive features from the first and second period (Figure 9).

The first category of waterfront treatments (C1) during this period are midrise/ highrise buildings, backing the river and having a backlane in between. Under this category there were two types of developments, which are i) those built on amalgamated plots of the old shoplots and ii) those built on new, larger plots. The second category (C2) is a repeat of (B7) (Figure 7). These were buildings that faced the street and at the same time abutting the river (backing or perpendicular to it). Category three (C3) is a repeat of B6 (Figure 7) where the buildings are backing the river and having backyards in between. These kinds of treatments are obvious at the PWTC building. The following category (C4) do not comprise buildings but rather development along the river which has the river form 'naturalised'. This treatment can be seen at the confluence of Gombak and Batu Rivers. The fifth category (C5) is a repeat situation of A5 (Figure) and B3 (Figure 7). This is one of the most common treatment identified which is where the buildings faced the river with street/ LRT in between.

The sixth category (C6) is also a repeated category from the previous period (B2)(Figure 7). These are waterfront developments that face the street and having a side elevation facing the river with another street in between. These situations are obvious for corner lots of terraced shplot buildings at Ipoh Road. The seventh category (C7) is a repeat situation of (B5) in the previous period (Figure 7), buildings which face the road and back the river while having a street in between. This situation is apparent at the Sogo building on Raja Laut Road. The eighth category (C8) are buildings which perch at the river edge either suspended or having columns in the river channel. This situation can be seen at the LRT stations such as the Station Pasar Seni and Station Bandaraya along Raja Laut Road. The ninth category (C9) are developments which were built above/ crossing the river. These are obvious at LRT station Masjid Jamek and LRT Station PWTC.

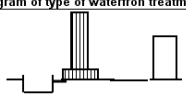
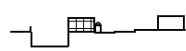
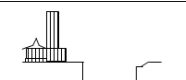
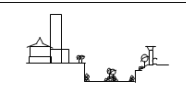
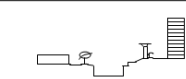
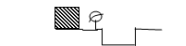
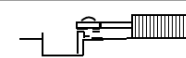
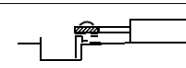
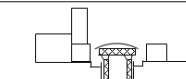
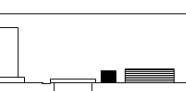
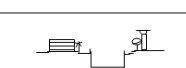
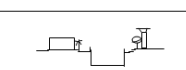
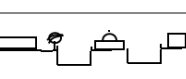
Commencement of 'waterfront regeneration' till current (1979-2009)		
Type	Diagram of type of waterfront treatment	Description
C1, B1		Mid and Highrise building backing the river with backlane in between
C2, B7		Building facing the street and abutting (backing/perpendicular) to the river
C3, B6		Building backing the river with backyard in between
C4		River feature 'naturalised'
C5, B3, A5		Building built facing the river with street/LRT line in between
C6, B2		Building facing the main street with side elevation facing the river with street in between
C7, B5		Building backing the river facing the road with street in between
C8		Building perched at the river bank with columns in the river channel
C9		Building - on top of the river
C10		Building which originally faced the river is now blocked
C11		Building facing the river with public space in between building and river
C12		Terraces built facing the river for public
C13		Building which originally has direct connection to the river is now doesn't

Figure 9 Waterfront treatments between 1979-2009. Source: Author, 2009

The tenth category (C10) is development which is facing the river but blocked by other urban elements.

This is apparent at the Central Market Building and waterfronts along Ampang-KL highway (AKLEH). The Central Market, which used to have a double frontage (B4 in Figure 7) that addressed the river and Hang Kasturi/Roger Street, were totally blocked from the river by the wall built for the tunnel track system which descended at this point from the viaduct track system. And the waterfront at the area where AKLEH was built was also totally blocked both physically and

visually from the river. The eleventh category (C11) comprises developments which were built facing the river and having public space in between. This is obvious at Medan Selera, Batu Bata Road. The twelfth category (C12) is development of terraces which face the river and allow the public to enjoy the river. This is evident at the waterfront along Pekeliling Bus station which was part of the Masterplan for the Medan Selera Batu Bata Project. The final category (C13) is buildings that originally had direct access from the river and now do not due to channellisation. This is apparent at the Masjid Jamek building as to date.

THE CONCLUSION

From the morphological analysis we can identify the trends of waterfront treatments since the birth of Kuala Lumpur until the current situation. It is apparent that the contextual integration between the waterfront and the river were occurring many parts of the waterfront during the first period (Figure 4) when the river was the life line of the city. The waterfront treatments in the second period (Figure 7) were governed by roads for both facing and backing the river when there was no focus to contextually integrate the waterfront and the river. As for the third period (Figure 9), it was the mix of the two situations where the scenario is different because the laws, policies and guideline to promote the contextual integration with the river are in place. Future research may look into on why there are still developments which are 'ignoring' the integration with the river and why some waterfront areas have changed from initially having integration with the river to one that does not as at C9 and C13 (Figure 9). Acknowledging these waterfront treatments as vital, future research may look into the reasons for both the positive and the negative situations of the waterfront treatments that can be found throughout these periods in order to be able to make a better decision for a more sustainable development of the future waterfront of Kuala Lumpur and not to repeat some apparent mistakes of the past.

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The Implication of Policies, Law and Guidelines on Contextual Integration and Sustainability of Kuala Lumpur's City Centre Waterfront

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ABSTRACT

The contextual integration between the water bodies and the city has long been established in history when water used to be the main transportation mode. Over the years, many cities have lost their integration with their water bodies due to factors such as the industrial revolution, development in transportation system and technology. In an attempt to achieve sustainable development, most cities had reintegrated the city with their water body. This has, however, helped to secure the sense of place as well as increasing the quality of living and working environment of the urban community. The lost of integration between the city and the water bodies is also experienced by the capital city of Malaysia, Kuala Lumpur. Based on a qualitative method, this paper employs content analysis and focus interview to evaluate existing policies and guidelines available on the contextual integration between the waterfront and the urban river. This paper provides six main findings i.e. i) absence of policy and guidelines ii) policies and guidelines are general in manner iii) policy and guideline developed and implemented in isolation by different government agencies iv) lack of specific guidelines v) lack of detail master planning for Kuala Lumpur waterfront and vi) lack of statutory guidelines

Keywords: Contextual integration, waterfront, policies, law, guideline

Introduction

Many cities with significant waterfront areas have used urban design as one of the main tools to create a better public realm in an approach towards achieving more sustainable development (Hoyle, 2001). In achieving a better public realm, contextual integration is one of the key factors of urban design and essential in achieving a more sustainable urban environment (Hoyle, 2000). The operational term of contextual integration in this research is the physical and functional relationship that a development/ building has with its surroundings (Carmona et al., 2003). The context upon which this research will concentrate is the water body itself. Cities which have a positive contextual integration with their water body allow the public to enjoy this amenity for a better quality of life. Therefore, law, policies, and guidelines which are geared towards achieving good contextual integration are important frameworks for a city to achieve this goal. This research aims to examine the development of laws, policies and guidelines in relation to the contextual integration of Kuala Lumpur waterfront with its urban rivers in order to understand the existence of the contextual integration in the current context. It is hoped that this research can contribute as a reference for the future implementation towards achieving a more sustainable development of the City's waterfront.

Methodology

The research adopted a qualitative approach using content analysis techniques of available official documents (laws, policies and guideline) and archival records together with focused interviews of key decision-makers. Though the process can be limited and slow, its application is still widely used in varied topics and disciplines. It is an especially useful tool for 'summarising and handling relatively large quantities of qualitative material and for comparing different sets of data (from a range of sources, time-periods, localities, etc.) and its flexibility is particularly valuable, allowing adaptation to a wide range of problems and studies (Bird et al., 1983). The findings will be discussed based on three significant periods:

- i) Waterfront establishment and the decline of waterfront (1857 -1910)
- ii) The decline of Waterfront- waterfront 'regeneration' awareness (1911 – 1978)
- iii) Waterfront regeneration awareness – current (1979 – 2010)

Background study

Policies are government agendas established by the central government for other government agencies and local authorities to implement in their local areas. Policies are sometimes made legal for the purpose of mandatory implementation but sometimes they are not legalized. The roles of national policies and political philosophies have to be recognised as vital factors that cause changes to waterfronts (Riley and Shumer-Smith, 1988, p.43). Clear evidence of the impact of national policies can be seen in UK towards urban regeneration through its Inner Urban Area Act, 1978. It was in 1972, that Peter Walker, the Secretary of State for the Environment gave the first public recognition of the need for urban regeneration in Britain. He appointed consultants to work on three deprived inner-city areas in Lambeth, Liverpool and Birmingham. The result of these studies and the subsequent Government White Paper in 1977 underlined the acute level of deprivation in the inner city. As a result, focus was switched to the urban programme with the government channeling financial resources from its new town programme 'to urban areas to help the cities'. Slowly but gradually public attention on the issue increased during the first half of the following decade. Subsequently, the transformation of the downtown often focused upon the regeneration of the waterfront (Colquhoun, 1995). The impact of law, policies and guidelines towards the regeneration of waterfronts can also be seen in the US. West (1989) mentioned an increase of environmental regulations and policy formulation in the US in 1970s and 1980s. Indeed, the Clean Water Act (see US Public Law, 91-190) and the National Environmental Policy Act (see US Public Law, 92-500) had significant impact upon waterfront. With the implementation of these policies, there were high demands on water clean-up to make waterfronts more attractive. These have led to the water quality improvements that have encouraged new investment in waterfront areas by developers and users alike. These policies also led to the reclamation of brownfield sites resulting in new parks and other multi-use developments which have visually enhanced waterfront areas (Breen and Rigby, 1996).

Many cities have implemented waterfront policies and guidelines that instigate contextual integration through design guidance and control. An example of this can be seen in the policies adopted by the Government Office for London that focused upon the River Thames as the core contributor to the quality of the London's environment. Indeed, new development has to demonstrate consideration of how it integrates with the river (Carmona et. al., 2003).

REVIEW OF LEGISLATIONS REGARDING WATERFRONT AREAS

In Malaysia, there are many laws, policies and guidelines that are related to the waterfront development. The establishment of these documents can be divided according to the three periods mentioned earlier (Figure 106). The development of the documents in relation to the growth of the waterfront development is going to be discussed in detail according to the three periods.

Related Law/ Policy/ Guideline to the waterfront development and the Urban River according to the years			
Year	Law	Year	Policy/ Guideline
Waterfront Establishment - River Decline (1857-1910)			
1907	Sanitary Boards Enactment		
River Decline to the Commencement of Waterfront Regeneration (1911-1978)			
1913	Municipal ordinance Cap 133/ 1913		
1916	Town Improvement Enactment 1916		
1920	Water Act 1920 (Cap 146)(1989)		
1923	Town Planning & Development Bill, 1923		
1927	Town Planning & Development Bill, 1927		
1930s	Sanitary Board Enactment Cap 137, 1930		
1955	Town Boards Enactment of the Federated Malay States (Cap 137) amended in 21 st April 1955		
1953	Imigation Areas Act 1953 (Act 386)		
1954	Drainage Works Act 1954 (1988)		
1958	Undang-undang kecil Bangunan Dewan Bandaraya Kuala Lumpur, 1958		
1960	Akta Ibu Kota Persekutuan, 1960 (Act 190)		
1964	Land Conservation Act 1960		
1965	National land Code 1965 (Act 65)		
	Ministerial Function Act 1969		
1974	Environmental Quality Act 1974		
1974	Street, Drainage and Building Act 1974 (1994)		
1974	Federal Constitution		
1976	Local Government Act 1976		
1985	Fisheries Act 1985 (Act 317)		
1970s	City of Kuala Lumpur (Planning) Act 1973 (Act 107)		
1976	Town and Country Planning Act 1976		
Waterfront Regeneration to Current (1979-2010)			
1982	Federal Territory (Planning) Act 1982 (Act 267)		
		1984	KLSP 1984
		1986-1990	5 th M'sia Plan
		1991-1995	6 th M'sia Plan
		1996-2000	7 th M'sia Plan
			KLSP 2020
2005	National Heritage Act 2005 (Act 645)	2001-2005	8 th M'sia Plan
2005			National Environmental Policy
2005			National Physical Plan
			River reserve (JPED)
			Konsep Pembangunan
			Mengadap Sungai (JFS)
2005			Waterfront as Recreational Area
2006		2006-2010	9 th M'sia Plan
2008			National Urbanisation Policy
			Draft Local Plan 2020

Figure 106. Chronology of law, policies and guidelines related to the waterfront development periods

Waterfront establishment and the decline of waterfront (1857 -1910)

The first settlement in Kuala Lumpur started at the waterfront in 1857. The earliest law which included aspects relating to the urban river - the Sanitary Board Enactment – was introduced in 1907. The enactment concentrated on health and sanitation including drainage as part of the law. The river was part of the drainage system but according to Norris (1980) under the newly established Sanitary Board, this enactment was primarily of a piece-meal and regulatory type. It was later reviewed and renamed as the Municipal Ordinance Cap 133 / 1913 and the Town Improvement Enactment 1917. This focused more on health and the habitation of houses (setting of back lanes and open spaces for sanitary conveniences) and did not specifically discuss the river or the importance of it. Though there were no planning policies or laws, many of the earlier waterfront developments consisting of residential buildings, public buildings and shops were contextually integrated with the urban river because they depended on the river as the main mode of transportation and for daily life resources (Figure 107).

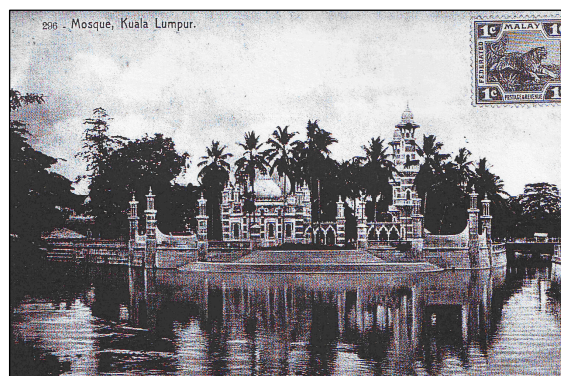


Figure 107. Pubic building which had direct access from the river. Source: National Archive, 2009

Public buildings often had double frontages with direct access from the river. Some shops faced the river across a street or pathway. Only a few buildings backed onto the river and faced the street. Sadly, with the introduction of the railway and motor transportation during this period, the waterways became redundant and became the backyard of the city. From then on, contextual integration of the waterfront and the urban river started to decline.

The decline of waterfront- waterfront ‘regeneration’ awareness (1911 – 1978)

The specific law in relation to the river was in place starting in 1920s which is known as the Water Act 1920. This law is still use by the current Department of Irrigation and Drainage (DID) but only partially was adopted by Kuala Lumpur City Hall (KLCH) into its Street and Drainage (Act133) , 1974. The Water Act, 1920 gave the definition of river, the responsible authority of the river and the riverbanks and those involved in the appeal board. The Water Act 1920 was the first specific law that related to Kuala Lumpur’s river. This Act is still in use by the current Department of Irrigation and Drainage (DID) but only partially was adopted by Kuala Lumpur City Hall (KLCH) into its Street and Drainage Act 1974 (Act 133). The Water Act 1920 defined the river and the responsibility of authority of the river and the riverbanks.

In 1923, with the introduction of town planning in Kuala Lumpur, a new Town Planning & Development Bill, 1923 was enacted. This marked the beginning of planning legislation in Malaysia. It embodied the zoning concept and included drainage and irrigation (including beautification) related to river improvement under sub-section 86 in consultation with the Chief Hydraulic Engineer and the Chairman of the Sanitary Board (Reade, 1924). In 1927, the Town Planning & Development Bill, 1923 was re-drafted due to ‘inter-departmental jealousy’ in relation to the power dilution (of the Sanitary Board) and also because the new Town Planning Committee was relegating an established authority of the Sanitary Board to a subordinate role (Kamalruddin, 2008). The revised Bill was simplified and did not specify matters relating to the river and improvement schemes were not included.

In the 1930s, amendments were made to the earlier Sanitary Board Enactment that consolidated various previous enactments incorporating the Town Planning Bill which included the Town Planning enactments in preparation of the zoning plan or better known as the General Town Plan. This was still inadequate because it did not include ‘legal provision for community facilities’ such as road reserve or river reserve (Lee et al., 1990). It gave statutory power to the Sanitary Board to ‘prepare, administer and approve plans’ that were prepared by the local authority (Lee et al., 1990). This enactment was later amended in 1955 and renamed as the Town Boards Enactment (Cap 137) which under section 89 included a requirement for building design in terms of appearance in relation to context, materials, height and relationship (access and egress) to the street and back lanes for the purpose of the night-soil services (Nordin, 2008). Though the importance of contextual integration was mentioned, it did not specifically mention the response towards the urban river despite the importance of the river to the city.

During this period, many other laws were enacted that incorporated penalties for polluting the waterways including the Irrigation Areas Act, 1953 (Act 386); the Undang-undang Kecil Bangunan Dewan Bandaraya Kuala Lumpur, 1958; followed by the Akta Ibu Kota Persekutuan, 1960 (Act 190); Environmental Quality Act, 1974; Street and Drainage Act, 1974; Local Government Act, 1976 and Fisheries Act, 1985 (Act 317). The Land Conservation Act, 1960 (Act 385) also incorporated control of the silting and erosion of the waterways. Other related laws in relation to the power for the river and its riverbanks were introduced in the National Land Code, 1965 (Act 65) which confirmed the river as the property of the State and declared the river as a reserve. Currently, while this research is being conducted, DID is in the process of preparing a new ‘River Law’. There was a plethora of related laws enacted during this period, however, most of them concentrated on penalties for the pollution of waterways. This was clearly important in the achievement of good contextual integration because without a clean waterway, development is unlikely to be built with a positive relationship to the river (Pidwill, 1993). Despite these laws, there were minimal policies and guidelines to govern how waterfront development was contextually integrated with the river (KLCH, 1984). As a result, the majority

of the waterfront developments were built backing onto the water (Figure 108) with no direct access from the river.

One of the reasons for this was due to the polluted condition of the river and regular flooding due to over-development (Interviewee 24, Interviewee 28). Towards the end of this period due to a major flood in 1971, the government took the decision to focus upon the importance of the river by controlling development and upgrade and cleaning-up the river and its waterfront (Interviewee 5). In 1978, concrete channeling for the river was proposed to ensure easier maintenance and ‘upgrading’ (Interviewee 12, Interviewee 29). This signaled the commencement of waterfront regeneration although it was primarily engineering work to mitigate flooding.



Figure 108. Buildings built backing the rivers

Waterfront regeneration awareness –current (1979 – 2010)

The first policy - the Kuala Lumpur Structure Plan 1984 -that stated clearly the importance of the waterfront and the river for the public realm was gazetted in this period. According to this Structure Plan, previous attempts by the public sector to improve environmental quality were handicapped by three main aspects:

- (i) a lack of manpower and technical expertise;
- (ii) development approaches that prioritised economic and engineering feasibility; and
- (iii) a low priority in the allocation of funds for landscaping and beautification programmes.

This situation also contributed to the situation at the waterfront resulting in developments - as in Figure 108- that were not contextually integrated with the urban river. Specific concerns about the waterfront and river pollution was mentioned due to the ‘absence of positive policies and guiding principles for development of the natural features such as rivers’. In its policy and Goal No.9 concern for the balance of the ‘development, ecology and national heritage’ were highlighted (KLSP 1984). Based on this, involvement of the private sectors in the beautification and landscaping provision with additional laws and regulations is stressed as part of the future development plan (KLSP 1984). Increasing the public, private and other agencies awareness of the importance of this matter was also in the plan. The Environmental Improvement Policies in the KLSP 1984 under sub-section LC7 specifically highlighted and acknowledged the waterfront as a potential public place. The Plan also stressed the need for future consideration of the relationships of buildings to the surrounding environment as part of the development control process. However, it was five years later in 1989, that the improvement of the contextual integration between the waterfront and the urban river were implemented (KLCH, 1989). The walkways along the waterfront especially in the historical area were improved with pavements to allow the public to have a continuous flow of movement along the river (Interviewee 10, Interviewee 3). Though indirectly mentioned, the 5th Malaysia Plan (1986-1990)(Government of Malaysia, 1986) stressed the need to preserve the environment, a concern for the enforcement

of law, environmental planning and balanced development of socio-economic and environmental needs. Following from this and based on the available documents, the concern and awareness on the importance of the waterfront slowly increased. These can be seen through the increase in the number of policies and guidelines implemented.

In the 6th Malaysia Plan (1991-1995)(Government of Malaysia, 1991), the Ten Year Rehabilitation Programme and 'Love Our River Campaign' were launched in 1992 to improve the waterfront and the river. Out of 119 rivers monitored in 1995, 52 rivers were found to be clean, 53 rivers are slightly polluted and 14 rivers were categorised as highly polluted and the Klang River was one of them. Unfortunately, 10 years later in the 2005, the campaign was announced as a failure by the Environmental Minister due to its concentration on beautifying the riverbanks rather than cleaning up the river (Star, 2007). The condition of Klang River is still recorded as a polluted river (Class III) in the Environmental Quality Report (DoE, 2008).

Other initiatives included the amendment of the Town and Country Planning Act 1976 in 1994 to improve measures on the conservation of the environment in all planning applications. The Town and Country Planning Department provided advisory and management services to the Federal, State and Local Authorities towards improving the environment. However, their advice was rarely sought in the implementation of Kuala Lumpur planning because the Kuala Lumpur City Hall has its own Planning and Masterplan Department (Interviewee 16).

The following 7th Malaysia Plan (1996-2000)(Government of Malaysia, 1996) not only focused upon ensuring more sustainable development through the preservation of environment but also emphasized the integration of environmental considerations with the economic and social development process. It is a continuation of the 6th Malaysia Plan that introduced measures to protect the environment and to conserve natural resources. For example, starting in 1987, all major projects were subjected to environmental impact assessments. The proposal for a National Environmental Policy was introduced in the 7th Plan with the Plan of Action to enforce and monitor the environment effectively. Education on environmental awareness and campaigns were also intensified to ensure active participation from all sections of society. It also highlighted the importance of improving the quality of life side by side with the rapid development of economy. Greater aesthetic values especially the 'appreciation and preservation of the arts and culture and heritage' were also acknowledged as part of it. Heritage in this context can be related to the river as part of the natural heritage. Efforts involved including environmental considerations in town planning and in-land clearance, upgrading of the national sewage system and the cleaning-up of the activities of the rivers and several flood mitigation projects were implemented. Since then the National Environmental Policy was the guide for environmental and resource management in ensuring long-term sustainability and improvement in quality of life and during the Plan period, there were legislative mechanisms '...being streamlined at different level as an integral part of overall project planning in order to reduce the adverse environmental impact of proposed projects' (Government of Malaysia, 1996).

In the 8th Malaysia Plan (2001-2005)(Government of Malaysia, 2001), the pursuit for sustainable development becomes greater. One of the key strategies during the Plan was to adopt an integrated and holistic approach in addressing environmental and resource issues to attain sustainable development. During this plan also the new Kuala Lumpur Structure Plan 2020 was gazette in replaced of the previous KLSP 1984 which was found to be inconsistent with the rapid economic growth of the country. Under its Urban Design Policies in subsection no. 700 :Urban linkages- river corridor was recognised as the potential of the river corridor and future actions will have to be made to increase the value of amenities in this area. The riverfront development guideline shall be formulated and implemented. Since then, various other guidelines in relation to the waterfront were drafted by several departments. This include the 'Facing the River Concept Guideline' by DID(2003), Waterfront as Recreational Area by Landscape Department (2005) and the Planning Guideline for River Reserve as Public Open Space by TCP (2005). Unfortunately, it was found that these ungazetted guidelines were only use in isolation within the department or agencies which produced them.

Under this Plan also the National Physical Plan, (TCP, 2005) was also launched which highlighted in one of its policies the importance of the conserving the rivers and the surrounding environment under the sub section NPP 22. This is also an important policy to increase the quality of the contextual integration between the waterfront and the urban river. One of the more recent acts, the National Heritage Act, 2005 incorporated provision for the conservation and preservation of national heritage including the natural heritage, which includes the rivers. The Act was welcomed after a long wait to preserve the deteriorating national heritage. The implementation and enforcement of the Act were questioned, however, when one of the historical buildings gazette was demolished in the name of ‘urban regeneration’ in 2006 (Phang, 2007).

The 9th Malaysia Plan (2006-2010, p.10)(Government of Malaysia, 2006) highlighted five main thrusts including one that was ‘...to improve the standard and sustainability of quality life’. Though general in manner, the thrust can be indirectly related to the aspiration to improve the integration between the waterfront and the urban river. This was clearly stated under the environmental section with the provision of RM510 million for the improvement and beautification of the rivers and RM4 billion for the purposes of flood mitigation. During this Plan, one of the measures taken to mitigate flood which is the RM1.8million Smart Tunnel Project, was realised in 2008. Also under this Plan, policies were further strengthened with the launch of the National Urbanisation Policy (TCP, 2006) that carried an aim to achieve more sustainable urban development. Being general in manner, it does not specifically focus on the importance of the waterfront but mentions the importance of promoting the usage of the existing facilities and returning vitality to urban centres thereby implying the importance of the waterfront and the urban river. This can be seen implemented in the newly drafted Local Plan for Kuala Lumpur 2020 which in detail specifically focused upon one segment of the guidelines to guide the future development of Kuala Lumpur’s waterfront. Unfortunately, it is yet to be revised and gazetted after the public review session in August 2008.

Surprisingly, with all the various laws, policies and guidelines put into place during this period, many of the waterfront developments built were still not contextually integrated with the urban river. This can be seen in the findings of the waterfront treatments. Many high-rise buildings were built close to the river thus blocking the public’s view towards the river. There were also new buildings constructed abutting and backing onto the river thus blocking the view, preventing the continuity of the walkway along the river and not allowing any activity to happen in between the waterfront and the river (Figure 109). Buildings which are built perched and over the riverbanks can also be seen in this period (Figure 110).



Figure 109. High-rise buildings built abutting the river and not addressing the river. Source: Ng,2007

These buildings became obstacles for the public to view the urban river and obstructions to activity happening in between the waterfront and the urban river. Sadly, it was also during this

period that some of buildings that used to have a strong contextual integration with the river became one that did not (Figure 111 and Figure 112). With the existence of this type of development, the implementation of the available laws, policies and guidelines is in question and serious focus should be given to this matter.

Recently, after the KLSP 2020 (KLCH, 2004), some positive implementation was seen where new developments have begun to open up towards the urban river again. For example, Figure 35- terraces were built on the waterfront facing the urban river allowing for contextual integration to take place. There were also developments built facing the river with a well-landscaped public space in between the waterfront and the urban river. This gave some indication of an increase of positive development responding to the laws, policies and guidelines available. However, it was observed that one of the most recent building completed in 2010 at the waterfront still backed the river. Indeed, it is worrying that this situation had occurred if more sustainable development is going to be achieved in the future development.



Figure 110. Buildings built on top of the river and not addressing the river. Source: Ng,2007

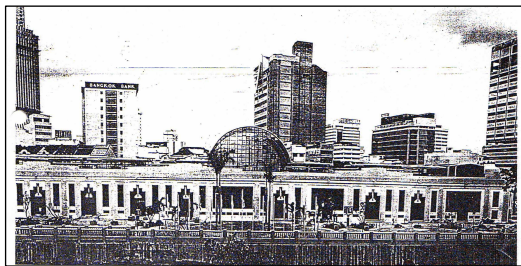


Figure 111 Central market facing the river before it was blocked by the LRT tunnel. Source: National Archive, 2008



Figure 112 Central market after it was blocked by the LRT tunnel



Figure 113 Terraced area built facing the river

Conclusions

The research results indicate that although there were laws available, the absence of policy and guidelines before the third period was one of the main influences contributing to the lack of contextual integration between the waterfront and the urban river.

Much of the earlier planning of Kuala Lumpur was undertaken without any master plan that included the waterfront. Most planning was done according to necessity and ad hoc situations. This resulted in waterfront areas that were not well linked with the city. Many of the waterfront developments were already in place before the third period and were there before the river reserves were established. It is obvious that many of the developments built during the second period were not contextually integrated with the urban river. In the third period, however, though policies and guidelines were in place, they were very general and mostly related to zoning rather than specific plots. This resulted in difficulty monitoring and controlling development. There was also lack of guidelines that were suitable to Kuala Lumpur's city centre context. There was also a lack of a detailed master plan, which resulted in ad-hoc and piecemeal implementation on the ground. Some of the guidelines were not law or gazette and this also created difficulties for implementation. Some of the available guidelines were also used in isolation within the agencies or departments that produced them. This prevented a holistic approach towards achieving a more sustainable development of the waterfront. Based on the findings, more detailed research is recommended to identify possible solutions to the problem of realising the more sustainable development of the Kuala Lumpur waterfront.

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DESCRIPTION OF ZONES

(Note: Refer to Appendix 16 for the road map and Appendix 17 for the building map)

Zone 1a

This area is bordered by Jalan Tun Razak to the North, Jalan Putra to the south and Jalan Ipoh crossing in the middle of the zone. The waterfront is bounded by a road (64/6 Road) on its right bank. On the north side of this zone is a busy intersection for transportation in Kuala Lumpur, which includes buses, monorail and the LRT. It is one of the busiest intersections in the city. On the right bank there are shaded step terraces that face the river, which allows people to sit facing the river. There is also access to the water's edge at the terrace (refer C12 in Chapter 5)(a). The planning of the terrace is part of the planning of the Medan Batu Bata Food court built on the left bank in 2007. The food court is accessible via a bridge (b). Some of the areas along the edge of the water are landscaped with dense planting.

There are a few hawkers selling fast food along the street by the terrace every day. Some hawkers provide a few chairs and tables for people to sit while having drinks and/or food. The pedestrian walkway along this area is well paved. Aligned along the right bank is the elevated viaduct for the LRT tracks. Towards the south side, there is a pedestrian path along the water's edge. There are also parking lots provided along the road next to the pathway. There are rows of 'shophouses' built perpendicular to the waterfront and only the corner lots are facing the river (refer C6,B2 in Chapter 5). Another building that faces the river is the Vistana Hotel (refer C5 in Chapter 5) (c).

On the left bank, the only building that is built facing the river is the Medan Batu Bata Food court. The area along the food court is well landscaped and has seating provided (refer C11 in Chapter 5) (d). However, the rest of the buildings are either built backing on to, abutting the river (refer C2 in Chapter 5) or built perpendicular to the river (C6 in Chapter 5) (along Ipoh Road).



(a) Terrace overlooking the river on the right bank



(b) Along the right bank overlooking the pedestrian bridge and Medan Batu Bata food court on the left bank



(c) Pedestrian walkway underneath the LRT viaduct and next to Vistana Hotel on the left – on the right bank



(d) Well landscaped open space along the river – left bank

Zone 1b

Further south, to cross the Ipoh Road one has to be extra careful because no traffic lights are provided. The pedestrian walkway continues along the river towards Putra Road in the south. The pedestrian path is covered as it gets nearer to the Putra Road. There are also parking lots provided along the road. A pedestrian bridge that connects to the other side of the Gombak River before the river merges with the Batu River at the confluence is also provided (e). This is where the river has been 're-naturalised' (refer C4 in Chapter 5) (f). Nearing Putra Road, there is a narrow green pocket space provided across the street in front of the Bistari Condominium. The forty-storey condominium and several 'shophouses' face the river, however, there is a road and LRT tracks between (refer C5 in Chapter 5) (g).

On the left bank, there is a pedestrian path that continues along the river. Here, 'shophouses' were built perpendicular to the river with a street and pathway between (refer C6 in Chapter 5). The rest of the buildings along the left bank back onto the river (refer C3 in Chapter 5). Aligned with the pathway to the south is a road with side parking lots. The pathway is also shaded with big shady trees. When one reaches the PWTC Hall 2, the road stops, however, the pathway continues towards the confluence of Gombak and Batu River (h). There is no seating available along the pedestrian path on either side of the banks and no access to the water's edge is available.



(e) The walkway with pedestrian bridge. Most of the buildings on this side are all arranged perpendicular to the river – left bank



(f) The confluence of Gombak and Batu rivers



(g) Walkway below the LRT viaduct next to Bistari Condominium – right bank



(h) Walkway next to the PWTC Hall 2 (backing the river) – left bank

Zone 2

Crossing Putra Road from Zone 1b to the south will bring one to the Tiong Nam settlement in Zone 2. The area, which used to be a coffee plantation in the 1880s (Khoo, 1986, p.5), was later turned into a housing area in the 1960s due to the increased population in the city centre. The pedestrian path that continues in this area is only cement rendered. There is a direct underpass below the Putra Road that connects Zone 1b to Zone 2, however, the area is very quiet without any other activities. The PWTC LRT station is constructed above the river (refer C9 in Chapter 5), which makes the area at the river below the LRT station isolated (i).

The pedestrian path continues to the end of the settlement and stops below the elevated bypass where the Sultan Ismail Road to Jalan Kuching is situated. The buildings here are either backing onto or arranged perpendicular (rows of houses) to the river with a blank wall facing the river. There is an open space between the houses and the river, however, no seating or trees are available in the area (k). On the opposite bank, all the buildings are high-rise, walled and back onto the river (k). The pedestrian path is not even paved or cemented with only a small earthen track provided, however, there are many trees along the way that provide shade (l). There is only one direct access to the water's edge, however, it is quite hidden between the columns of the LRT station, which are positioned in the river channel.



(i) PWTC LRT Station built directly above the river



(j) Untreated walkway behind the buildings which have boundary walls and back onto the river – left bank



(l) Open space between the houses and the river – but no seating or trees are available in the area – right bank



(k) The hotel and shopping complex at the waterfront has its service area facing the river at the ground floor – left bank

Zones 3a, b & c – Jalan Raja Laut

Zone 3a: Across the Sultan Ismail Road to Jalan Kuching bypass to the south brings one to Raja Laut Road on the right side of the river bank. Opened in the 1970s to allow for the city's expansion, it provides larger plots for bigger buildings to be built. The road is lined with commercial shopping and office buildings – many of which are high-rise buildings. It is also one of the busiest roads in the city centre. The pedestrian path along the river does not continue from the previous zone. There are buildings abutting the river, which do not allow for the pedestrian path to continue along the river. The well paved pedestrian path only starts after the Chinese School (Refer C2 in Chapter 5) (m), which connects it to the Sultan Ismail LRT station and continues along the river to the KLCH building to the south. Although there is no seating available along the pathway, there is a covered walkway from the Chinese School to the Quality Hotel.

Zone 3b: Some parts of the Raja Laut Road are lined with big shady trees, however, the river walk is not. This area is very busy during weekdays with pedestrians arriving and departing from the Bandaraya LRT Station (n). The buildings along the pathway all back onto the river with a street or back lanes in between (refer C1 in Chapter 5). Only the Bandaraya LRT station, which was constructed at the same level as the elevated viaduct, faces the river (refer C8 in Chapter 5). On the left bank there is no pedestrian path. The Kuching Highway runs through the river reserve. There is one bridge that connects the right and left banks along this zone, however, it is only busy during working days. There are a few hawkers selling food on the bridge in the morning on weekdays but none during weekends. Only one direct access to the water's edge is available in this area, however, the access is from the Kuching highway where no pedestrian activity is concentrated.

Zone 3c: In this zone, the KLCH and PKNS buildings also back onto the walkway and the river (o). At the end of the walkway is a plaza. Although this plaza provides seating, the seating is rather isolated from the pedestrian path and is situated in a dead end (p). The pathway is also aligned with the LRT tracks, which have columns in the river channel. Next to the plaza is the busy Tun Perak Road. One has to cross the road at the traffic lights to get to the other side where the Periuk Kera Plaza and the d'tebing food court are located.



(m) Walkway next to the road is lined with commercial and high-rise buildings – Zone 3a right bank



(n) The Bandaraya LRT Station – Zone 3b right bank. The walkway is also next to the busy Raja Laut Road and lined with high-rise buildings



(o) Walkway next to the river behind the PKNS and KLCH aligned with congested parking for cars. Zone 3c – right bank



(p) The plaza towards the end of the walkway. The seating provided is isolated at the lower part of the plaza facing the river (as indicated by the arrow) – Zone 3c right bank

Zones 4a and 4b

Zone 4a – left bank: This is one of the earliest areas of Kuala Lumpur where most of the historical public buildings are situated. The pedestrian walk did not continue directly to this place from the plaza next to the KLCH. The link is broken by the Tun Perak Road and Raja Road. It starts again at Mahkamah Road. The well paved pedestrian path with a concrete railing is aligned along the river and ends at Market Street. The pathway is lined with big shady trees and a narrow road that has side parking lots (q). The Sultan Abdul Samad building is currently under refurbishment and the Trading Court is only open during weekdays. During weekends there is no other activity along this road except once in a while you can see one or two people crossing.

Zone 4b – left bank: Crossing Market Street the pedestrian path continues along the river next to the Agro Bank and Daya Bumi Building (r). The pathway ends at Tun Tan Cheng Lock Road with concrete railings along the way. Here, big shady trees continue along the pedestrian pathway. No seating is provided within these zones. The elevation of the Agro Bank, which faces the river, is a blank wall and continues with the parking area at the ground floor of the Daya Bumi building and the post office building. Daya Bumi has its entrance on the first floor, therefore, there is an elevated road going to the first floor. There are also some commercial buildings and food stores next to the parking, however, they are only open during office hours. The pedestrian path gets very quiet during weekends. This part of Zone 4b downwards is omitted from the activity investigation research for safety reasons. The area is isolated underneath the elevated road (s). The Railway Station is situated across Tun Tan Cheng Lock Road. However, this area is quite isolated from the business of the old town centre. There is a pedestrian bridge that connects the left bank of the Klang River to Pasar Seni LRT Station on the right bank.

Zone 4b – right bank:

The Pasar Seni Station, which is situated at the same height as the viaduct at the edge of the river (t). This creates a shaded plaza underneath the elevated station. This plaza also acts as an intersection between the LRT station and the city buses. Unfortunately, no seating is provided. People stand while waiting for the buses and some sit at the edge of the limited planter boxes and steps. Hedges are planted along the edge of the river obstructing a direct view to river. The place is busy with people getting on and off the public transportation on both weekdays and weekends. The plaza continues to the edge of Tun Tan Cheng Lock Road where the plaza ends.



(q) The waterfront at Sultan Abdul Samad building is lined with big trees and parking – Zone 4a left bank



(r) Walkway along Daya Bumi – Zone 4b left bank



(s) Underneath the elevated road entrance – left bank



(t) LRT Pasar Seni Station and the plaza below it-right bank

The place is a vibrant place in the day and night but it is not advisable to stay beyond 11pm after the LRT station closes. This is because, according to the local people, there are many homeless people and drug addicts that use the plaza for sleeping. A lot of graffiti is found in this area compared to other places.

Going northwards along the right bank, one has to cross over the busy road to get to the pedestrian pathway along the Central Market waterfront. Here, at the plaza, there are hawkers selling food, fruits and drinks everyday. There are people living at the first floor level of the 'shophouses' along Kasturi Road (u). The Central Market area is totally blocked visually from the river by the LRT tracks that descend from the viaduct into the tunnel system between the building and the river. The narrow pedestrian path along the waterfront is also isolated from the vibrant activity of the Central Market by the 'big wall' of the tunnel. There is a pathway ascending above the tunnel, which ends at a 'viewing point' (v). However, one cannot see much from the viewing point because it is protected with a high wired wall to prevent people from falling on to the LRT track below. There is no activity along the route going up to the viewing point. Below the viaduct, isolated from the vibrant activity of people at the Central Market, the place becomes a 'sanctuary' for the homeless to sleep.

Zone 4a – right bank:

This area is the original landing place when Kuala Lumpur was founded. The pedestrian pathway starts at the Market Street and ends at Tun Perak Road. The well paved pedestrian path was originally the back lanes for the old 'shophouses' (w). These 'shophouses', face the Old Market Square and back onto the river. Without any activity facing the pathway, it becomes very quiet on weekends. On weekdays there are a quite a lot of people passing by.

Walking northwards one will reach the embankment. It is an intersection between the Old Market Square (currently occupied by the city bus stop) and the Masjid Jamek LRT Station. This place is a busy place both on weekdays and weekends with hawkers and passers by (x). The HSBC building is located here as well as the Burger King building, which has its side facing the river. This is also one of the favourite spots for tourists, as they have a direct view of the historical Masjid Jamek (Zone 4GM), which is sited at the confluence of the two rivers (y). There is also a



(u) Busy activity at Central Market fronting the Hang Kasturi Road – right bank



(v) Pedestrian walk behind central market (above the tunnel with a dead end) – right bank



(w) Backlanes behind the old shophouses – Zone 4a right bank



(x) The busy intersection next to Masjid Jamek LRT Station and the river – 4a right bank

direct access, which allows people to go to the edge of the water, however, it is rarely used by the public. Because of safety reasons, it was suggested that this access should be avoided. The embankment – a paved open space – is planted with a few small trees and palm trees. Unfortunately, there is no seating available in this area.



(y) The confluence of Gombak and Klang River – Zone 4a (GM)

Zone 5

This area was omitted from both the physical and activity research due to it being visually cut off from the city centre by the elevated Kinabalu Highway, and because the waterfront in this area has a concentration of drug addicts. Consequently, it was suggested that the area be avoided. The 50m boundary of the waterfront corridor is occupied by the Federal Highway on the right bank; the buildings on the left bank are beyond the demarcated scope of study (z).



(z) The Federal Highway within the 50m boundary of the waterfront

Zones 6a and 6b

Zone 6a – left bank: Across Tun Perak Road, is the original place for the Malay Quarter. This place is quite narrow and organic in shape. It has one of the busiest concentrations of people in the city – some call it the heart of the old town. The new Putra LRT Station also sits across the river in this area. This is a commercial and residential area, which has a variety of things being sold and various street activities happening. Small kiosks, shops and shopping complexes are concentrated in this area. Unfortunately, the kiosks that line the waterfront all back onto the river and there is no pedestrian pathway along the river that allows people to have a direct view of the river (a-i). The shops that used to be facing the river are now blocked by the kiosks. Some buildings that sit at the edge of the river in this zone are abutting and back onto the river (b-i). There is no direct access to the water's edge from this side of the bank. There is also no seating provided along the waterfront, however, there is one planter box at the edge of the river between the kiosk, which is a 'favourite' sitting place for people.

Zone 6a – right bank: Malacca Street, on the right bank of the Klang River, is currently lined with a few high-rise buildings. Originally, the location of these high-rise buildings was where Johor Road used to be. The road was



(a-i) Kiosks along the waterfront – Zone 6a left bank



(b-i) Most of the buildings here are abutting and backing onto the river. The ones facing the river have narrow roads with parking spaces by the side – 6a left bank

closed in the 1960s to create some space for expansion. The buildings are built within the narrow lots and back onto the river with private back lanes for services. No pedestrian paths are available along the river. There is one direct access that allows the public to go to the water's edge, however, it is 'hidden' behind one of the high-rise buildings. Some of the spaces behind the buildings are used as parking spaces. Malacca Street continues into Church Street (c-i), which is connected to Bunos Street on the left bank through a pedestrian bridge. Some residential high-rise buildings are located in this area. The left bank is bustling with activities day and night because there are several restaurants that are open twenty-four hours. This place is dominated by the Indian community. Both banks have a well paved pedestrian walkway along the river, which ends at Munshi Abdullah Road; there is no seating.

Zone 6b – left and right bank:

The old buildings along Church Street on the right bank are facing the river with street/roads in between. Church Street continues into Lebu Ampang. However, the shophots on the right bank along Lebu Ampang back onto the river with a back lane between. The back lane is not in use, the condition is dilapidated (d-i). Across Mushi Abdullah Road is located the newly completed Capsquare – a mixed development on the left bank of the river. The development has its services area facing the river and a well-landscaped car park area on top of the river (e-i). There is no continuity of pedestrian pathway along this development. There is only a service road with a three-foot high wall along the river to the edge of Raja Abdullah Road.



(c-i) Church Street in Zone 6a right bank



(d-i) Building backing the river in Zone 6b along Lebu Ampang – right bank



(e-i) The newly completed Capsquare building backs onto the river – Zone 6b left bank

Zone 7

Across Raja Abdullah Road is the Dang Wangi area. There is no continuity with the waterfront from the previous zone. The buildings along the river in this area all back onto the river (f-i). On the left bank sits old houses, some of which have incorporated food stalls. These two-storey houses all have their backyards between the building and the river without any provision for a pedestrian path along the river. The river is totally invisible from Raja Abdullah Road. The left bank is connected to the right bank by a pedestrian bridge



(f-i) Houses along the river – Zone 7 left bank

crossing the Klang River, which connects it to the Dang Wangi LRT Station. This station has its back to the river, which comprises the services area cum parking area (g-i). Next to the station is the Shahzan high-rise building, which also has its ground floor backing onto the river. No other activity is available along the waterfront, which makes the area very quiet during the weekends. Towards the end of the zone is the point of entry for the Ampang Kuala Lumpur elevated highway (AKLEH) (h-i).



(g-i) The back of Dang Wangi Station facing the river – Zone 7 right bank

Zones 8a, 8b, 8c

This zone is occupied by Yap Kwan Seng Road on the right bank and the Kampung Baru on the left bank of the Klang River. This zone was omitted from both the physical and activity research due to the AKLEH, which sandwiches the river (i-i). This solution to the highway totally blocks the visual and physical integration with the river. The river used to be a very important recreational place for the people of Kampung Baru.



(h-i) Elevated highway on top of the river – Zone 8b & 8c



(i-i) River (shown by arrow) sandwiched between the highways – Zone 8a

CHECKLIST OF FIELD SURVEY (BUILDING)

Building Name:

Code:

Date:

Zone:

Road:

Year built:

	Principles/ Attributes	Parameters			
	GOOD FORM				Remarks
1	Building/ development address water	Fronting	single double		
		Parallel			
		Backing			
2	Enclosure	Building height/ stories			
		Width from river edge			
		Block			
		Terrace			
	VITALITY				
3	Diversity of use	Mix use		Ground floor	
				Upper floor	
		Single use			
4	Section through building and river				
*					

* Please refer to reference note

CHECKLIST OF FIELD SURVEY (EACH BANK IN EVERY ZONE)

Zone:

Bank:

Right

Left

Other

Date:

	Principles/ Attributes	Parameters		
	GOOD FORM			Remarks
5	Physical Character of water body	River edge treatment	Natural	
			Natural + Concrete	
			Concrete	
		Water quality	Clean & clear	
			Murky	
			Murky + rubbish floating	

	LEGIBILITY			
6	Direct Access	3 or more access		
*		2 access		
		1 or no access		

7	Link to the city	3 or more access		
*		2 access		
		1 or no access		

8	Pedestrian walkway along waterfront	Continuous		
*		Obstacle		
		Blocked		

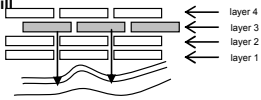
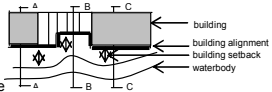

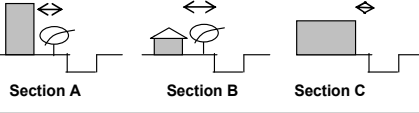

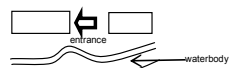

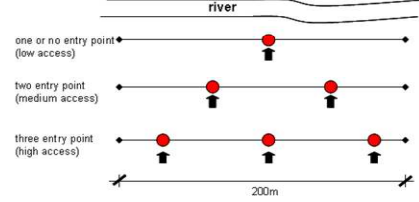
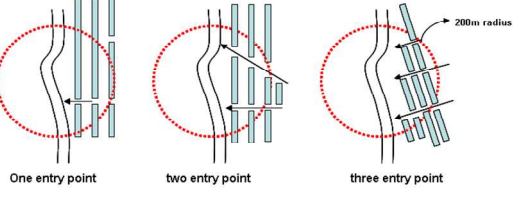

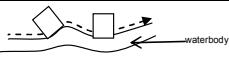
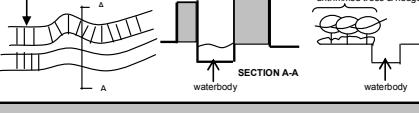
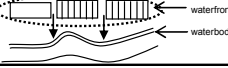
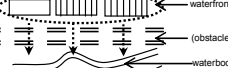
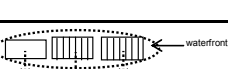
9	Visual Access	direct (can see waterbody, no railing, iron railing)		
*		obstacle (e.g concrete railing, high hedges, high planter box)		
		blocked (e.g walled, private property, gated area)		

	COMFORT			
10	Seating	Primary (e.g benches, stools)		
		Secondary (e.g planter box, bollard, terrace)		
		None		

11	Shade	Trees		
		Covered walkway		
		None		








































12	Lighting	Both at building & river edge		
		Building only		
		None		

* Please refer to reference note

* REFERENCE NOTE	
4 CRITERIA FOR CHOICE OF BUILDING/ SECTION	
i	<p>As & when the waterbody is still visually visible (within 50m)</p> 
ii	<p>Done at buildings with significant change in setback or alignment with the river</p> 
iii	<p>and buildings with significant difference in height & form</p> 
iii	<p>Section: to include building & waterbody</p> 
1 Address water	
	<p>direct (entrance from/ facing water edge)</p> 
	<p>Parallel (entrance parrallel to waterbody)</p> 
	<p>Backing (back of the house facing waterbody)</p> 
6 Direct access to water body	
	
7 Link to the city	
	
8 Pedestrian linkage along river	
	<p>continuous (continuous connection from one activity to the other through pedestrian walk, cycling track, bridges to connect both banks)</p> 
	<p>obstacle (e.g broken linkage by private property, building abutting the river)</p> 
	<p>none (continuous development at the edge of the river)</p> 
9 Visual Accesibility	
	<p>direct (can see waterbody, no railing, iron railing)</p> 
	<p>obstacle (e.g concrete railing , high hedges, high planter box)</p> 
	<p>blocked (e.g walled, private property, gated area)</p> 

UNIVERSAL DESIGN ENVIRONMENT CHECKLIST

Zone: 1A

	High	Symbol	L	R	Medium	Symbol	L	R	Low	Symbol	L	R
1 Dangerous corners												
Threatening fringe area: potential ambush	not isolated		1	1	partially isolated				isolated from main pedestrian			
2 Lack of safety barrier at dangerous edge	have safety barrier		1	1	halfway provided				no safety barrier			
3 Ramp too steep	gradient 1:12		1	1	1:10<=1:12				less than 1:10			
4 Adverse slope	gradient 1:12		1	1	1:10<=1:12				less than 1:10			
5 Uneven surface (footway)	smooth		1	1	medium course				course			
6 Slippery surface (footway)	not slippery		1	1	slippery (wet)				slippery material (all weather)			
7 Steps barrier: no alternative change of level (ramp and lifts)	> than 1 alternative (ramp and lifts)		1		1 alternative (ramp)				no alternative			1
8 Kerb barrier	have ramp at kerb				untreated ramp				no ramp at kerb		1	1
9 Threshold barrier	no barrier		1	1	possible but with obstacle				cannot be use by wheelchair - e.g. broken tiles at pathway			
10 Narrow footway/ passage	>915mm		1	1	815mm<=915mm				<815mm			
Obstructed footway :												
11 Street furniture causing obstruction	none		1	1	temporary				permanent			
12 Landscape causing obstruction	none		1	1	temporary				permanent			
13 Eye level hazard	none		1	1	temporary				permanent			

Zone: 4a-right bank		Date: 04/07/08 (Friday)			
Road: Jalan Benteng		Time: 7:00am-8.30pm			
Describe setting:					
1	Pavement area. Under the Masjid Jamek Station. This is the interchange between the two LRT lines. Just next to the Klang river. Landscape green at one corner. Palm trees (4) in the middle of the square.				
2	Pavement area in front of HSBC facing Masjid Jamek. 6 palm trees and 6 palm trees next to railing (iron).				
Physical traces: What caused it? What the person who created the trace intended? What sequence of events led up to the trace?					
3	Pavement dirty – food selling area				
4	Small rubbish – plastic bags remains				
Time & activity (e.g (having lunch, provide path to and fro work, place to pause) Does it integrate with the river & why?					
Time	Description of situation	Who	Doing what	Number of ppl / with whom	In what context
Dawn (6am-7am)					
7:00am		vendor	Starts getting ready		
Morning (7am-9am)					
7.30am		Mix man and women. >100.	Crossing from LRT Masjid Jamek to Putra LRT	On their own	Under the walkway. Every time the interval of the train
		1 man	Passing handouts	2 person	At the corridor/pathway
		17 stalls/vendors. Mix of Chinese and malay vendors	Selling		In the middle of the plaza. Selling kuih, putu mayam. Drinks/soya. Breakfast i.e nasi lemak. Taufu fa & etc
			Another 2 vans of vendors. Park at the side to bring down their food.		
		Mix man and women > 50	Buying food		In the middle of the plaza
8.00am		1 man/KLCH maintenance staff	Start to arrive to sweep	Alone	At the plaza
		Man	Sitting at planter box, watching others	Alone	At the side of the river
		Mix man and women >100	At the entrance to LRT Putra		

03 SEPT 2008

Malaysia Land Properties Sdn Bhd
31st Floor Menara May,
MayTower, No.7,
Jln Munshi Abdullah 50100 KL
(Attn: Mr.Chow)
Tel:03-26929663
Fax:03-26928587

Dear Sir,

Application for a discussion session on design and planning of buildings in Kuala Lumpur (Regalia Development)

My name is Nurul Syala bt Abdul Latip. I'm writing in request for a discussion session with your good self on the Regalia Project of your development for the purpose of PhD research studies.

The focus of study is on the design and planning of buildings in Kuala Lumpur. The study traces the earlier developments in Kuala Lumpur until the present developments. I am very interested to learn from a developer's point of view on the factors considered for design and planning for this project. I wonder if you would be able to spare some time of 45minutes to 1 hour session to share you experience and insight on this topic. The discussion is purely for academic purposes. If it is possible, it would be very much appreciated if an appointment can be arranged at any time and date of your convenience.

Your assistance on this matter is highly appreciated. Thank you.

Sincerely

NURUL SYALA BINTI ABDUL LATIP

Tel: 019-6659225

Fax: 03-61964864

Email: laxnsa@nottingham.ac.uk

INTERVIEW QUESTIONS: AUTHORITY

Note: This exercise aims to:

i) Establish the key reasons for the existence of factors that affect the non- contextual integration between the waterfront and the urban river

Notes: The questions are only guides during the interview. The flow of the interview depends much on the on flow of the conversation

INTRODUCTION

i) Would you please describe your role in this dept?

ii) Opinion on the importance of the two main rivers (Klang and Gombak River) to the development of Kuala Lumpur City

Probe:

- *Is the existence of the natural water body in a city development is still relevant?*
- *Do you think the river is considered as a constraint or advantage to the contemporary development?*

CONSIDERATIONS IN DEVELOPMENT AND IMPLEMENTATION

iii) What are the major considerations taken in evaluating/ approving application of projects next to the river or within the waterfront area?

Probe

- *Is there any difference with other projects which are not at the waterfront?*
- *Any checklist?*

iv) Which act, guideline or policy is used by this dept in regards the riverfront development?

Probe

- *How is it being implemented/ enforced?*
- *Since when it was enforced?*
- *Is there any challenges faced in enforcing certain act or guideline?*
- *If yes? What are those?*

v) Their opinion about the contextual integration of the waterfront project with the water (relate to the physical and functional observation)

Probe:

- *Do you think contextual integration of the waterfront development with the river is important?*
- *If yes. Why? If not. Why not?*
- *What are the factors considered? Why?*
- *What are the factors not considered? Why?*

vi) The main challenges to integrate the waterfront with the river in the context of Kuala Lumpur city centre?

INTERVIEW QUESTIONS: ARCHITECT

Note: This exercise aims to:

i) Establish the key reasons for the existence of factors that affect the non- contextual integration between the waterfront and the urban river

The questions are only guides during the interview. The flow of the interview depends much on the on flow of the conversation

INTRODUCTION

i) When was the building built? How was the surrounding context then?

Probe:

- *Any building around?*
- *How is the condition of the river?*

CONSIDERATIONS IN DEVELOPMENT AND IMPLEMENTATION

ii) What were the considerations taken in the planning and design of the building in terms of its context?

Probe:

- *How are these factors being address in the planning and design?*
- *Is the river part of their consideration?*

iii) Their opinion about the contextual integration of the waterfront project with the water (relate to the physical and functional observation)

Probe:

- *What are the factors considered? Why?*
- *What are the factors not considered? Why?*

iv) Difference in design & planning of building next to the river?

Probe:

- *What are the differences?*
- *What are the challenges building at the waterfront?*
- *Do you think the river is considered as a constraint or advantage to the contemporary development? Why?*

v) What were the main criteria impose by the authority in regards to the contextual consideration that you have to abide to in getting approval for the development application?

Probe:

- *What are the criteria?*
- *Are there any challenges in following the guidelines from the authority? If yes, what is it?*

GENERAL

vi) Which acts or guidelines in regards to waterfront development that are referred to during the planning and design of this development?

Probe:

- *If yes? What are those?*
- *How do you know about it?*
- *Do you implement it in the project?*

vii) Opinion on the importance of the rivers towards their project?

INTERVIEW QUESTIONS: DEVELOPER

Note: This exercise aims to:

i) Establish the key reasons for the existence of factors that affect the non- contextual integration between the waterfront and the urban river

The questions are only guides during the interview. The flow of the interview depends much on the on flow of the conversation

INTRODUCTION

i) Their role in design and planning of their waterfront project

Probe:

- *What is their role?*
- *Who are involved?*

CONSIDERATIONS ON THE CONTEXTUAL INTEGRATION BETWEEN THE WATERFRONT AND THE URBAN RIVER IN DEVELOPMENT

ii) Factors of consideration in design and planning of their waterfront project

Probe:

- *What are their priorities/ main concerns? Why?*

iii) Their opinion about the contextual integration of the waterfront project with the river (relate to the physical and functional observation)

Probe:

- *What are the factors considered? Why?*
- *What are the factors not considered? Why?*
- *Do you think the river is considered as a constraint or advantage to the contemporary development?*

iv) The authority's concern in the approval and implementation of their development plan in regards to contextual integration with the water bodies

Probe:

- *Is there any concern in relation to the contextual integration with the water bodies imposed?*
- *If yes, what are the concerns?*

GENERAL

v) Which acts or guidelines in regards to waterfront development that are referred to during the planning and design of this development?

Probe:

- *If yes? What are those?*
- *How do you know about it?*
- *Do you implement it in the project?*

vi) Opinion on the importance of the rivers towards their project?

CODING FOR INTERVIEWED DECISION MAKERS

Code	Group	Years of experience	Qualification
AR1	Architect	38 years	Degree
AR2	Architect	37 years	Degree
AR3	Architect	24 years	Degree
AR4	Architect	28 years	Degree
AR5	Architect	25 years	Degree
DV1	Developer/ engineer	15 years	Degree
DV2	Developer	25 years	Degree
DV3	Developer	24 years	Degree
DV4	Developer/ QS	29 years	Degree
DV5	Developer	19 years	Degree
LA1	Local Authority	35 years	Master
LA2	Local Authority	32 years	Degree
LA3	Local Authority	25 years	Master
LA4	Local Authority	27 years	Master
LA5	Local Authority	32 years	Master
LA6	Local Authority	17 years	Degree
LA7	Local Authority	26 years	Degree
LA8	Local Authority	24 years	Degree
LA9	Local Authority	16 years	Degree
LA10	Local Authority	28 years	Master
LA11	Local Authority	30 years	Master
LA12	Local Authority	31 years	Degree
LA13	Local Authority	32 years	Master
LA14	Local Authority	15 years	Degree
OA1	Other Govern Agency/	35 years	PhD
OA2	Other Govern Agency	32 years	Master
OA3	Other Govern Agency/ Engineer	25 years	Master
OA4	Other Govern Agency/ Engineer	28 years	Master
OA5	Other Govern Agency/ Transport planner	18 years	Master
OA7	Other Govern Agency	30 years	Master
OA8	Other Govern Agency	25 years	Master
OA9	Other Govern Agency	28 years	Degree

INTERVIEW QUESTIONS: FOCUS GROUPS

Note: This exercise aims to:

- i) Understand the 'meaning' (use, awareness and association) of the waterfront and the river to the user through 'good form', 'legibility', 'vitality', 'comfort'
- ii) To identify the factors which makes them stay or stay away from the waterfront and the urban river and find the reason why

Three main topics of discussion are given for the group to discuss. Probing techniques were use when necessary.

Topics:

INTRODUCTION

- i) Do you like to come to the waterfront? Why?

MEANING OF THE WATERFRONT AND THE RIVER THROUGH LEGIBILITY

- ii) Do you find it easy to get to the waterfront and the river? Why?

Probe:

- i) Legibility (Direct access, link waterfront to the city, visual access, continuous pedestrian linkage along the waterfront)

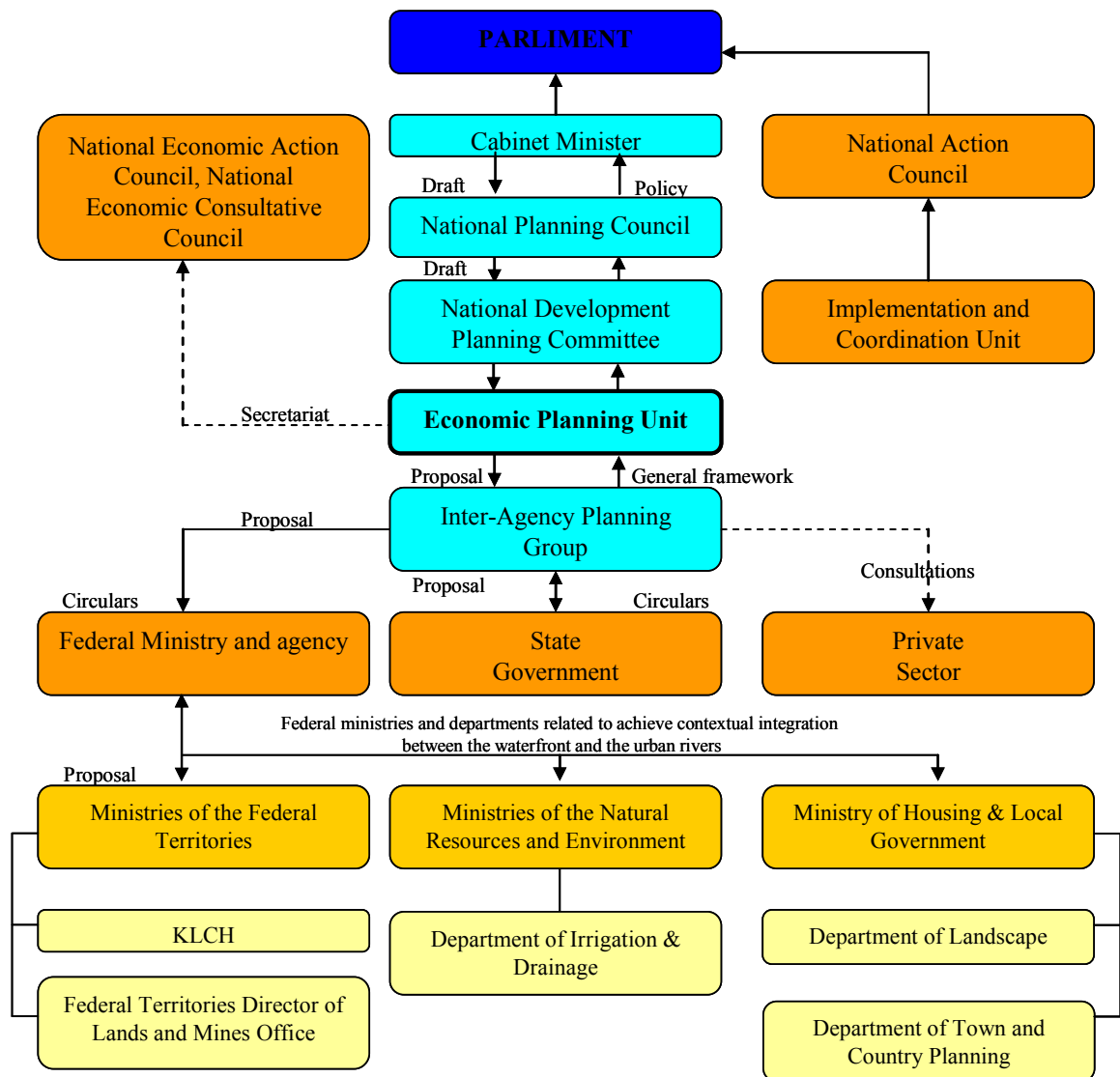
MEANING OF THE WATERFRONT AND THE RIVER THROUGH GOOD FORM, COMFORT AND VITALITY

- ii) Do you like to stay long at the waterfront and the river? Why?

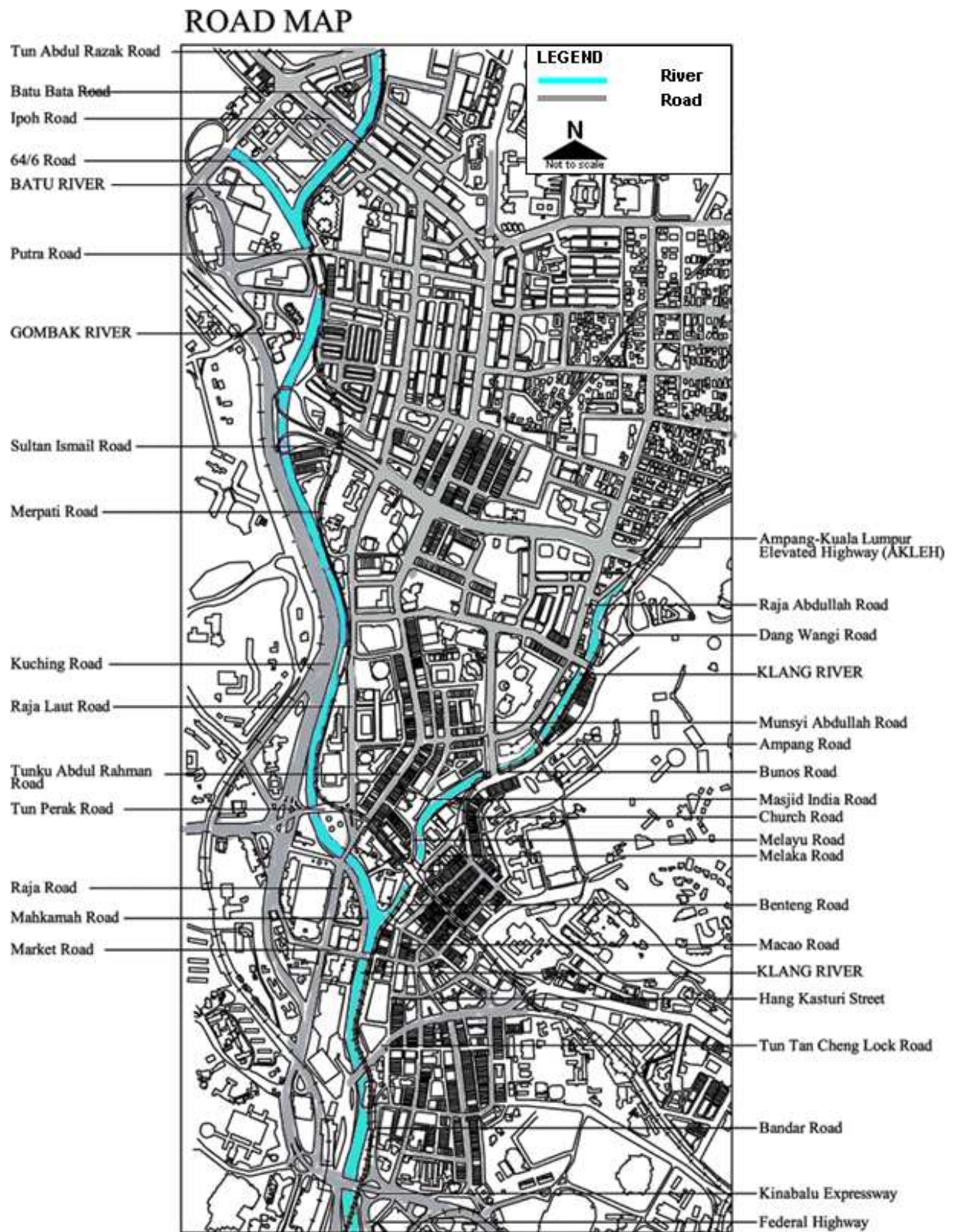
Probe:

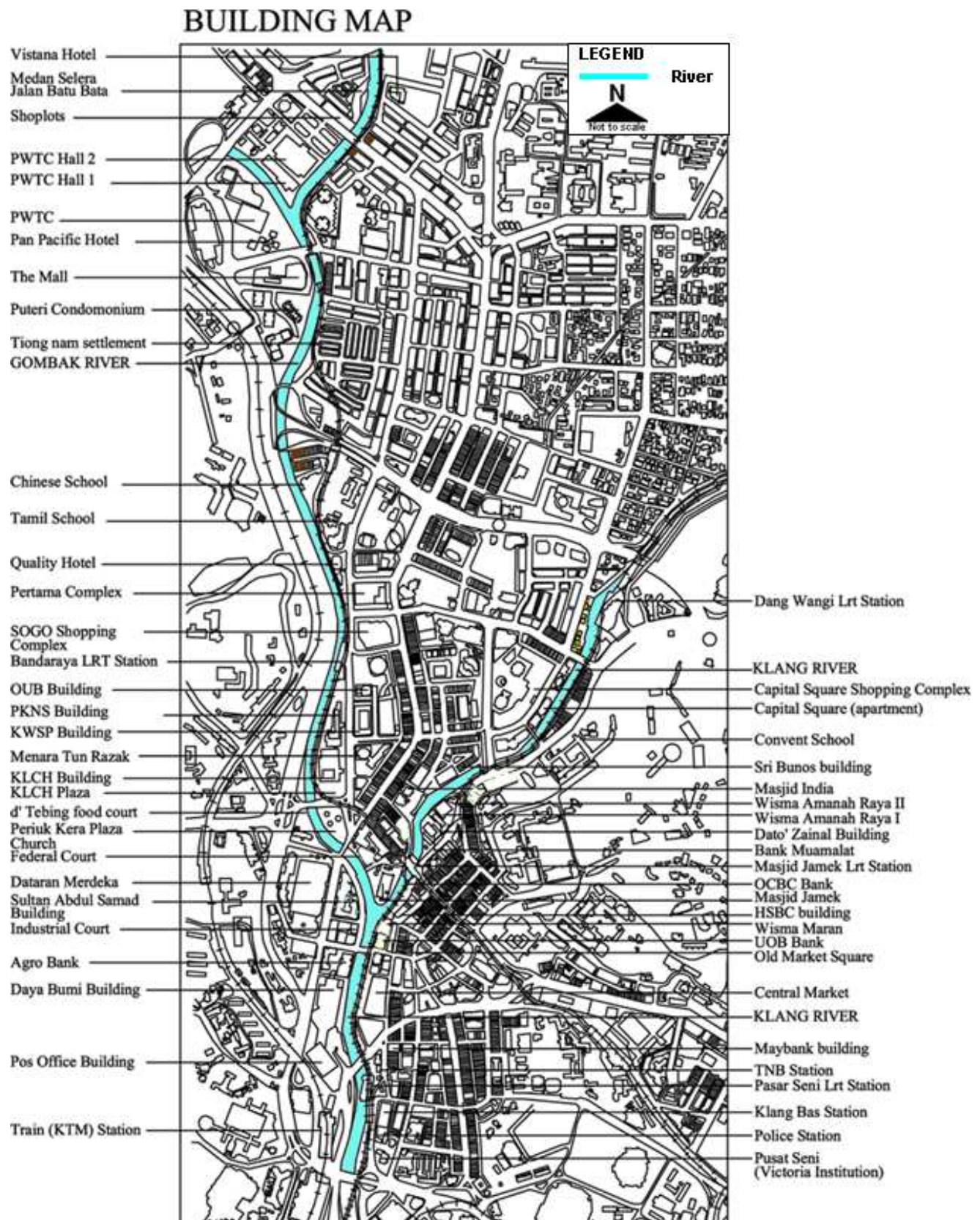
- i) Good Form (Physical character of water: edge treatment and water quality; development oriented towards water; building enclosure)
- ii) Comfort (Seating, shade, lighting and universal design)
- iii) Vitality (Diversity of use, continuous activities along the waterfront)

DEVELOPMENT PLANNING PROCESS IN MALAYSIA



Source: <http://www.malaysia.gov.my>





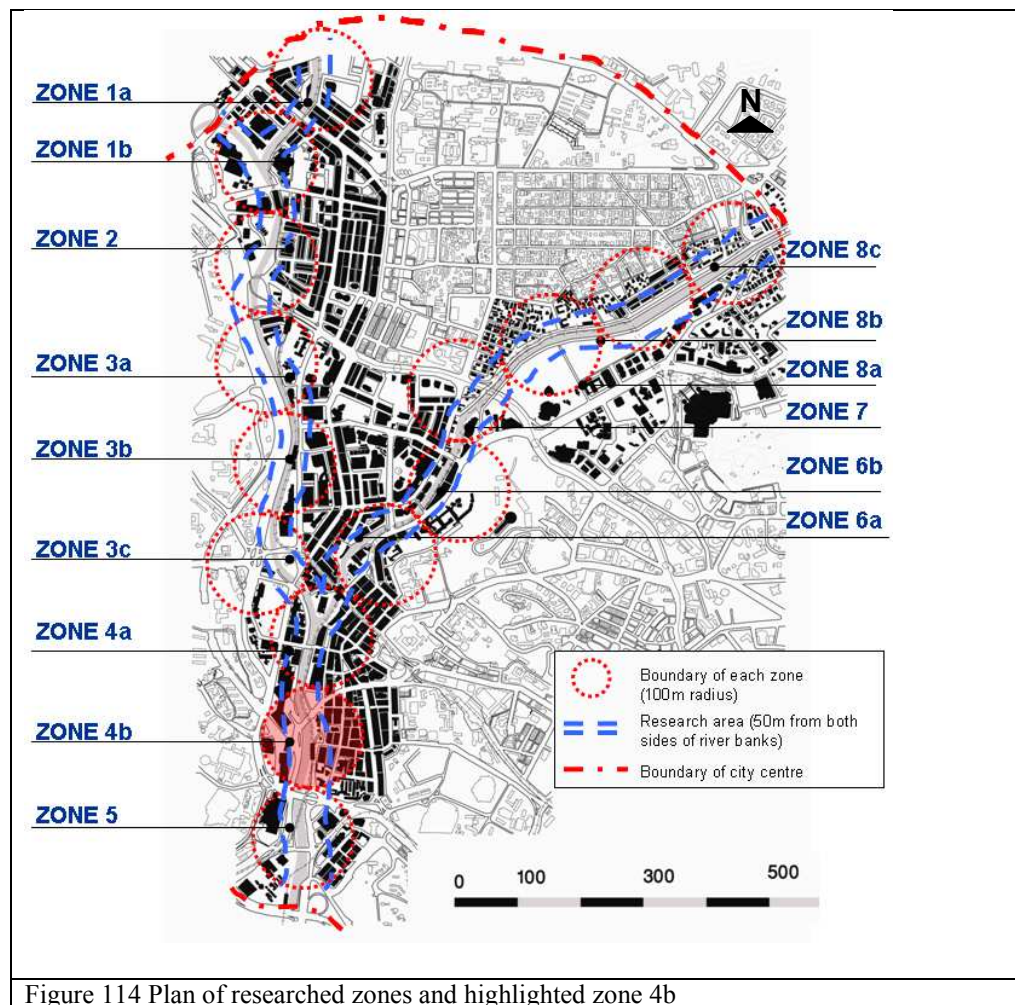
CONTEXTUAL INTEGRATION EVALUATION BASED ON THE PHYSICAL AND FUNCTIONAL DIMENSIONS AT ZONE 4B

1.0 Introduction

In this research, the evaluation of contextual integration between the waterfront development and the two urban rivers (Klang and Gombak) of Kuala Lumpur city centre was done based on the integrative theory of urban design, which promotes relationships across property boundaries. The scope of contextual integration in this research pertains to the physical and functional dimensions. The main content of the thesis (Chapters 6 and 7) discussed and evaluated in detail these two dimensions for the whole 9km stretch of the Kuala Lumpur waterfront. However, this Appendix (18) will demonstrate the evaluation of both the physical and functional dimensions in one particular zone – Zone 4b (Figure 114). Zone 4b is chosen because it is one of the most vibrant areas in the city centre (Architect's interview, AR1). This evaluation has two main objectives:

to demonstrate the relationship between the physical and functional dimensions of contextual integration

to identify the factors that affect the level of contextual integration in this zone



2.0 Description of Zone

Zone 4b-right bank is one of the most vibrant areas and is located in the historical part of the city centre (Figure 115). Zone 4b-left bank is not discussed here because it was not included in the activity observation due to safety reasons (refer p.98-99). Aligning the river from north to south of this zone are the Central Market building (CM)(b) and its parking area (a) that front a stretch of traditional shophouses along Kasturi Road (c). Most of these shop houses have people living on the upper floor.



However between Central Market and the river is the point where the elevated viaduct of the LRT descends into the tunnel, which created a long and high wall (about two storeys high) (d). A narrow

pedestrian path is provided between the wall and the river (f). Above the tunnel, an ascending pathway is provided. It ends at a 'viewing point', which is protected with a high wired fence to prevent people from falling on to the LRT track below. Below the viaduct, isolated from the vibrant activity of people at the Central Market, the place becomes a 'sanctuary' for the homeless to sleep. Further south, one has to cross the busy Tun Tan Cheng Lock Road (one of the main roads entering the city centre) to get to a plaza (e) and the Pasar Seni LRT Station (h). The station is elevated at the same level as the viaduct at the very edge of the riverbank. This has resulted in part of the plaza being shaded, however, there is no seating provided here. People stand while waiting for the buses and some sit on the edge of the limited planter boxes and steps. Hedges are planted along the edge of the river. The plaza also acts as an intersection between the LRT station and the city buses (g). The place is busy with people getting on and off the public transportation on both weekdays and weekends. Aligning the plaza on its west is an electrical sub-station 1(e) that backs on to the plaza and the river.

Opposite the plaza and across the road is a stretch of traditional shophouses (g). However, some of these shop houses have been demolished and replaced with new multi-storey buildings. There are people living on the upper floor of most of these shop houses. This plaza is a vibrant place in the day and night but it is not advisable to stay beyond 11pm after the LRT station closes. This is because, according to the local people, there are many homeless people and drug addicts that use the plaza for sleeping. A lot of graffiti is found in this area compared to other places.

Southwards, next to the plaza, is situated the public toilet (i). It is built close to the edge of the riverbank and another electrical sub-station 2 is located next to it, which also backs onto the river. Isolated between the sub-station and the river is a small pocket space that is located away from the public eye. Opposite the toilet and across the road are the Klang Bus station (i), the Central Police Station (l) and the Cultural Centre (k). Zone 4b ends at the border of the Cultural Centre where the Kinabalu highway crosses the Klang River thereby demarcating the edge of the historical area of the city centre.

3.0 The working definition

In order to decide on the working definition for the urban waterfront and the area of research for fieldwork, several definitions were compared and analysed. A detailed argument for each of the definitions was elaborated upon in Section 2.1 (Chapter 2, p.16-18). The available definitions can be summarised and categorised into several groups:

i) General or broad definition:

- a) part of town adjoining the water body (Oxford Dictionary, 1997)
- b) most places where settlements and water are juxtaposed (Hoyle, 1994, p.19)

ii) Definition based on function of waterfront:

- a) port areas, small resort town with busy harbours, commercial fishing towns (Glazer and Delaporte, 1980, p.9) or communities located on bays and channels

iii) Any part of the city that is visually or historically linked to the water (Breen and Rigby, p.10). This definition is argued by Cau (1999, p.44) as being not applicable to cities that rise sharply from the water, such as Genoa where more than fifty percent of the city has a view of the sea.

iv) Specific definition:

- a) 50m corridor (based on the floodline) or within two buildings lots along the river (DID, 2003)
- b) 1000 feet off the shoreline of an actively used general cargo terminal (Kenyon, 1968, p.156), which focuses on the size and length of the working port and is specific to working port cities. This definition is argued by Hoyle (1994, p.19) who stressed that urban waterfronts are not confined to port cities.

Based on the categories above, the definition given by the DID (2003) is the most suitable to be employed as the working definition because of the dense development of the city centre and development in Kuala Lumpur, which is built very close to the river edge. The floodline is a very important factor to be considered in this context because it can affect the way the development is being done in response to the flood. The definition based on the function of the waterfront cannot be used because the waterfront in Kuala Lumpur does not have a specific function such as a resort town or port. Similarly, the definition that focuses on the historical link to the water is rather broad because, for example, the current DID office, which is in charge and has a very strong historical link to the water, is located very far from the riverside. However, visual links to the waterfront may still be considered because, within the 50m corridor or two lots in Kuala Lumpur, one may still view the river if not its edge.

Because this research focused on the contextual integration of the waterfront and the urban river, the most crucial part is where the waterfront meets the water, which is within the 50m or the two lots. This is because sometimes, such as during the rainy season, the water may reach up to this level. However, although the 50m corridor was the area focused upon, the relationship of the urban river to the inner part of the city centre is also taken into consideration in the evaluation through the attribute of 'linking the waterfront to the city' under the principle of legibility.

4.0 The evaluation

The evaluation on contextual integration is done based on the integrative theory of urban design, which promotes relationships across property boundaries. The theory consists of five main principles (good form, legibility, vitality, comfort and meaning). The principles can be related to the contextual integration attributes identified in the theoretical framework in Chapter 3 (p.76). The contextual integration should be about having a good sense of place so that the user is encouraged to stay longer and is able to enjoy the water. The discussion of the evaluation will focus on each of the attributes according to the principle. This is done by triangulating the data from the focus group, followed by the data from the visual survey and AutoCAD measurement and activity observation to identify the factors that affect the level of contextual integration in this zone. The format of discussion will start with indicators (high, medium and low) for the level of contextual integration in each attribute [refer Chapters 6 and 7 for the detailed explanation of the indicators for each level of each attribute] and followed by the identification of the factors that affect the level.

4.1 Good form

The principle of good form consists of three main attributes. These are the 'physical character of water', 'development oriented towards water' and 'enclosure'. The following discussion will discuss each of the attributes.

4.1.1 The physical character of water

High	Natural riverbank treatment (allow for body contact- Class I)
Medium	Concrete + natural bank treatment (allow for body contact-Class II)
Low	Concrete bank treatment (no body contact-Class III and IV)
Figure 116 Indicators to evaluate the feature of the water body (refer p.44 and p.140)	

The 'physical character of water' is being evaluated based on two aspects: i) the treatment of the riverbank, and ii) the quality of water (Class I, II or III). In this research the quality of water does not include the scientific measurement of the water content. The evaluation of the physical character of water started with the respondents from the focus group. They stated

that the concreted condition instead of the natural treatment of the riverbank had meant that most of them had mistaken the river for a monsoon drain. This had also made them stay away from it due to the uninviting ‘monsoon drain’ look (Figure 117). This may signify that they preferred the natural look of the river, which they can associate with better. Some had also mentioned that they dare not go to the edge of the water due to safety reasons because they knew that the water in the channel can rise very fast, especially during heavy rainfall. This may indicate that they are aware that it can be dangerous for them to be in the channel during rainfall.

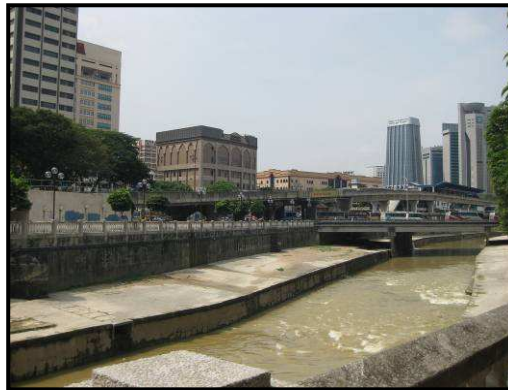


Figure 117 Concreted river in Zone 4b

The polluted condition, which makes the river visually sore and smelly at times, was also raised by most of the respondents. This may indicate that the concreted riverbank and the polluted water had made it difficult for the users to associate the water body to that of a river and reduced their awareness and use of the river. This situation is worsened as the whole length (100%) of the river in Zone 4b is concreted (Figure 118) and the water quality in the Klang River is categorised as Class III (polluted) (DoE, 2008). In addition, there was no static activity recorded at the water’s edge during the observation. These situations may result in a low level of integration with the water in this zone for this attribute (Figure 116).

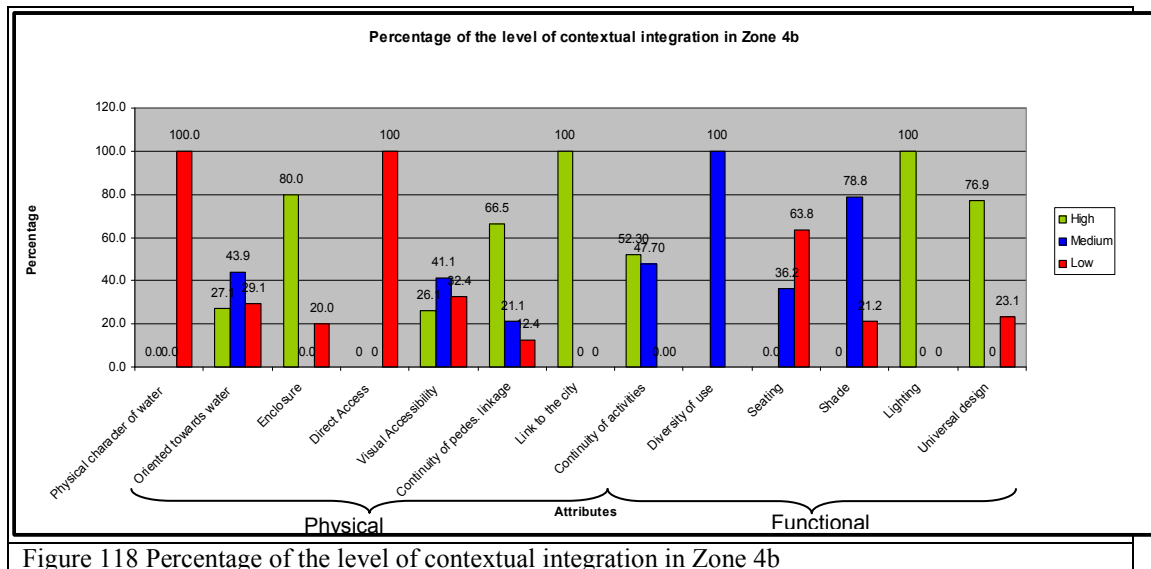


Figure 118 Percentage of the level of contextual integration in Zone 4b

4.1.2 Development oriented towards the water

High	Direct facing the water body
Medium	Perpendicular to the water body
Low	Backing onto the water body
Figure 119 Indicators to evaluate form which address water (refer p. 46 and p.151)	

The next attribute evaluated is the ‘development oriented towards the water’. Most of the developments (43.9%) (Figure 118) along the river are arranged perpendicular to the river and 27.1% of the developments are directly facing the river. The focus group highlighted the concern of safety when walking alone along the waterfront when the buildings are not oriented towards the water or, in other words, backing onto the river. Although only 29.1% of the development backs onto the river in this zone, the presence of development that is backing onto the river may affect the length of stay and reduce the use of this area due to this concern, and, thus, lower the level of contextual integration (Figure 119).

However, two different situations were observed in this zone concerning buildings oriented towards the water. First, the space between the buildings backing onto the river (TNB substations 1) [(e) Figure 115] and the river, which is linked to a node that is connected to the LRT station and can still attract static activities. This is in contrast to the space between the buildings that back onto the river (TNB sub stations 2) [(i) Figure 115] and the river, which is isolated and not directly connected to the pedestrian route/other busy open space and were observed to be avoided by users. This may indicate that the presence of other people for natural surveillance, as highlighted by Jacobs(1992), is also important in this context. At the same time it also indicates that spaces between developments that back onto the river and the river in this context may still be revived by connecting them to other nodes.

4.1.3 Building enclosure

High	Ratio <1.25
Medium	Ratio 1.26-2
Low	Ratio >2
Figure 120 Indicators to evaluate the ratio of the height and width between the waterfront and the urban river (refer p.48 and p.159)	

Evaluation of the building enclosure was followed through. The focus group again connected it to their worry about their safety, but this time in walking by buildings that are high and have a narrow passageway, especially if the buildings back onto the river. This is because the building creates a shadowed area that can be darker than other places even in broad daylight. Others highlighted the feeling of claustrophobia when walking in such places, which makes them stay away from these areas. Although in Zone 4b only 20% (Figure 118) of the river length has a waterfront with a ratio of more than 2 (Figure 120) and another 80% of the river length has developments that have a ratio of less than 1.25, the presence of development, which is higher than 2, and can be observed at buildings abutting the river edge (Figure 121), may reduce the use of the place, and, thus, may result in a low level of contextual integration in this area.



Figure 121 Buildings which are built too close to the river do not allow for activity to happen in between

4.2 Legibility

The principle of legibility consists of four main attributes. These are the ‘direct access to water’, ‘link waterfront to the city’, ‘continuous pedestrian linkage’ and ‘visual accessibility’. The following discussion will discuss each of the attributes.

4.2.1 Direct Access

High	3 entry points within the 200m length
Medium	2 entry points within the 200m length
Low	1 or no entry point within 200m length
Figure 122 Indicators to evaluate the direct accessibility between the waterfront and the urban river (refer p.51 and p.167)	

The importance of ‘direct access to the water’ to integrate the waterfront with the water is an attribute that has been highlighted by many researchers. The focus group highlighted that they could not find any access to the water in this zone. Without access they are not able to touch or get near to the water.



Figure 123 No direct access to the water's edge in Zone 4b

The observation confirms the comments of the focus groups that there is not one entry point that would allow users to access the water edge in this zone (Figure 123) and (Figure 52). Even the activity observations do not record any static activity, such as fishing or sitting at the water's edge. This situation may result in poor use of the urban river, which affects the low level of contextual integration with the urban river.

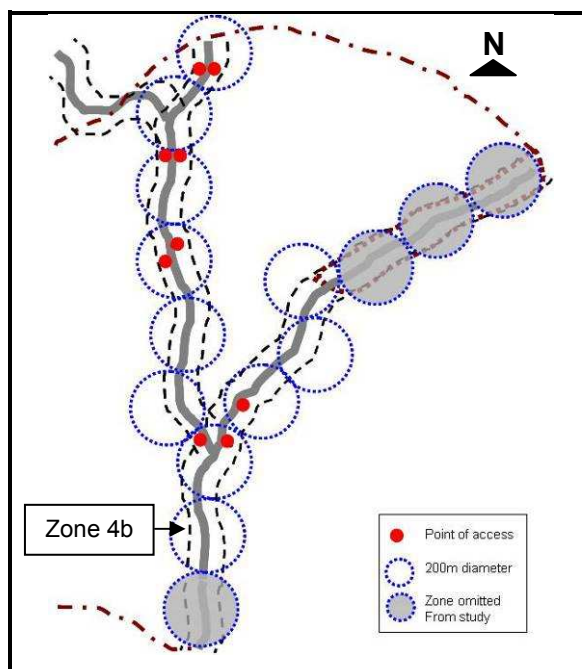


Figure 124 There are no points of access to the water in Zone 4b

4.2.2 Link the waterfront to the city

High	3 entry points within the 100m radius
Medium	2 entry points within the 100m radius
Low	1 or no entry point within 100m radius
Figure 125 Indicators to evaluate the link to the city between the waterfront and the urban river (refer p.54 and p.172)	

The importance of ‘linking the waterfront to the city’ attribute has also been highlighted. Although there are some researchers that do not agree with the importance of this attribute from the economic point of view (refer p.54), many others do stress its importance in the contextual integration. Based on the indicators above (Figure 125), Zone 4b-right bank, is well linked to the city because it has more than three entry points within the 100m radius (Figure 126). The focus group also mentioned that it is quite easy for them to reach this area because it is well connected to the city. This may indicate the high level of integration in this attribute in this area. Furthermore, although the LRT station was not specifically mentioned to the focus group, they did mention that the presence of the LRT station in the area is convenient for them to get from one place to the other along the waterfront and from the suburbs. This may increase the opportunity for more users to reach the waterfront and the urban river.

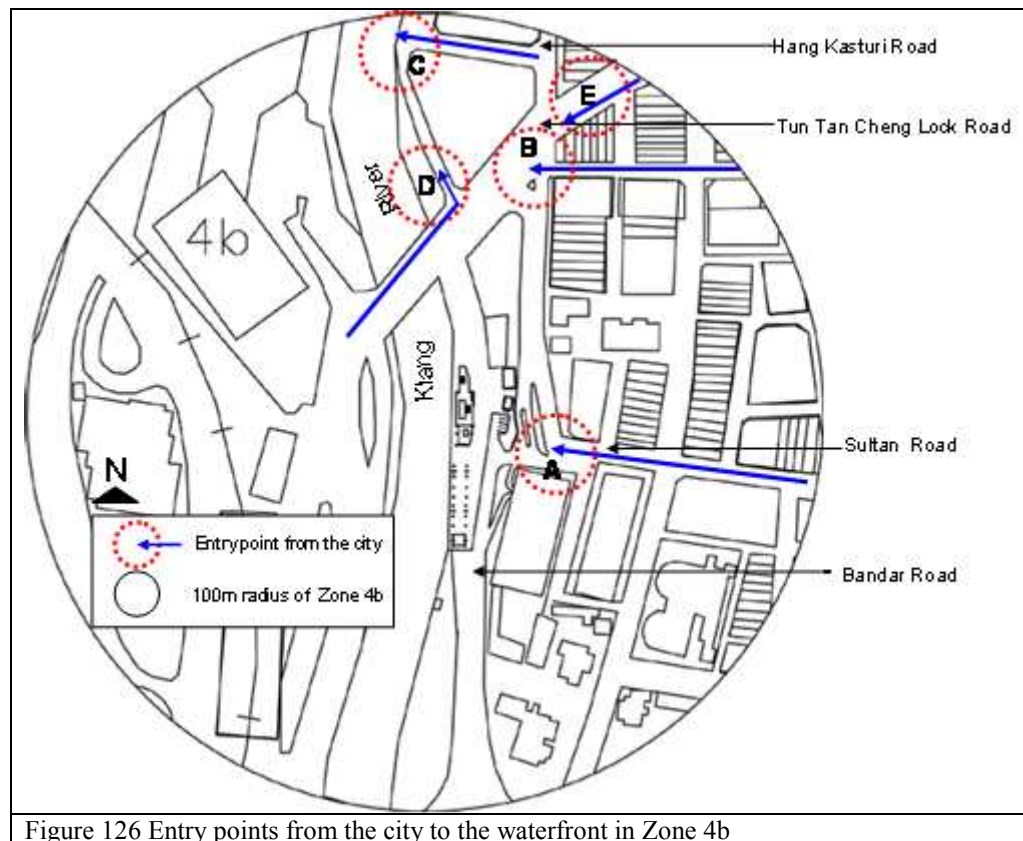


Figure 126 Entry points from the city to the waterfront in Zone 4b



Figure 127 Entry point 'A' (Figure 13) looking from the city to the waterfront

4.2.3 Continuous pedestrian linkages along the waterfront

High	Continuous
Medium	Exist but with obstacle (e.g. having to cross roads)
Low	No continuity

Figure 128 Indicators to evaluate the level of contextual integration between the waterfront and the urban river through the continuity of a pedestrian walkway (refer p.56 and p.179)

Aside from ‘direct access’ and ‘link waterfront to the city’, continuous pedestrian linkage along the waterfront is another attribute to be evaluated in legibility. Most of the respondents highlighted that it is quite easy to walk along the waterfront uninterrupted most of the time. This may indicate that the waterfront is well linked. This was supported by physical evaluation, which shows that 66.5% (Figure 118) of the waterfront length has continuous pedestrian linkage (Figure 129). This may result in a high level of contextual integration in most of the area in this zone. However, 12.4% of the waterfront length does not have any continuity. This is where the buildings are built abutting the riverbanks. This situation may reduce the use of the place in these areas and result in a low level of integration. The focus group also expressed their worry when it comes to crossing busy roads such as the Tun Tan Cheng Lock Road that does not have a provision of either a zebra crossing or pedestrian traffic lights for pedestrians to cross at the waterfront. It involves 21.1% of the area. They stated that the zebra crossings are not reliable because most of the time the motorists do not stop for pedestrians and it can be very dangerous for them to cross the road. This obstacle may also reduce the integration with the water to medium integration (Figure 128).



Figure 129 Continuous pedestrian linkage along the waterfront

4.2.4 Visual accessibility

High	Direct view to water
Medium	Obstacle (e.g. concrete railing, hedges/dense landscape)
Low	Blocked (e.g. walled, private property, gated area)
Figure 130 Indicators to evaluate the level of contextual integration between the waterfront and the urban river through its visual accessibility (refer p. 51 and p.188)	

The final attribute in the principle of legibility is visual accessibility. Stefanovic (2002) opined that development that allows the public to have a direct view of the water is always the preferred situation. It was observed in this zone that only 26.1% (Figure 118) of the river length is visually accessible because of the use of steel railings and there is no other obstacle. However, part of the waterfront (41.1%) uses concrete railings and hedges planted at the railing. According to the indicators (Figure 130) this may reduce the integration with the water. However, this is in contrast with the focus group, which highlighted that the concrete railings do not block their view towards the river because most of the pedestrian walk is located right at the river edge. However, they did agree that if the pedestrian walkway is

located a bit further (roughly more than 2 metres) from the edge and has concrete railings or it is blocked by the hedges they will not be able to see the river.

They also highlighted that they are not aware of the river when they are walking along the Hang Kasturi Road (Figure 126) near Central Market (CM) (b-Figure 115). Although CM has a double frontage that used to address the river, the construction of the tunnel wall in 1998 for the LRT blocked people's view towards the river (Figure 131). Furthermore, although a pedestrian walkway is provided between the tunnel and the river, the activity observation suggests that the business of activity at CM and Hang Kasturi Road does not flow to the pedestrian walkway next to the river because it is visually blocked by the wall. The wall obstructs the opportunity to link one of the most vibrant areas in the city to the river. In addition, the focus group also highlighted that buildings that are abutting the river such as the LRT building and public toilet also block their view towards the river. The presence of these obstructions, which make up 32.4% (Figure 118) of the river length in this zone, may reduce the use of the place. This may result in the integration with the urban river in this area becoming low.



Figure 131 The tunnel wall that blocks the view towards the river from Central Market and Hang Kasturi Road

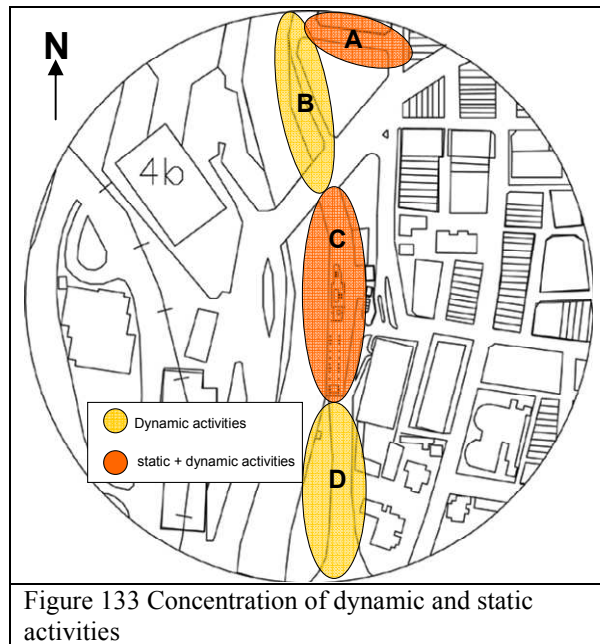
4.3 Vitality

The principle of vitality consists of two main attributes. These are the 'continuous activities along the waterfront', 'diversity of use'. The following discussion will discuss each of the attributes.

4.3.1 Continuous activities along waterfront

High	Static activity (refer p.61)
Medium	Dynamic activity (refer p.61)
Low	No activity
Figure 132 Indicators used to evaluate the level of integration in the continuity of activities in the demarcated zones (refer p.59-63 and p.202).	

As one of the most important attributes to achieve vitality, 'continuous activities along the waterfront' is the next attribute to be evaluated. The number of activities recorded for both static and dynamic activities are not very different (52.3% – high; 47.7% –medium) (Figure 118). However, the concentrations of static and dynamic activities are located in different smaller areas (Figure 133).



At 'A', the entrance to CM is located. There is also a performance stage that was built backing onto the river at the west side of the entrance. It is an active area for a lot of activities, such as children's performances or a briefing area for tourists and visitors, and games. It is also at the intersection with Hang Kasturi Road, which is continuously vibrant with activities (Figure 134). However, these vibrant activities do not flow or spill over to the pedestrian walkway along the river between the LRT tunnel and the river (B). Only dynamic activities are recorded at 'B'. The vibrant activities in 'A' (Figure 134) are detached from the riverside (B) (Figure 135) and do not enhance the river due to the presence of the tunnel wall.

This finding is supported by the responses from some of the focus group participants who stated that they did not even realise that there is a walkway next to the river. They always use the Hang Kasturi Road, which attracts them with its activities and because there are also a lot of things to see/do along the way. Some, who know about the isolated pedestrian walkway, mentioned that they try to avoid it because it is quite isolated and they do not feel safe walking alone in the area. This statement may indicate that the meaning of the place is reduced due to the concern for safety and results in the lack of use of the place.



Figure 134 Activities along Hang Kasturi Road ('A')



Figure 135 Quiet situation along the pedestrian walkway at the riverside ('B')

In contrast, the activities at 'C' near the riverside are a mix of dynamic and static activities. It was observed that there are more static activities in the area because of the presence of the

plaza at the riverside and the role it plays as the intersection for both the LRT and the bus station. Furthermore, this area is high in permeability with several roads from the inner city connected to it (Figure 126), giving easy access for the public to reach this area. Although the activities are not related directly to the river, it brings people to the area and enhances the riverside. However, the static activities start to increase more towards the afternoon when it is more shaded (Figure 88, Figure 89 and Figure 138).

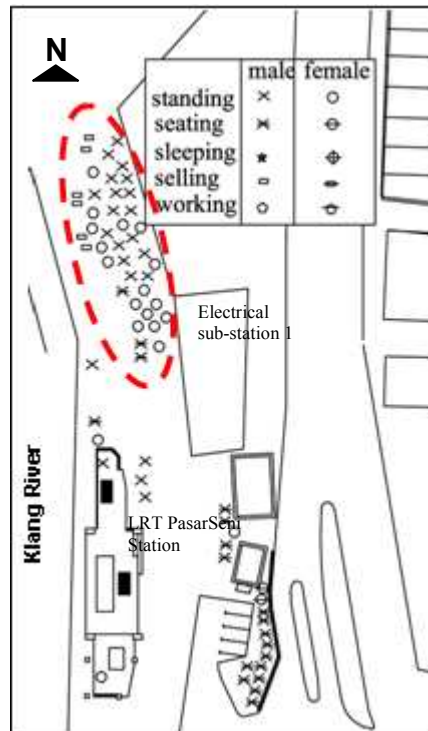


Figure 136 Less activities at the plaza during noon time (12-1:30pm, Sunday)

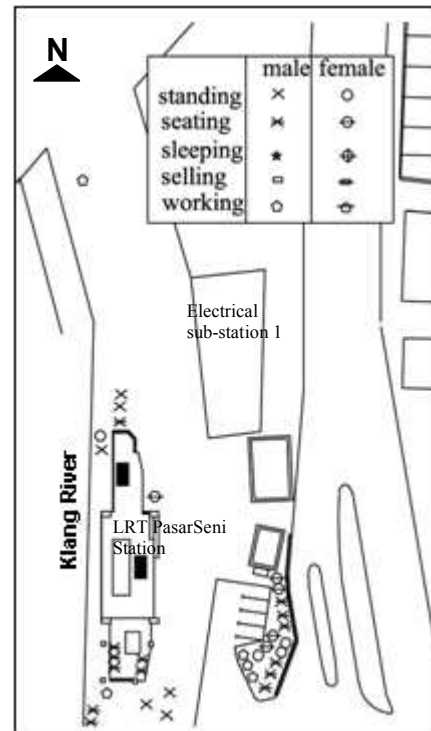


Figure 137 A lot of static activities at the plaza in the afternoon (4-5:30pm, Sunday)

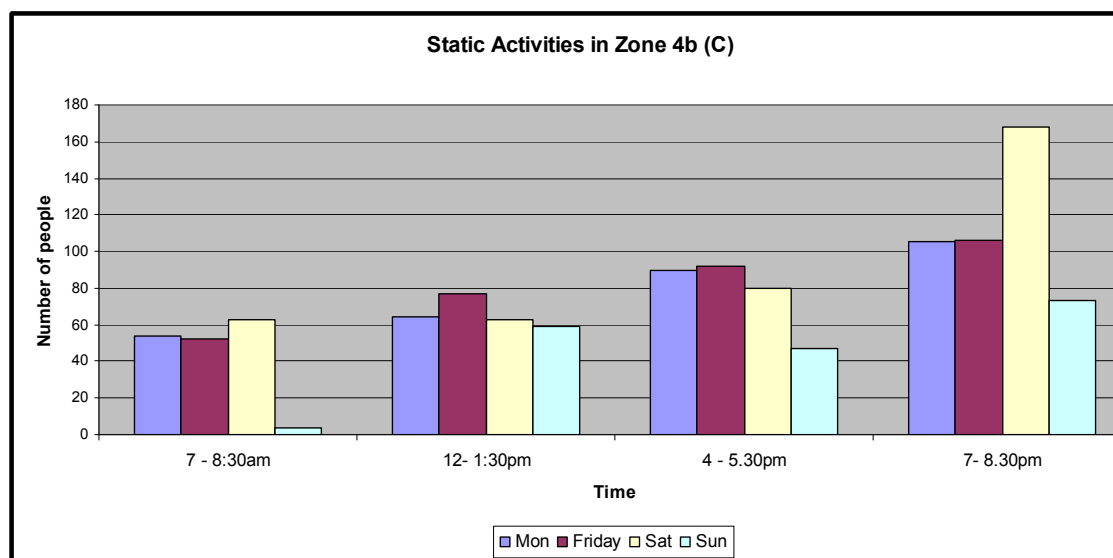


Figure 138 Static activities in Zone 4b (C)

It was observed that the plaza does not have any trees that can provide shade and seating for the users. Even the focus group highlighted that the plaza is a good place to meet but not to stay long. They will move to other places from there. Why is this so? This is because other than people buying food from the hawkers, there are not many activities going on in the plaza. Even the building that is bordering the plaza, which is the electrical sub-station 1 (e)(Figure 115), backs onto the river and does not provide any activity. The activities observed at 'D' (Figure 133) only include dynamic activities. This may be because there are no other activities offered in the area due to the buildings along this area backing onto the river. Furthermore, this place is used as a parking area for the buses and is quite an isolated place (Figure 139). This may reduce the meaning of the place to the user and results in a lower integration with the river.



Figure 139 Buildings back onto the river and busses are parked along the road

4.3.2 Diversity of use

High	Water-dependent + water-related building use + water-independent (refer Table 4, p.64)
Medium	Water-related + water-independent building use
Low	Independent building use or no building use
Figure 140 Indicators used to evaluate the level of integration in the functional diversity dimension in the demarcated zones. (refer p.63-66 and p.207)	

The other integral attribute in achieving vitality is 'diversity of use'. The participants of the focus group highlighted the importance of diversity of use for them to have more choices and activities. This may indicate that the diversity of use is important in this context to allow people to stay longer at the waterfront and have activities according to their needs. Based on the indicators in Figure 140, it was observed that there is no water-dependent use in the area. However, there is a mixture of both water-related and water-independent use (Table 21). This may result in a medium level of integration between the waterfront and the water in this area for this attribute. However, it was observed that although both water-related and water-independent uses are capable of pulling the crowd to the area, if there is no direct access to the water, the public are deprived of the opportunity to interact with the water. Furthermore, neither the restaurant nor the hotel is located near the water and the views towards the water from these buildings are not preserved. Consequently, users are still deprived from the opportunity of viewing the water. This may reduce the awareness of the user of the presence of the water body in the area, and, thus, lessen integration with the water.

Waterfront use		Zone 4b (right bank)
Water-Dependent (H)		
	Marina	
	Jetty	
	Boathouse	
Water-related(M)		
	Restaurant/ food court	√
	Park/ Terrace/ plaza	√
	Hotel	√
Water- Independent (L)		
	Public Transport	√
	Shopping shops/ complex	√
	Offices	√
	Workshop	
	Mosque/ Church/ temple	
	Residential	√
	Clinic	
	School	

Table 21 Diversity of use in Zone 4b-right bank

4.4 Comfort

The principle of comfort consists of four main attributes –‘seating’, ‘shade’, ‘lighting’ and ‘universal design’. The following discussion will discuss each of the attributes.

4.4.1 Seating

High	Primary seating in every 100m-125m
Medium	Secondary seating in every 100m-125m
Low	No seating in every 100m-125m

Figure 141 Indicators to evaluate the level of contextual integration between the waterfront and the urban river in terms of its seating area (refer p.68 and p.219)

Seating is one of the vital attributes in the principle of comfort to integrate the waterfront with the water in the western context (Carr et al., 1992). This research evaluates whether it has the same importance in the context of Kuala Lumpur. The discussion concerning seating prompted the comment by a respondent (and was supported by other participants) who stressed the difficulty in finding a seating place along the waterfront. They usually opted for other possible seating places such as bollards or planter boxes or even the tree roots. They also expressed their hope that more seating will be provided in the future. This may indicate that there is minimal provision of seating along the waterfront, which prevents people from pausing and relaxing comfortably.

This finding is supported by the physical observation, which shows that there is no provision (63.8%)(Figure 118) of primary seating that would allow users to enjoy the river at Zone 4b-right bank (at A, B, C, and D in Figure 133). Provision of primary seating can only be found

at the restaurant and at E (in Figure 143). However, the seating at ‘E’ is all facing away from the river. This may deprive the opportunity of the user to enjoy the view of the river. At the covered plaza underneath the LRT station where many people wait for busses also lacks the provision of seating (Figure 142). People were observed finding alternative or secondary seating (36.2%)(Figure 118) by sitting on the building apron!(Figure 144).

However, some of the respondents highlighted that they are not interested in looking at the river as it is now polluted and looks like a drain. This statement may indicate that the physical character of the water is also an important factor in relation to the provision of seating. The public may not want to sit longer at the riverside without a nice view of the river even if seating is provided. This may also reduce the level of integration with the water.

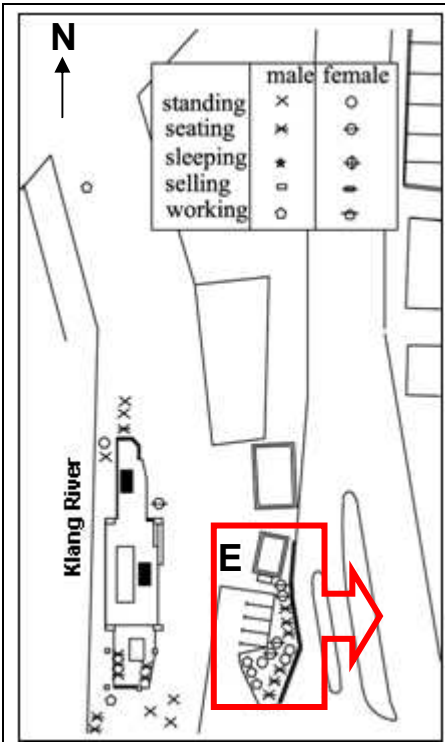


Figure 143 The only seating provided is facing away from the river (highlighted in red)



Figure 142 People are standing while waiting for the bus



Figure 144 People seek alternatives to sitting on the building apron

4.4.2 Shade

High	Tree with foliage and covered walkway
Medium	Covered walkway
Low	No shade
Figure 145 Indicators to evaluate the level of contextual integration between the waterfront and the urban river in terms of shade (refer p.68 and p.228)	

Although Rutledge (1975 in Carr et al., 1992, p.93) highlighted the importance of the provision of shade in order for people to be satisfied with an area, the importance of it in the context of Kuala Lumpur will still need to be evaluated. The focus group highlighted that it is not only important but that it is crucial to have trees because of the hot and humid climate. Most of them preferred trees compared to walkways because of the coolness it brings to the hot climate. This may indicate the significance of shade in the context of Kuala Lumpur. It was observed in Zone 4b that there are not many trees provided, and those that are have small foliage that do not provide much shade. These trees are not measured in the evaluation because of the small foliage. However, interestingly during the observation it was recorded that there are people who still try to squeeze under these small foliage trees to get shade (Figure 146). This findings further strengthen the need of shade along the waterfront. Most of the shaded areas along the waterfront are under the LRT viaduct and also below the LRT station, which makes up 78.8% (Figure 118) of the waterfront length. The rest of the areas are without trees or covered walkways (21.2%). Due to the importance of trees and covered walkways in this context, their absence may result in a low level of integration with the water (Figure 145).



Figure 146 Small foliage tree along the waterfront in Zone 4b-right bank

4.4.3 Lighting

High	Lighting provision at both building and water edge
Medium	Lighting at building only
Low	No provision of lighting
Figure 147 Indicators to evaluate the level of contextual integration between the waterfront and the urban river in terms of its lighting (refer p.69 and p.233)	

Lighting was stated as being an important attribute to allow people to experience a public place. It can stimulate activity and attract people to an area, and is able to provide a sense of safety to the visitor (Farrington and Welsh, 2002; Painter,1996;Luymes and Tamminga, 1995). Therefore, it can encourage people to stay longer and connect with the urban rivers. Is lighting important in Zone 4b? There is 100% (Figure 118) provision of lighting along the waterfront in this zone. However, the participants from the focus group expressed their concern about safety when the importance of lighting was being discussed. For example, they tried to avoid area ‘B’ (in Figure 133 and Figure 148) if there were not many people

around even though lighting is provided. Furthermore, some mentioned that they would try to avoid Zone 4b-right bank after 11pm because they know that the type of people that gather in this area include drug addicts, gang members and homeless people.

These statements may indicate that although they acknowledge the importance of lighting, the presence of other people and the type of activity in the area are other important matters that the user will consider before deciding to stay or go to certain areas at night-time. Although the measurement indicates a high level of integration (Figure 147) due to the 100% provision of lighting, other factors in relation to the type of activity available in the area have to be taken into consideration, particularly as these negative activities may reduce the meaning of this place and prevent people from coming to the area.



Figure 148 Although there is lighting around, there are not many people along this stretch either in the day or night time

4.4.4 Universal design environment

The provision of the universal design environment, which may contribute to the contextual integration between the waterfront and the urban river, is the final attribute to be evaluated in this research. It is closely related to attracting multi-layers of people to the waterfront. The evaluation technique by Manley and Guise (1998) (Appendix 7) was found to be relevant to evaluate the condition in Kuala Lumpur. From the discussion with the focus group, they were not aware of the aspects that result in the avoidance of this place by people with disabilities (PWD), old people or women with baby strollers. These include no alternatives at the change of levels, no drops at kerbs or even the rough surfaces resulting from the material used. This may be because these aspects do not present an obstacle for those who are not disabled. During the observation period, there was no record of people with wheelchairs, old people or those using strollers using the waterfront.

Nonetheless, most of the characteristics (76.9%) (Figure 118) listed as being important (high level) in universal design (Appendix 7) can be found in this zone. However, there are still a few characteristics that are in the low category for universal design (Appendix 7). It was observed that there is 'no alternative at the change of level', no provision of ramps at kerbs and there are sections of the waterfront that are isolated from the main pedestrian route (Figure 149). These situations, which make up 23.1 % of the waterfront length, may result in a low level of integration in these sections. The focus group also highlighted four other factors that make them avoid the area – graffiti, homeless people, drug addicts and public urination. The findings from the focus groups were confirmed through visual observation

(Figure 150). These conditions may lessen the meaning of this place to the user and prevent them from staying longer at the waterfront.



Figure 149 Isolated pedestrian walkway Figure 150 Homeless people sleeping from the main pedestrian route

5.0 The results and discussion

In this particular zone, the evaluations indicate that there are various levels of contextual integration between the waterfront and the water in each attribute (Figure 118). Although each of the attributes is evaluated individually, the findings show that the relationship with other attributes is vital to achieve contextual integration between the waterfront and the urban river.

However, through the evaluation it can be identified that three (physical character of the water, direct access and seating) out of the thirteen attributes evaluated had affected the low level of contextual integration the most. Based on the findings, the dynamic relationship between the physical and functional dimensions can be summarised, as shown in the diagram below (Figure 151).

It can be elicited that to achieve contextual integration between the waterfront and the river, each of the attributes is interrelated and dependent on other attributes. For example, the provision of seating at the waterfront alone will not attract people to stay long at the waterfront if the physical character of the water is uninviting (looks like a drain and polluted) and if it is not shaded (due to the hot climate). Furthermore, the seating will not function at night if there is no lighting, diversity of use and continuity of activities close by to provide a sense of safety to the user. It will also make it worse if it is provided in between the buildings that back onto the river because there is no activity nearby that can support it. In addition, it will defeat the purpose of having seating along the waterfront if there is no continuity of pedestrian linkage along the waterfront because people will not be able to access it and it may create an isolated area that people will avoid for safety concerns. Finally, the visual link from the seating area towards the river will also need to be preserved to allow people to enjoy the view. These complex relationships can be seen throughout the attributes in both the physical and functional dimensions (Figure 151). The evaluations also elicit thirteen (13) factors that affect the level of contextual in this zone. The summary of the factors involved is shown in Table 22.

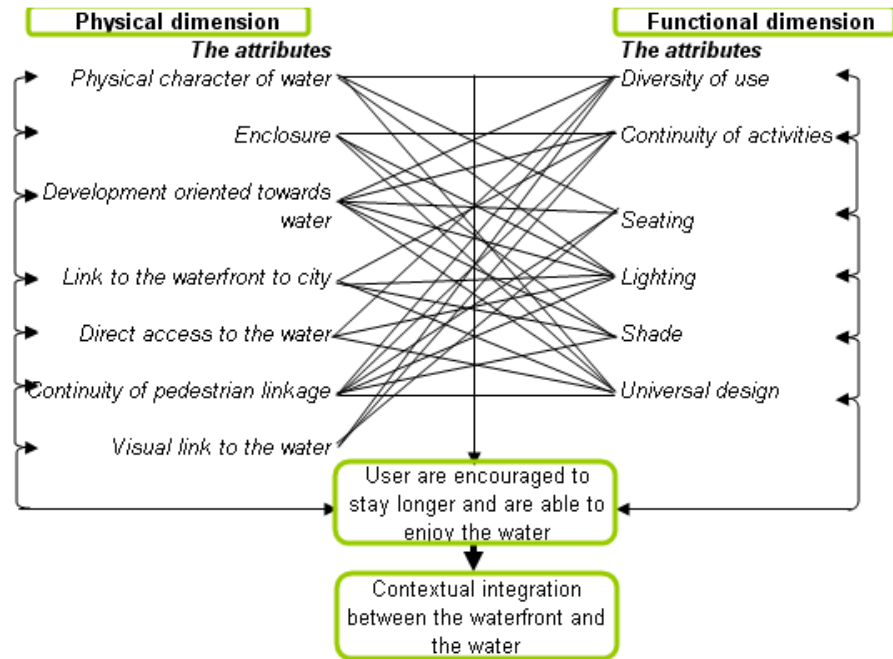


Figure 151 Relationship between the physical and functional dimension to achieve contextual integration between the waterfront and the water

Principle/ Attribute	Factors that affect the level of contextual integration
Good Form	
Physical character of the water body	Concreted river in all zones (1) River is polluted (2)
Form oriented towards water	Buildings backing onto river (3)
Enclosure (Ratio of Height and Width)	Buildings built too high with too narrow space between (4) Buildings built abutting the river edge. (5)
Legibility	
Direct access to water	Only one access / no direct access (6)
Link w.f to the city	
Continuous pedestrian linkage	Buildings built abutting the river edge (7)
Visual Access to water	Building built abutting the river edge and backing the river LRT tunnel (8)
Vitality	
Diversity of use	
Continuous activities along waterfront	Building built abutting the river edge
Comfort	
Shade	Building built abutting the river edge No trees or covered walkway (9)
Seating	No seating (10)
Lighting	
Universal Design Environment	Potential ambush area. (11) No alternatives at the change of level (12) Not well treated or no drop at kerb (13)

Table 22 Factors that affect the level of contextual integration in Zone 4b

6.0 Conclusion

There are two main objectives of this appendix. First, to demonstrate the relationship between the physical and functional dimension in one particular zone. Second, is to identify the factors that affect the level of contextual integration between the waterfront and the urban river.

The findings indicate the importance of the interrelationship between the physical and functional dimensions to achieve the contextual integration between the waterfront and the urban river. This is parallel to the integrative theory of urban design that highlighted ‘it should not simply advocate one set of design approaches but should rather reveal the principles that underlie several of them’. Furthermore, through the evaluation it can be observed that the vital role of the diversity of use and continuity of activities is to increase the meaning of the place in order to allow the user to have diverse choices of activities and to encourage them to stay longer at the waterfront and the urban river. This is also comparable with the integrative theory, which stressed that ‘it should make us aware of the constituents of the human experience of built form’.

Furthermore, through this evaluation, the factors that affect the level of contextual integration can be identified as well as the attributes that contribute the most to the low level contextual integration. This knowledge may provide a guide for future planning of the waterfront concerning which attribute most needs to be improved in certain areas. This also parallels the integrative theory by Sternberg (2000), which highlighted that it ‘should be able to direct our attention to pertinent features of reality – experiential features of space and built form and thereby to help guide practice. These findings also strengthen the importance of applying the integrative theory of urban design in achieving relationships across property boundaries –in this case between the waterfront and the urban river.