

1nCEBS 2009 Shah Alam

1<sup>st</sup> National Conference on Environment-Behaviour Studies, Faculty of Architecture,  
Planning & Surveying, Universiti Teknologi MARA, Shah Alam, Selangor, Malaysia,  
14-15 November 2009

## Functional Dimension at ‘Kuala Lumpur Waterfront’

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### Abstract

Kuala Lumpur waterfront used to be busy with activities when it was once a trading post for the export of tin. The activity at the waterfront has changed over the years along with the city development. This research investigates the level of contextual integration between the waterfront and the urban rivers in terms of its functional dimension. Technique adopted is field observations (building use survey and time interval observation). All researched zones have medium level of contextual integration which depends much on the continuity of activities, their positioning location, accessibility and the provision of space and facilities.

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*Keywords:* Contextual integration; waterfront; urban river; activity

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### 1. Introduction

A lot of effort towards waterfront reintegration is taking place all over the world with the aim of achieving sustainable development. It has become the consideration of many cities that, in order to create a better public realm at the waterfront areas, urban design with contextual integration is used as one of its main tools (Hoyle, 2001). The definition of contextual integration in this research is the physical and functional relationship between developments with its surrounding (Carmona, 2000). In this case, it is the

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water body itself. A positive contextual integration with its water body will allow the public to enjoy the existence of water body in their city. This paper will focus on the evaluation of the functional aspect in terms of its level of contextual integration between the waterfront and the urban river.

## 2. Literature Review

In the search for an appropriate dimension to evaluate the functional aspects in terms of the level of contextual integration between the waterfront and the urban river, integrative theory of urban design by Sternberg (2000) is found to be closely related to explain the research. He categorised vitality as an important principle related to the functional aspect. The theory explained the relationship between developments with its surrounding which promotes integration across property lines. This is very much related to this research that seeks to evaluate the contextual integration between the waterfront with the urban river which is situated across its property boundary. This principle is advocated by Jacobs (1961) who criticised the planning of the mid-century which neglected the importance of the diversity of urban life through their creation of dead vacant zones, 'clearing' the city through the urban 'renewal' programme and planning separate uses through the concept of zoning. Jacobs opined that the bustling street life is important in good cities and the closer grain on the density of uses will allow them to support each other better. In achieving balance, cities should not only have the bustling street with mix use activities but at the same have the provision of quieter streets for residential area. Through vitality, her ideas promote integration across the property lines and relate well to the integrative theory (Sternberg, 2000). This is also accorded by Brower (from Nasar, 1998) who highlighted that people do not really want to see sameness in all parts of the city. In reference to this principle, drawn from the literatures related to waterfront developments, two main dimensions are identified vital in the evaluation of the functional aspects of the contextual integration in between the waterfront and the urban river: i) the diversity of use and activity in the area that can allow the user to stay longer at the water edge; ii) continuity of activity at the building along waterfront.

### 2.1. Diversity of use

Most of the literatures mentioned in the following discussion stressed the importance of functional diversity to allow the public to be reconnected to the river and this should not reduce the opportunity of the general public to enjoy the waterfront (Donald Wood, 1965). This is similar to streets. According to Schumacher (from Moughtin, 1992), the liveliness of the street depends much on the variety of activity and attraction it can offer and will make the user stay longer.

The same encouragement was given in the redevelopment of harbour communities in downtown America, where these activities are urge to be considered in the earlier part of the development before any other activity takes place (Kotval and Mullin, 2001). Petrillo (1985) mentioned that having human activity can enhance the waterfront area and add to the natural setting. In enhancing it, it is better to consider the existing surrounding activity as in the case of California's coastal program which moved to ensure that the new construction of the urban waterfront would be compatible in the type of use with the existing surrounding to avoid introducing something that is out of place or not acceptable by the locals themselves.

The integration on the diversity of use in both land and water is found significant to allow for '*more dynamic opening onto the water*' and vibrant waterfront area (Mann, 1988). Some cities increase the waterfront attachment through commercial investment by having diversity of use through their public water transportation such as ferry services and water buses. Waterfront transportation is also very much related to recreational appeal through the viewing and visits of the working vessels, educational vessels

and water taxis (Tunbridge, 1988). West (1989) stated that in North America, many of the renewal efforts are concentrated on waterfront enhancement activities such as up-scale restaurants, cafes, condominiums, hotels, and gift-shops, all of which benefits environmentally and economically compared to waterfront dependent activities. Waterfront dependent activities such as boating, marinas and others are considered low-profit operations and operated because it is perceived to be more related to the waterside activity.

Significant difference of waterfront usage is perceived in the context of the waterfront in Ujjain. The activities are very much dependent on the water for ritual and daily worship and the water is also used for daily chores such as washing and laundry. At the periphery of the area, many commercial activities enhance the waterfront further. This mix of activities makes the waterfront and its water body an inseparable entity (Samant, 2004). The study by Hoyle (1994) on 'Canadian Perceptions of Waterfront Development' towards the difference between waterfront development and other development in the inner city has found that the respondents stressed the importance of recreational facilities and noted that it should be provided not only on land but with a '*careful blending of land and water use*'. Balsas (2007) mentioned that a public place in a city can become lively if they maintain their sense of place and reinforce their uniqueness that originates from the diversity of uses. It is obvious from many of the examples across the literatures that diversity of use to integrate the waterfront with the water body is important. Therefore, in the condition of Kuala Lumpur context, this dimension will be evaluated.

## 2.2. Continuity of activities along the waterfront

Trancik (1987) mentioned that it is important to have a continuity of the walls as the frontage of a public place to create an enclosure of space in providing a setting for activities to happen at the ground floor area. He further explained that the frontage's character and the continuity of the wall is one of the most important factors in determining the public place's success or failure. If related to the waterfront, and drawing from the literatures, the suggested dimension can be in the context of the 'continuity of activities along water body at the waterfront area'. As mentioned by Petrillio (1985), it is the variety of activities in different '*shape, scale and locations*' that makes a journey meaningful and pleasurable. Owens (1993) opined that buildings which are spaced closely will be able to give the sidewalk or street a '*strong spatial enclosure*'. This is especially so if the buildings are of 'mixed used commercial area'. The buildings create an edge to the street rather than '*as a free standing object in a space*'. However, if the buildings spread apart from one to another, the definition of the street is weakened. Jacobs (1961) opined that having continuous activities along the streets will provide a natural surveillance and give a feeling of safety for the user.

Continuity of activities in the urban space can also be experience through dynamic and static space. McCluskey (1992) suggested that the urban environment comprises of '*system of places 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'. Clear example in the urban area can be seen in the terraced buildings which create 'route' and clustered layout building that forms a 'place'. The static space provides a '*sense of completeness and rest*' and for the dynamic space it implicated the sense of '*change and movement*'. He opined that a good townscape which has its major concern in creating a sense of place should be aimed at increasing the static and reducing the dynamic aspects of space.

Gehl (1986) argued that pedestrian activities vary according to the quality of the environment. There are three categories of activities highlighted which are 'necessary', 'optional' and 'social/resultant' activities. The necessary activities are those which will happen and not dependent on the environment. The example of this type of activities are such as walking to work or to school that will not depend so much on the quality of the environment because they need to be done somehow. However, optional

activities are those activities that existed as a result of the situation and highly sensitive to the surrounding environment such as sitting and strolling. It will more likely happen if the environment is more inviting. The social or resultant activities are activities which happen when other people are around in the same area.

May (2006), in her discussion of 'Connectivity' in Urban Rivers' highlighted the importance of continuity of activities along the riverfront through the Buffalo Bayou Master Plan. The urban planners for the masterplan had emphasised the connection of the urban river to humans. This is done through connecting the social and cultural attraction along the river which connects both the waterfront and the urban river. Its aim is to create balance between the built environment and natural environment for sustainability. They believe that having an attractive and lively urban river; will reduce the need for the resident to travel outside the city for recreation and fresh air. This is also consistent with the opinion of the Project for Public Spaces Team ([www.pps.org/waterfronts/](http://www.pps.org/waterfronts/)) that has more than thirty years of experience in designing public places which include waterfront. They suggested the importance of having continuity of activity for pedestrians that has a wide variety of activities as one of the key to have a positive integration between the waterfront and the water body. From the literatures, it is apparent that continuous activities along the river is one of the key dimensions that may contribute to the integration between the waterfront and the urban river and this dimension will be used to evaluate the Kuala Lumpur context.

### **3. Methodology**

#### *3.1. Data Collection*

In investigating the functional aspects at the waterfront, direct observation study is employed. The technique of study is being divided into two parts which is i) the building survey to identify the building use and continuity of activities ii) time interval samplings to record the activities that happen and the continuity of activities in the area in relation to the urban river using the narrative methods (Brandt, 1972 from Friedmann et al, 1978) and supported by photographic documentation (Davis and Ayers, 1975 from Sanoff, 1991). Areas of observation were chosen based on the availability of visual point that can see both the waterfront and the urban river without obstacle. To reduce errors in judgments, two observers were located in each zone (Friedmann, 1978) to note the activities and at the same time mapped the activities in its location as it happens with an interval of one hour. There are 15 demarcated zones. Zone 2 and left bank of zone 4b are excluded from this study due to safety reasons. Zone 5 and Zone 8 are excluded due to the existing highway which totally blocked the integration between the waterfront and the urban river.

Fifteen zones within the fifty metre range from both sides of the riverbank (DID, 2003) were demarcated for the research (Fig. 1). However, Zone 2, 4b, 5, were excluded due to safety reasons and Zone 8 (a, b, and c) were excluded because there is an elevated highway crossing the area which totally blocked any contextual integration with the river. No categorization of activities was made on site. Types of activity are given labels for easier mapping. Photos documentations were done every hour accordingly for every zone. The days covered for observation done are: Monday (6:30am -8pm) as (representative of Tuesday to Thursday which are the normal working days); Friday (6:30am-8pm). There is a congregational prayer (compulsory for Muslim man) at noon time which may changes the activity in the city centre during noon; Saturday (6:30am-8pm). It is a half-day working for some people and it may have some difference in the activity; Sunday (6:30am-8pm). Full day not working that may have some difference in the activity. Public holidays or any other festive seasons are not included due to the one-off situation (Norsidah Ujang, 2008).

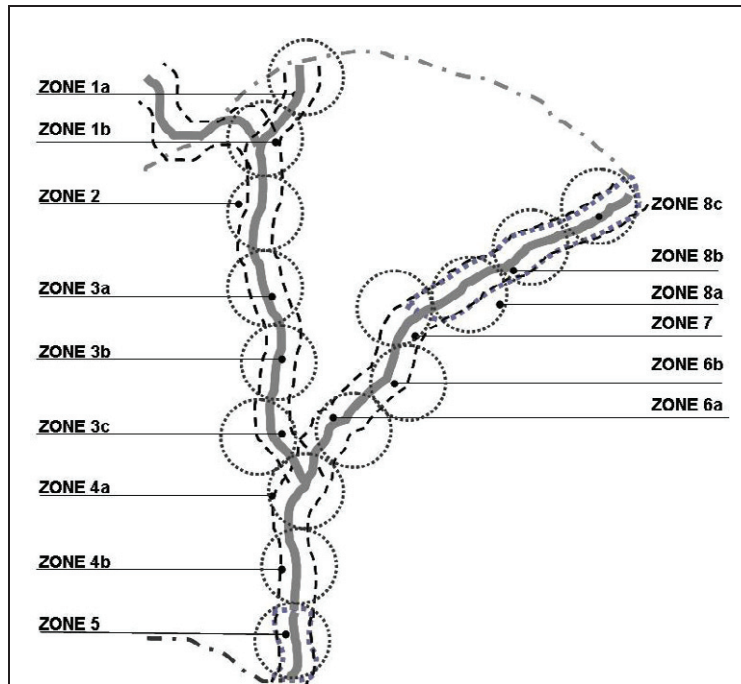


Fig 1. Map showing demarcated zones

#### 4. Data analysis

The parameter for the analysis were adapted and modified based on Lynch (1976) and Wren (1983). Building use were categorised according to the high, medium and low (Lynch, 1976) based on the parameters (Table 1).

Table 1. Parameter use to evaluate the level of integration in the ‘diversity of use’ dimension in the demarcated zones. Source: Adopted and modified from Wren, (1983) and Lynch, (1976)

High	Water-dependent + water-related building use
Medium	Water-related + water-independent building use
Low	Independent building use

Water-dependent building uses are the one which are dependent on the availability of the urban river for the building to function. Without the urban river the building cannot function. Example of these types of building uses are marina, jetties and boathouse and water-taxi station. The second category is water-related uses. These are building use which will have an advantage if it is close to the water but can also function in other areas. The example of these type of buildings/ development are restaurant, open space/park/terrace/ and resort/hotels. Finally, water-independent uses are those building that can function equally the same in other areas of the city without the water. Examples of these types of developments are shophouse/ shopping complexes, office, workshop, mosque, residential, school and clinic. In order to evaluate the level of contextual integration in terms of the diversity of uses between the waterfront and the water body, it is very important for the area which has its own uniqueness to have a ‘careful blending

of land and water use' (Hoyle, 1994). Therefore, the 'diversity of uses' that may contribute to a high level of contextual integration is areas which offer a mix of land and water uses (a mix of water-dependent and water-related building use). It may contribute to a medium level of contextual integration if it offers a mix of only land base uses with some buildings still relate to the water body (a mix of water-related and water independent building use). Finally, it may contribute to a low level of contextual integration if an area only offers building uses which is not related to the water body (independent building use).

As for the user activity identified through the time interval sampling observation and mapping, each and every activity found were later categorised in five related groups of leisure, commercial, transportation, administration and maintenance, and others according to the time and days in table format. Each of the activity occurred is given numerical Figure (1) according to the hour it happened to find the frequency the activity occurred. Bar charts were produced from the results for easier understanding of the type and pattern of activity throughout the days in every zone. Combined with the scale used by Lynch (1976) the level of contextual integration in terms of the continuity of activities between the waterfront and the urban river may be high if the area allow for static activity to happen. This is because, it may allow the public to stay longer and enjoy the urban river. It will be evaluated as medium if it offers only dynamic activity to happen which enhances the area but not allowing for people to stay long in the area. It will be low if there is no activity generated in the area (Table 2).

Table 2. Parameter use to evaluate level of integration in the continuity of activities in the demarcated zones. Source: Adopted and modified from McCluskey, (1992) and Lynch, (1976)

High	Static activity
Medium	Dynamic activity
Low	No activity

## 5. Result and discussion

According to Jacobs (1961), the diversity of use and continuity of activities are important to sustain the vitality of a city. Through the use of scoring technique (Table 2), it is suggested that all demarcated zones studied are in the medium level of integration with the urban river (Fig. 2). This is because in all areas there is a mix of both water-related and water-independent building use only. And none of the area has only the water-independent building use which may contribute to a total low level of integration and none of the area has the water-dependent building use which may contribute to the high level of integration between the waterfront and the urban river. Therefore, the functional aspects (building use and activity) are further investigated in terms of its continuity of activities which may contribute to the vitality in all zones. This is important to establish why and how these aspects are contributing to the level of integration between the waterfront and the urban river.

		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
Zone 1a	left bank				√			√		√				
Zone 1a	right bank				√	√	√		√	√	√		√	√
Zone 1b	left bank					√	√		√	√	√		√	√
Zone 1b	right bank					√				√	√		√	
Zone 2	left bank													
	right bank													
Zone 3a	left bank													
	right bank						√		√				√	√
Zone 3b	left bank													
	right bank				√			√	√	√				
Zone 3c	left bank				√							√		
	right bank					√				√				
Zone 4a	left bank									√				
	4a (GM)								√	√		√		
	right bank				√	√	√	√	√	√		√		
Zone 4b	left bank													
	right bank				√	√	√	√	√	√		√		
Zone 5	left bank													
	right bank													
Zone 6a	left bank				√		√	√	√	√		√	√	
	right bank				√			√	√	√				
Zone 6b	left bank				√			√	√	√		√		
	right bank						√	√	√	√			√	√
Zone 7	left bank				√				√	√		√		
	right bank							√	√	√				
Zone 8a	left bank													
	right bank													
Zone 8b	left bank													
	right bank													
Zone 8c	left bank													
	right bank													

Fig. 2. Building use in all zones

5.1. Water-related building use

Based on the observation done, though the type of water-related use existed in most of the zones (Fig. 2), there are other factors suggested to be vital in instigating the contextual integration between the waterfront and the urban river. This situation can be seen in zone 6a, the three restaurants that open 24hours, did not depend or directly related with the urban river, but allow people to connect to the river visually and enhance the riverfront. It invites people to hang out in the area till late night and created an overspill of optional/static activity at the pedestrian walkway along the waterfront. Though other zones (1a, 3b, 3c, 4a, 6a, 6b, 7) do have restaurant in their areas but the positioning of the restaurant plays an important factor in determining its function as to relate the waterfront and the urban river. This is observable at zone 4a, 6b and 7 which has the provision of restaurant in the areas but due to its positioned which backed the river, there are no activity generated that may relate the waterfront and the urban river. As the case of 1a, 3c though there is the existence of restaurant in the area, the accessibility and no continuity of activities to the restaurant are other suggested factors that becomes an obstacle for people to reach the place. Therefore it lessened the concentration of people in the area and reduced the efficiency of the place to be an element to integrate the waterfront with the urban river. This is also the same with the hotels. Hotels in some waterfront city took the advantage of the location to combine activities with the water but it is not the same case with the hotels in Kuala Lumpur waterfront. The hotels are only visually connected (in Zone 1a) or backed the river (in Zone 3a).

As for the green pocket space at Kuala Lumpur waterfront, it is suggested that without any building use nearby to the green pocket space to generate activity, not many people will come to the area and created a potential ambushed area (Manley and Guise, 1998). Based on the observation, it is suggested that most of the user stayed away from green areas which are isolated from the main pedestrian route

(Zone 1b, 3c). Though it may offer a nice break in the city and may give the opportunity for the contextual integration between the waterfront and the urban river to happen, it is currently dominated by undesirable people (Whyte, 1980).

### *5.2. Water-independent building use*

Based on the observation, though there are water-independent building use which can function without the existence of water and give a low level of integration between the waterfront and the urban river, some of these building use may indirectly contribute to the integration in the context of KL waterfront. Examples of these are the public transportation point, shops/ commercial nodes and mosque which have the strength to pull the concentration of people due to its necessity in daily life.

Though public transportation and shops are highlighted by many literatures on its importance to bring people to waterfront, it contributed more to the necessity/dynamic activity rather than to integrate the waterfront to the urban river in the context of Kuala Lumpur. Static activities that may allow people to stay longer in an area with the opportunity to be integrated with the urban river will only be generated in the nearby water independent building use which had provision of ample space and seating for people to sit or socialised around (Whyte, 1980). In addition to that, the integration is suggested to be able to happen if the positioning of these open spaces or seating is facing the urban river (Carr, 1992). This situation can be seen evident in the right bank of Zone 1a and the right bank of Zone 4b. In contrast to Zone 4b, though there is an ample space of plaza provided below the Light-Rail Transit (LRT) station and the plaza around it next to the river which invite people to the area, none of the facilities such as seating or terrace provided encourage the integration between the public and the urban river to happen. Though there are leisure activities available in the area none of it is observed to be integrated with the river.

This situation is also observable in the left bank of zone 6a, though the concentration of people are in the area are enhanced by the existence of public transportation point, the pulling activity is very much due to the shopping area along Jalan Melayu and Jalan Masjid India. Based from the observation, one of the factors contributed to the non-integration between the people in the area and the urban river is due to the non-provision of space or seating in the area that faced the river. This is also the case with residential (Zone 1b and 3a), offices (Zone 1b and 4a) and schools (Zone 3b and 6b), clinic and workshops (Zone 1b) which will need some open space, seating, continuity of activities and building positioned that relate to the urban river to allow for the integration to happen. As for the mosque (Zone 4a), the occasional concentration of people which is accordance to the prayer time, may contribute to the static activity but its position in allowing visual accessibility to the river is important to allow the contextual integration between the waterfront and the urban river to occur. If not these building uses will only be concentrated within the boundary of the buildings.

## **6. Conclusion**

The findings from this research which aim to evaluate the vital functional dimensions (diversity of use and continuity of activities) that are highlighted by literature are also suggested to be essential in the context of Kuala Lumpur waterfront. Though that is the case, there are other important factors identified which are relevant to the context of Kuala Lumpur that need to be look into such as the positioning and location, accessibility and the provision of space and facilities which may generate the static activities and allow people to stay longer to enjoy the urban river directly or indirectly. Without which it will not be able to generate activity at the waterfront that integrate with the urban river. The absence of the water-dependent building use may be related to other physical dimensions that should be considered. The physical dimensions which are vital to create a more wholistic contextual integration between the



waterfront and urban river are not exhaustive in this paper due to the limitation of space and further research on this matter are recommended.

## Acknowledgement

We would like to acknowledge the support from International Islamic University Malaysia for the financial assistance in the setting up of the research project.

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