



ISSN: 0975-833X

RESEARCH ARTICLE

INVESTIGATION THE TYPES AND FUNCTIONS OF WATER FEATURE AT CULTURE  
AND HERITAGE WATERFRONT: CASE OF MELAKA WATERFRONT

Mohd Amirul Hussain, \*Mohd Yazid Mohd Yonos, Nangkula Utaberta, Nor Atiah Ismail, Noor  
Fazamimah Mohd Ariffin and Sumarni Ismail

Department of Landscape Architecture, Faculty of Design and Architecture, 43400  
Universiti Putra Malaysia, Malaysia

ARTICLE INFO

**Article History:**

Received 25<sup>th</sup> June, 2015  
Received in revised form  
23<sup>rd</sup> July, 2015  
Accepted 18<sup>th</sup> August, 2015  
Published online 30<sup>th</sup> September, 2015

**Key words:**

Water features, Identity and image,  
Characteristic

ABSTRACT

Image character of a waterfront was predisposed most by the history of the places. Hence, landscape elements also a part of history of place that influence the image of waterfront. In order to sustain the city's images and character, preservation on the visibility of water features as a landmark is important. Recently, the new commercial development which growth surrounds the historical landmark in cultural and heritage waterfront, have indubitable affect to the visibility at those areas. This paper investigated the types of water features and function for cultural & historical waterfront that influence the identity of place. Thus this paper discusses the roles of water features that characterized the cultural and heritage waterfront identity of Melaka waterfront. A case study method was conducted involving site observation and questionnaire survey to collect residents 'cultural experiences. Result indicated that water features are used to decorate waterfront and townscapes besides that it's also practical to honor persons or occasions, such as entertainment and leisure times. This finding will be useful for architect, designers, and planners as their strategy in developing a commercial area especially within a sensitive area in the heritage site.

Copyright © 2015 Mohd Amirul Hussain et al. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

**Citation:** Mohd Amirul Hussain, Yunos, M. Y.M., Nangkula Utaberta, Nor Atiah Ismail, Noor Fazamimah Mohd Ariffin and Sumarni Ismail, 2015. "Investigation the types and functions of water feature at culture and heritage waterfront: case of melaka waterfront", *International Journal of Current Research*, 7, (9), 20801-20807.

INTRODUCTION

Nowadays water features are used to garnish the townscapes garden and plaza as focal point elements; moreover it's also function to honor persons or occasions namely as recreation and entertainment. Regarding to that, a Splash pad or spray pool along the promenade were permits citizens go into, get drizzling and calm off during the hot day. According to the Philippe Prévot (2006) mentioned a fountains were initially decently functional, to associated to springs or aqueducts and also used to bargain drinking water, water for cleansing and coating to the inhabitants of capitals, townships and settlements. However (Philippe Prévot, *Histoire des jardins* (2006). Was noted a fountain (from the Latin "fons" (genitive "fontis"), is a slice of architecture which drizzles water into a bowl or spurts it into the airborne to supply the water or drinking water and/or for a ornamental or histrionic effect toward the dwelling to generate the image of the city. It was noticed, water features are very significant to representation the symbolism of places, places of memory,

\*Corresponding author: Mohd Yazid Mohd Yonos,  
Department of Landscape Architecture, Faculty of Design and  
Architecture, 43400 Universiti Putra Malaysia, Malaysia

identification and Image ability, familiarity and historical value. According to issues it has been noticed why water features been so significant elements in Townscape development due to representation the symbolism of places, places of memory, identification and Image ability, familiarity and historical value. This study was trying to achieve two objectives; A) to exploring on the types of water features as a landscape element at the townscapes as a result to understand about the function of water features in role to enhance the characteristic of townscape. B) To determinants water features as a visual effect for townscape image and identity. Reviewing the literature found that four main factors (functionality, safety, aesthetics, forms) are commonly used to understand characteristic and walk ability of water features in environment. In the first stage the research will begin by elected the local case study in Malaysia waterfront. In the second stage, Melaka waterfront be located as the target locations for observation data collection in deep. On the third stage, subject were deeply studies on water features provides along the case study to identify the physical structures, pattern, and key features of the water features as landmark and to capture the atmosphere. In this study qualitative method are fit to the issue and objective. The evident was come from many

different sources: such as, observation, noted, user opinion, personal journal and news clips from many source namely internet, books and media social sources. This paper study will do to understand and examines on water features as a part of landscape element at the waterfront area. The result is to understand and to create conceptual framework about the function of water features in role to enhance the characteristic of townscape. Analysis indicated that user were more concern about beautification water features itself rather than functionality, safety, aesthetics and water features form. Hence some of the respondents are not really noticed what is the other function of water features in landscape design. On the other hand they just noticed that water features only provided an amount of the movement water, and particularly majority of respondents reported movement of water as the most important function of the water features in the environment of. This research can be helpful for the developer policy makers and master planner to facilitate in documenting the function of the water feature in environment development, as well as help designer and city planners to have a deeper perspective of water feature perceptions and opinions in tropical climate and particularly Malaysia.

## LITERATURE REVIEW

### Identification and Image ability of Heritage and Cultural Waterfront

Heritage is a slice of the cultural institution in every civilization (Nuryanti, 1996). In this study, heritage is occupied to contain architectural and historical prices, in addition to individuals whose capture heritage in daily practices (Howard and Pinder, 2003). According to (Lynch, 1960) cultural heritage is, encompassing both archaeological sites and archaeo-landscapes, is involved by many recent European policies, laws and national reports on the state of the environment.

In recognizing the urban setting; memory is to record or indicate the actual circumstances. Schulz (2000) illustrated that the necessary to recognize a place is through knowing a place identity (Ferdous and Nilufar, 2008, Yunos, 2015). Lawson (2001) states a place identity or place character often perceived via visual senses and feeling to that space. As well as the legibility induced to read the image; the path, edges, districts, nodes and landmarks guided as direction of a district (Lynch, 1960). In other words, the image ability is the quality of a physical object whilst the spatial contacts probability to evoke the solid image for movement and legibility in a city (Lynch, 1960 and Carmona et al., 2003; Ismail and Nor Zalina, 2010, Meysam, 2015). The insinuations of the physical (tangible), social attribute (intangible) and perceptual contributed to creating the roles of cultural places in characterizing an identity of the historic town. In consequence, the elements features identified as i) site background ii) social cultural activities, iii) spatial attributes, iv) visual legibility and accessibility, v) architecture form and historical structure (refer to Table 1). This study also discusses on users opinions on cultural places when they practice as their routine activities. In sum, individuals experience on cultural places in the historic town are through the emotional feeling, reminiscent from memory,

the sense of place and social activities that existence in the cultural places.

### Water features: Stimulation of sense through the movement of sound

The significant design physiognomies of the water involve in its movement, sound, and reflection. It was debated that the water activates enhances entirely senses and offers numerous opportunities of recreation such as bathing, fishing, paddling and etc. Besides, it has been empirically set up that people keep on in coastline area about hours daily to stimulate their sense by the movement of water (Eleftheriadis, 2006).

The water inspires the senses (Eleftheriadis, 2006). Furthermore, to support this inspiration, the landscape designer can interpose. The water movement and sound cause commemorative and expressive impacts with its peaceful and sensitive possessions (Gombrich, 1950, Spitalas, 2000, Eleftheriadis, 2006). The movement of the water offerings a lively and delightful personality which might affect crashing sound or predominate the sound of city. The lotic water denotes shakiness or movement against to the stability (Arnheim, 2003).

### The roles of water features in townscapes element

Table 1: Water features associated to the landscapes value

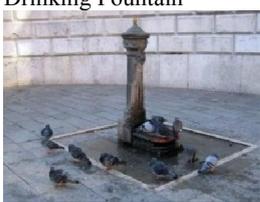
	Standards certified to the landscape which are resulting from the existence of water elements (Spitalas 2000, Eleftheriadis 2006):
1	The sound of water or water birds
2	The movement of rivers, waterfalls, waves etc.
3	The colors of water and coasts
4	The reflections on the water surface
5	The possibility of expanding biotopes of certain species
6	The opportunities of emphasizing structural materials and lighting
7	The opportunities of environmental education

### Types of water features

Table 2: Types of water features

Water features	Description and functions
Ancient time water features 	Ancient empires manufactured a stone bowls to internment and hold the valuable of drinking water at that time. A shared stone bowl, courting to about 2000 BC, was found in the devastations of the earliest Sumerian city of Lagash in modern Iraq (Azraqi, H. Massé, Anthologiepersane (1987). Azraqi, (1987). Their also noted the early Assyrians made a sequence of bowls in the valley of the Comel River, carved in solid pebble, attached by minor waterways, sliding to a river.
Ancient roman fountain	The Early Romans

Figure 2. 1: Hellenistic fountainhead from the Pergamon museum. (Source from: [www.wikiwand.com](http://www.wikiwand.com))

 <p>Figure 2. 2: Rebuilding of a Roman courtyard fountain in Pompeii (1st century AD) (Source from: commons.wikimedia.org)</p>	<p>manufactured a wide method of watercourses from crag streams and ponds to deliver the water for the fountains and pools in Rome. However Naomi Miller(1998) was noted the Romans were able to create a fountains that spurt the water into the air, by using the force of water graceful from a remote and advanced source of water to generate hydraulic crown. The water poured into a bowl, anywhere the sequences of banquet of the roses were served in fluctuating plates shaped like vessels to create the sense of aroma.</p>	<p>Hundred Fountains) (Source from: sandrajonas.com)</p>	<p>turn into the guidebook for Renaissance builders. The function of the renaissance fountain to represent the glory, and wellness of life.</p>
<p>Medieval fountain</p>  <p>Figure 2. 3:Medieval fountain, the Lavabo at Le Thoronet Abbey, Provence, (12th century) (Source from: www.mygola.com)</p>	<p>Throughout the Middle Ages, Roman bridges was drunk or fell into dwindling, and countless fountains through Europe stopped occupied, so fountains has been mostly as an art and literature, or else just in the private abbeys or royal gardens. Fountains in the Middle Ages were connected through the ‘Source of life’ with mean more related about the, clarity, intelligence, purity, and the Garden of Eden. Medieval fountains, resembling to cathedrals of Middle Ages period, showed biblical sections, local history and the qualities of their phase.</p>	<p>Baroque fountain of Rome</p>  <p>Figure 2.6: Fontana Trevi, the Trevi Fountain by Nicola Salvi, (1730). (Source from: blog.troygrofield.com)</p>	<p>In 17th and 18th era it was a wonderful age for the fountains in Rome. The new fountains in Rome remained to jargons of the new Baroque art, which remained formally supported through the Catholic Church as a role to win a general support against the Protestant Improvement. The Council of Trent had confirmed in the 16th century that the fountain in Rome must pawn serious Protestantism with art that was extravagant, vigorous and emotive.</p>
<p>Fountain of Islamic world</p>  <p>Figure 2. 4: The Fountain of the Court of the Lions in the Alhambra (14th century) (Source from: <a href="http://www.bridgemanimages.com">www.bridgemanimages.com</a>)</p>	<p>Islamic precincts afterward the 7th period remained the traditionally surrounded by ramparts and was planned to symbolize a utopia; The utopia gardens, were placed out in the procedure of a traverse, with four canals demonstrating the streams of paradise, dividing the four parts of all God's creatures. According to the Qu'ran water occasionally gushed from a fountain in the middle of the traverseand representative the spring. The Salsabil, this expression was noticeable in the Qu'ran as the foundation of the streams of Utopia.</p>	<p>Baroque fountain of Versailles</p>  <p>Figure 2. 7: Baroque fountains of Versailles. (Source from: en.wikipedia.org)</p>	<p>Establishment in 1662, King Louis XIV of France began to construct a fresh sympathetic of park, namely as Garden à la française, or French formal garden, at the Palace of Versailles. In this park, the water features work as a dominant character. Their used water features to reveal the authority of human over universe, also to prove the splendor of his rule. The fountain of Versailles is an alternative of water dwindling purely into a bowl, and then the water was blast into the sky, or twisted into the silhouette of an admirer or bunch. Twirling water was joints with the melody and sparklers light to procedure an impressive vision.</p>
<p>Renaissance fountain (15th-17th century)</p>  <p>Figure 2. 5: Le Cento Fontane (The</p>	<p>During the 14th period, Italian humanist researchers instigated to re-experience and interpret the elapsed Roman manuscripts on old architecture fountain by Vitruvius. According to the Helena Attlee(1986), the treatise on Roman fountain, the De re Aedificatoria, by Leon Battista Alberti, was defined in more specificin Roman palace, gardens and royal park, then</p>	<p>Drinking Fountain</p>  <p>Figure 2.8: Drinking Water Fountains in Venice. (Source from: www.slowtrav.com)</p>	<p>Water features or drinking fountain is planned to offer ingestion water and has a vessel organization whichever unceasingly running the water or a tap. The drinker crooks down to the brook of water and swallows water directly from the fountain.</p>
<p>Figure 2. 5: Le Cento Fontane (The</p>	<p>During the 14th period, Italian humanist researchers instigated to re-experience and interpret the elapsed Roman manuscripts on old architecture fountain by Vitruvius. According to the Helena Attlee(1986), the treatise on Roman fountain, the De re Aedificatoria, by Leon Battista Alberti, was defined in more specificin Roman palace, gardens and royal park, then</p>	<p>Musical fountain</p>  <p>Figure 2. 9: The Dubai Fountain. (Source from: www.her.ie)</p>	<p>Musical fountains generate a dramatic scene through the water, light and melody typically engaging a variability of programmable fountains and the water spurts was controlled by a computer in the modern time. Musical fountains were major defined in the 1st era AD by the Greek scientist and engineer the Hero of Alexandria in his book</p>

	<p>Pneumatics. Hero pronounced and delivered a illustrations of "A bird made to whistle by graceful water," "A Trumpet announced by flowing water," and "Birds made to carol and be a silent consecutively by rolling a water.</p>
<p>Splash fountain</p>  <p>Figure 2. 10: The Splash Fountain in Krasnodar, Russia. (Source from: <a href="http://www.flickr.com">www.flickr.com</a>)</p>	<p>A splash fountain or bathing fountain is planned for publics to reach in and calm off on hot sunny days. These fountains are also denotedas cooperative fountains. According to Luigi Gallo(2006) these fountains are aimed to allow easy entr�ee, and used the piece of nonslip surfaces, and have no standing water, to eliminate possible drowning hazards, so that no lifeguards or supervision is necessary. These splash pads are often located in public pools, public parks, or public playgrounds (known as "spraygrounds").</p>

phenomenology, symbolic interaction and post-positivism; meanwhile quantitative research is usually associated with positivism. In this case study direct observation has been used specifically to have the result whether, hence Melaka waterfront ware be elected to finding the answer. Thus, these case study was selected according to the vote and review from many evidence that specific more to identity, sense of place, sense of memories, physical aspect and cultural & heritage aspect. The UNESCO recommendation (1976) affirmed that historic area considered all significant elements comprised of human activities, building features, landscape elements, spatial organization and its adjacent area (Jokilehto, 1990). The case study area are determines in the Melaka riverfront. Accordance to the previous studies, this waterfront thrives with rich historical background, significance of sociocultural activities and local economic vitalities. Hutchison, 2010. Discourses the significance of cultural and heritage city is own its spirit of place or genus loci, the significant identity and essential historical value particularly distinguishes from other places or new townscapes. Furthermore, this paper includes observations of conferences, walkway activities, place of work and etc. Less formally, direct observations might be complete throughout of field visit including those occasions during which other evidence, such as that from interviews, is being collected it's also conducted by a few evidence such as picture observation, news, journal, and etc. Moreover, to increase the reliability of observation evidence, a common procedure should have more than single observer to making an observation stronger. As a result to answer researchers question, researchers was divides the issue into a three stage. In the first stage the research will begin by elected the local case study in Malaysia waterfront. In the second stage, Melaka waterfront was elected as the target locations for observation data collection in deep. On the third stage, subject were deeply studies on trees along the case study location due to examines the trees as a landscape element at the waterfront and as a result to understand about the function of trees in role to enhance the characteristic of townscape according to the evidence and literature review.

## Conclusion

**Table 2: Theoretical framework for water features and its character**

Physical component of landscape elements	Characteristic for cultural & heritage landscape elements evaluation	
	Aesthetic / function criteria	Cultural & heritage criteria
Water features: <ul style="list-style-type: none"> <li>• Ancients time</li> <li>• Ancient roman fountain</li> <li>• Fountain of Islamic world</li> <li>• Renaissance &amp; Baroque fountain</li> <li>• Medieval &amp; drinking fountain</li> <li>• Musical &amp; splash fountain</li> <li>• Contemporary fountain</li> </ul>	<ul style="list-style-type: none"> <li>• Movement effect</li> <li>• Sense of Genesis and dramatic</li> <li>• Ornamental value</li> <li>• Sense of memories</li> <li>• Kinesthetic experiences</li> <li>• Sense of Relaxation</li> <li>• Texture</li> <li>• Special properties</li> </ul>	<ul style="list-style-type: none"> <li>• Symbolism of Places</li> <li>• Place memory</li> <li>• Identification &amp; Image ability</li> <li>• Familiarity &amp; Distinctiveness</li> <li>• Historical value</li> </ul>

## Case study: Melaka Heritage & Cultural waterfront

Spectacular riverside panoramas, colorful pastel houses along the riverfront, and a lively port quarter are a few of the attraction you'll find in Melaka waterfront. Tourists can discover the city's patched streets by foot, and climb winding sets of steps to reach the town's best vantage points. Ride a colorful trishaw to Royal palace of Melaka to view the ancient ramparts of Malay Historic Museum, or head to downtown of Bandar Hilir to discover the lively city squares. Melaka Rivers is the perfect place to relax by the river, while Bel em includes some of Portugal historical & culture is the best museums and monuments. Families will enjoy 'Fordula de la mart', largest Malaysia maritime museum. Never less more, are dazzling water fountain at the focal point of waterfront centre business district Melaka waterfront more workable and cozy to visitor treasure the uniqueness place. The Landscape Element of water features and other fountain was uses in Melaka waterfront due to complementary of streetscape design features to provide an attractive and inviting route for a variety of users. According to the Rapoport, 1997. These types of water feature have their own super power and uniqueness architect design due to attract

## METHODOLOGY

### Case Study: Site Observation

A qualitative method is the greatest and suitable approach to be employed in this paper for collecting, analyzing and reporting data. As Meriam (1998) noted, qualitative research is appropriate for any research which is involve in and focused on

the visitor, besides of that water features also will create a sense of place in role to enhance the identity and image of Melaka waterfront city.

**Investigation the types and functions of water feature at Melaka Culture Heritage waterfront**

**Table 3: Types of water features in Melaka Waterfront**

Types of water features	Functions and Analysis
<p><b>The Baroque fountain : Queen Victoria Fountain</b></p>  <p>Image 2.4.1: The Queen Victoria fountain at the center of square is like an outdoor feature in the townscape, a breathing element with sound of movement for the crowds of citizen on the square. It is a landscape element features that is dominant in the townscapes and has the power to attract folk to engage in leisure oriented activities in the Melaka waterfront. (Resource: Author)</p>	<p>In the 17th and 18th era it remained a wonderful period for the fountains of Baroque. The new fountains in Rome remained to jargons of the new Baroque art, which remained formally supported through the Catholic Church as a role to win a general support against the Protestant Improvement. The Council of Trent had confirmed in the 16th century that the fountain in Rome must pawn serious Protestantism with art that was extravagant, vigorous and emotive. The fountains of “Queen Victoria” at the centre of Melaka waterfront, look alike the images of Rubens, were illustrations the principles of Baroque art. They were packed with metaphorical figures, and filled with sensation and gesture. For the Queen Victoria fountain, the monument became the major element, and the water basically used to breathing and embellishes the sculptures.</p> <p>The characteristic of Queen Victoria fountain seem like baroque gardens in 17th- 18th century, were "a visual demonstration of poise and power of queen that given by god. The Queen Victoria fountain was generating the identity of place of Melaka waterfront. The Queen Victoria fountain has a magnetic effect in enticing crowds of citizen due to the human activities setting that have a high degree of transparency and stimulants. It is the major effective location for community’s interaction and has a momentous impact to the townscape due to its concentration of activities and crowds of society.</p>
<p><b>Splash fountain: Dataran Warisan</b></p>	<p>A splash fountain or bathing</p>

**fountain and The fountain of Youth**



Image 2.4.2: The Splash fountain at Dataran Melaka riverside is one of the most unique features settings for the historic townscapes due to ability to blend the functions of a public though fare as well as being a place for the pedestrian’s displays of goods and merchandise.  
(Resource: Author)



Image 2.4.3: This Fountain of Youth in front of *Jonker walk* is located in the most strategic part of the historic town centre and is commonly used as recreational setting for the town. It’s also acts as a major focal point in the heart of the historic district.  
(Resource: Author)

fountain at Dataran of Melaka riverside is envisioned for publics to reach in and calm off on hot sunny days. These water features are also denoted to as cooperative fountains. According to Luigi Gallo(2006) these fountains are aimed to allow easy entrée, and used the piece of nonslip surfaces, and have no standing water, to eliminate possible drowning hazards, so that no lifeguards or supervision is necessary. These splash pads are often located in public pools, public parks, or public playgrounds (known as "spraygrounds").

**ANALYSIS AND DISCUSSION**

This section exploring the types of water features and its function that contributes to the townscape character of the cultural & heritage waterfront in Melaka. The water features in Melaka waterfront is considered unique compared to their old counterparts due to the significant differences in character in the form, function, characteristic, image, identity and meanings attached to the area by residents and yet some of them we notice are newbie build but according to the functionality we can consider them as a part of culture and heritage feature. Nowadays water features are used to garnish the townscapes garden and plaza as focal point elements; moreover it’s also function to honor persons or occasions namely as recreation and entertainment. Regarding to that, a Splash pad or spray pool along the Melaka Waterfront promenade were permits citizens go into, get drizzling and calm off during the hot day. Ultimately, the Baroques or Renaissances fountain syndicates touching spurts of water, bleached of lights and splash of water drop off was create an dramatic effects for user to enjoy this moment for live. The water features are one of the unique

landscape elements features types that characterize the historic townscapes of Malaysia. The minaret of the Baroque fountain tends to act as an effective focal point and place markets in historic and culture townscapes. The mixture of different types of building to meet the various needs of the community makes the heritage and culture centre a livable place for the folk. As a result, these types of water feature have their own super power and uniqueness architect design due to attract the visitor. Besides that, the fountains in Melaka waterfront have their own type of heritage and cultural element that provide the sense of memorable to the visitor.

**Table 4: Conclusion of physical component of water features at casa studies.**

Physical component of landscape elements	Characteristic for cultural & heritage landscape elements evaluation	
	Aesthetic / function criteria	Cultural & heritage criteria
Water features: <ul style="list-style-type: none"> <li>• Renaissance &amp; Baroque fountain</li> <li>• Musical &amp; splash fountain</li> </ul>	<ul style="list-style-type: none"> <li>• Movement effect</li> <li>• Sense of Genesis and dramatic</li> <li>• Ornamental value</li> <li>• Sense of memories</li> <li>• Kinesthetic experiences</li> <li>• Sense of Relaxation</li> <li>• Texture</li> <li>• Special properties</li> </ul>	<ul style="list-style-type: none"> <li>• Symbolism of Places</li> <li>• Place memory</li> <li>• Identification &amp; Imageability</li> <li>• Familiarity &amp; Distinctiveness</li> <li>• Historical value</li> </ul>

**DISCUSSION AND CONCLUSION**

Dormant within each one of us is primal reaction to the water. It is living bequest of early human’s era, who cannot survive for long period without this valuable resource at pointer. Water is universal in our historic literature, for the illustration, olden psalms often denote the water as a symbol of life in the gasping desert of Holy Land. There a hundreds of aims to add waterscapes in the design. The fountain was stimulate the senses and add some nimble to the space. Hence, it also conveys the movements and diminuendos to the landscape, the fountain also gesture us outside to watch, listen, splash, or be alone our thoughts. Never less more a fountain offer us place for recreation, which mean that water elements make space more buzzing in the most pleasing way. Moreover, whether the water features are intention for an elaborate splash pool or a simple birdbath, this waterscape is critical in creation a landscape both striking to look at and pleasurable to know-hows. In fact, individuals have ever experienced places before and after the addition of water features will recognizes how water magnets us to it. I’ve seen squares that go completely unused until a water splash fountain or other fountain has been added, and then suddenly they become a central gathering place. Because of this we noticed as well good water feature whether it design carved is modern or heritage created the

impact good water features will have on townscape properties value and show the image and identity of places.

In this study also, we was exploring about the characteristic of water features at heritage and cultural waterfront that will support the waterfront in way to enhance the image and character. We identified ten differences types of water features that will enhance the heritage and cultural waterfront character and some of culture and heritage criteria such as physical, social, & perceptual, sense of place, memory, orientation, perception & cognition, and last but not list is identification and Imageability. The result will further enable researchers to propose a new verified framework for development and this recommendation will be useful for architect, designers, and planners as their strategy in developing a commercial area especially within a sensitive area in the heritage site.

**Acknowledgements**

Cannot express enough thanks to Ministry of Educaton for granting the fund of Trans-Research Grant Scheme (TRGS) and my role of supervisors in the research project for their continued support and encouragement: Dr. Mohd Yazid bin Mohd Yunos, Dr. NangkulaUtaberta and Dr. NorAtiah Ismail, Dr Nor Fazahmima and DrSumarni. I offer my sincere appreciation for the learning opportunities provided by my committee.

**REFERENCES**

Bruttomesso, Rinio (ed.): Waterfronts, Venice, 1993  
 Carmona, M. (ed.) Globalization, Urban Form and Governance, Nr.9, Globalization and city ports. TU Delft, pp.9-29  
 Harms, Hans, 2003. Long term economic cycles and the relationship between port and city. In  
 Hartman, Chester, with Sarah Carnochan, 2002. City for Sale, The Transformation of San Francisco. Univ. of California Press  
 Hey DL. 1994. The Des Plaines River Wetland demonstration project. In: Rowntree RR, Platt RH, Muick PC, editors. The Ecological City, Amherst: University of Massachusetts Press.  
 Jacobs, Allan : 1993. A Review of the Mission Plan for San Francisco, in: Bruttomesso, Rinio (ed.):Waterfronts, Venice.  
 Jacobs, Allan B. 1993. Great Streets, Massachusetts: MIT Press  
 Koraltürk, Murat (2001).“1930’ların Başındaİstanbul’ un Limanve Köprü Sorunuylaİlgili Bir Rapor”, İstanbul Dergisi, No. 37 (Nisan) Kriken, John Lund: Creating a Framework: Waterfront development as urban placemaking.  
 Kostof, Spiro, 1991. The City Shaped Urban Patterns and Meanings Through History, Canada: Bulfinch Press  
 Lieberman, Eva, 1995. Paper: Taking back the waterfront Haglund K. Inventing the Charles River. Cambridge and London: MIT Press; 2003.  
 Lopate P. Waterfont: a journey around Manhattan. New York: Crown Publishers, 2004. Porter DH. The Thames Embankment. Environment, technology and society in

- Victorian London. Akron:University of Akron Press; 1998.
- Marshall, Richard, 2001. "Contemporary urban space-making at the water's edge". in R. Waterfronts in Post-industrial Cities, New York: Spon Press, 3-15
- Mesyam, D.N., Ismail, N. A., maulan, S., Yunos, M.Y.M. (2015). Visual preference dimensions of historic urban areas: The determinants for urban heritage conservation. *Habitat International* (49). Pp. 115-125.
- Meyer, Han, 1999. *City and Port*, Rotterdam: Haasbeek
- Millspaugh, Martin L. 2001. "Waterfronts as Catalysts For City Renewal". in R.Marshall(eds.), *Waterfronts in Post-industrial Cities*, New York: Spon Press, 74-85
- Otto B, McCormick K, Leccese M. 2004. *Ecological riverfront design: restoring rivers, connecting communities*. Chicago and Washington, DC: American Rivers and the American Planning Association.
- Rose DB. *The ecological humanities in action: an invitation*. *Aust Humanities Rev* 2004:31-2. Eisenstein W. *Ecological design, urban places, and the culture of sustainability*.
- San Francisco Planning and Urban Research (SPUR) Newsletter; 2001. Available from: [/http://www.spur.org/documents/010901\\_article\\_02.shtmS](http://www.spur.org/documents/010901_article_02.shtmS).
- Spaid S. *Ecovention: current art to transform ecologies*. Cincinnati: Cincinnati Contemporary Art Center;
- Short, John R. 1996. *The Urban Order: An Introduction to Cities, Culture and Power*, Blackwell Publishers
- Shuhana Shamsuddin Penerbit UTM Press 2011. *Townscape Revisited, Unravelling the character of the historic townscape in Malaysia*.
- Ulusoy, Zuhul 2000. "Kıyıları ve Kıyı Gelişim Projeleri", *XXI Mimarlık Kültürü Dergisi*, Vol. 5 149-161, (Kasım-Aralık)
- Vallega, Adalberto 1993. "Waterfront Redevelopment: A Central Objective for Coastal Management", in R. Bruttomesso (eds.), *Waterfronts- A New Frontier For Cities On Water*, Venice: International Center Cities on Water, 24-3
- Vegara, Alfonso 2001. "New Millenium in Bilbao". in R. Marshall (eds.), *Waterfronts in Postindustrial Cities*, New York: Spon Press, 86-94
- Wrenn, Douglas M. 1983. *Urban Waterfront Development*, Washington: Urban Land Institute.
- Yunos, M.Y.M., Isa, N.K.M., Utaberta, N., Ismail, N.A., Sumarni, I. 2015. The issues of public participation in garden design process: An analytical discourse. *Advances in Enviromental Biology*, 9 (5), 404-409.

\*\*\*\*\*