

Place Identity in Defining Urban Space of Border Rivers in Historical City Centres

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ABSTRACT

In the city, building space could transform to be as place, because architecture does not include only traditional values such as housing, human protection, stability, etc, but could carry other dimensions beyond the housing or building occupancy or develop urban design. Rivers had vision in motion as a way to show dynamic processes in its flowing slowly, which are simply measured in time and the life of citizens.

The research consider the river path in traditional cities as Alley connecting the spaces of the city ... old Baghdad was characterized by this property and it is look like Venice in the past, while traditional European cities were able to preserve this property till now, and capable to take transformation of the city with development projects inside it. These cities was distinguished by development of river edge as creating place along the river corridor and try to attract peoples who lived in, protect the natural environment along the river, as well as reflect the characteristics of the city along of the elevation of the river, and conserve the river banks as alley connected between urban spaces.

Baghdad which penetrates by Tigris River has maintained this feature until the middle of twentieth century. So now, the research can see the absence of specialized local studies, including The comprehensive development plan of the Baghdad city 2030 to study and Re design the spaces and places along river edge, this led to emerge research problem, in the absence of specific knowledge about identity of river space characteristics for identification of urban space in place of the Tigris River in downtown of Baghdad historical city center, in the urban development plans since the mid-twentieth century until now, and study design factors that contributed with disintegration of the space syntax relations in river elevation. Turning to the experience of historical European cities and how to deal with urban space to the edge of the river and created the identity of the place, especially the interface development experience the (Seine river in Paris, Thames River in London, Tiber River in Rome, Danube River in Vienna & Budapest, Vltava river in Prague) and study urban style in dealing with the river edge, in order to reach the elements which define the identity of each city. In order to reach the aim of research in redefining the identity of places for urban spaces overlooking to integrate the banks of Tigris River in the historical city centre of Baghdad, and the methods of linking the development of river front with the comprehensive development plan of the Baghdad city 2030.

Key words: waterfronts, historic architecture, urban design, urban renewal, development city center.

هوية المكان في تعريف الفضاء الحضري لحافات الأنهر في مراكز المدينة التاريخية

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الخلاصة

في المدينة، يمكن أن يحول الفضاء المبني إلى مكان، فالعمارة لا تشمل القيم التقليدية فقط كالسكن وتوفير الحماية للإنسان والاستقرار، الخ، وإنما من الممكن أن تحمل أبعاد أخرى تتجاوز السكن أو إشغال البناية أو السبب الحضري من التصميم. وتمتاز الأنهر بحرية الحركة في الرؤية، وهي وسيلة لإظهار الديناميكية والحيوية الموجود في هذه العمليات والتي هي ببساطة تقاس بالوقت.

يعتبر مسار النهر في المدن التقليدية بمثابة رفاق رئيسي تفتح عليه فضاءات المدينة... واتسمت بغداد القديمة بهذه الخاصية وكانت تبدو شبيهة بمدينة فينيسيا، بينما استطاعت المدن الأوروبية التقليدية بالمحافظة على هذه الخاصية، واستيعاب التحولات والتطورات المرحلية. وامتازت هذه المدن بأهداف تطوير الحافة النهرية المتمثلة في خلق ترابط على طول الممر النهري ومحاولة جذب العامة إلى النهر، والعمل على حماية البيئة الطبيعية على طول مسار النهر فضلاً عن دراسة الواجهة النهرية لتعبر عن خصوصية المدينة. وحافظت هذه المدن على اعتبار النهر كرفاق ومتصل حضري يربط صفتيه. واستطاعت بغداد ونهر دجلة الذي يخترقها أن تحافظ على هذه الميزة لغاية أواسط القرن العشرين.

إن غياب الدراسات المحلية المتخصصة، وضرورة دعوة الدراسات المحلية ومنها المخطط الإنمائي الشامل لمدينة بغداد عام 2030 إلى دراسة الناحية التخطيطية والتصميمية للحافة النهرية ولد المشكلة البحثية، في غياب المعرفة المحددة لهوية فضاء النهر وخصائص تعريف هوية المكان في الفضاء الحضري لنهر دجلة داخل مركز مدينة بغداد التاريخي في مخططات التنمية الحضرية منذ أواسط القرن العشرين ولحد الآن، ودراسة العوامل التصميمية التي ساهمت بتفكك العلاقات الفضائية في الواجهة النهرية. وبالعودة إلى تجربة المدن الأوروبية وكيفية التعامل مع الفضاء الحضري لحافة الأنهر وخلق هوية للمكان، وخاصة تجربة تطوير واجهة (نهر السين في باريس، نهر التايمز في لندن، نهر التيبر في روما، نهر الدانوب في فيينا وبودابست، نهر فالتا في براغ) ودراسة الأنماط الحضرية في التعامل مع الحافة النهرية، من أجل الوصول إلى العناصر التي أعطت تعريف لهوية المكان لكل مدينة. من أجل الوصول إلى هدف البحث في إعادة تعريف هوية المكان للفضاء الحضري المطل على نهر دجلة داخل مركز بغداد التاريخي، وأساليب ربط تطوير الواجهة النهرية بالمخطط الإنمائي الشامل لبغداد 2030 .

كلمات البحث: الواجهات النهرية، الهندسة المعمارية التاريخية، التصميم الحضري، التجديد الحضري، تطوير مركز المدينة.

1. INTRODUCTION

Water is important to the life and culture of human kind which led to rich practices of water harvesting and water storage/conservation reflected in the development of considerable variations in the forms of water structures, deep stepped basins. Amongst Living Cultural heritage, the performing and visual arts including painting and sculpture, folk, tribal art and handicrafts are significant. This unique environment along with the context of color, festivities and traditional way of life accumulate to become the incredibly rich heritage. That is "Baghdad", Despite its growth from a small princely town to an important heritage destination, it has retained the hierarchical relationship between the city and the people. Its heritage is very much a part of its daily life and constitutes the Baghdad river side of bright and colorful costumes, festivals and historic fine arts. In recent years, the development of waterfront areas in the world has gradually become the hot spot. A lot of cities are enthusiastic about developing the waterfront areas. However, since the urban design renewal theory in Iraqi starts relatively late, it cannot thoroughly improve the waterfront environment. It is the urgent task of develop workers to attach great importance on the landscape ecology theory and draw on the advanced waterfront urban planning experience of foreign countries, combine the relevant scientific knowledge, start from the ecological environment of the whole city and respect the local culture so that the waterfront urban design may serve the city better. Moreover, they shall sum up a set of practical waterfront urban design theory. The research is carried out on the basis of this.

The absence of local specialized studies and invite local studies, including comprehensive

development report to the need to study urban design side of river edge born problem in **the absence of planning standards research to the physical edges of the Tigris River in**

downtown Baghdad, and the emergence of **Western studies specialized in developing methodology planning research**, and the need for Western studies analysis of the design and planning study of applicability on the edge of river within the city of Baghdad.

The absence of a fact to the waterfront urban planning design of water as well as the absence of controls, and this was confirmed by the urban development project for the city of Baghdad 2030 (phase I – final report).

1 URBAN WATERFRONT OF THE CITY

1.1 Cities and the Water Relation

The first great cities on the whole are to be found in great river valleys and basins. Irrigation on the necessary scale seems to have been developed first of all in central Mesopotamia—between the Tigris and the Euphrates—from about 6000 BC. There the first city-scale developments were built in Sumer, at Uruk (c. 3500 BC), Ur (c. 3100 BC) and Eridu (c. 2750 BC). The presence of great rivers made irrigation possible.

Power naturally accrued to those who built and controlled the irrigation systems, not to mention the defenses. None of this could have been achieved without centralized planning. Small wonder then, that the first cities show evidence of social stratification and the development of craft specializations.

So, four things in the first place, made the city possible:

- The separation of the built-up area from the surrounding countryside, possibly by defensive walls.

- The development of irrigation systems for intensive agriculture.
- The development of power structures by which the irrigation systems, and other aspects of urban life, could be controlled—usually by kings and priests.
- The development of craft-specialties to serve not only the needs or the desires of the urban population but also as bases for trade. **Broadbent, 1990.**

So on Al-Mansur founded the rounded Baghdad city on the western side in (756-762 AC).

Since the ancient times, the urban development cannot live without water. The city depends on water and the water is the lifeline of urban life. The function of the water to the urban manifests its **ecological** adjustment function, the **ornamental** function, the **economical** function, the **cultural** function and **social** function. Many cities are formed along the water and thrive because of the water. The place with water around has always been the place where natural lives yearn for. Furthermore, the developed river system promotes the **transportation**, which further develops commodity circulation and commercial prosperity. **In such a way, cities are formed. People live along the water and water culture evolves.** The water holds the important status in the urban space environment. Both the ancient and modern cities home and abroad often primordially consider water source in its selection of the location. (Huang, 2011, P.1162)

Since cities were founded in these things, it is hardly surprising that cities ever since have been permeated by them or their equivalents. As for their physical design, cities and parts of cities have grown in two ways. The first is described by, **Alexander, 1964**, as **the natural way** in which people simply start building, as they still do in the shanty towns of the emerging world. And then there is **the artificial way** in which a master plan is prepared; streets laid out, squares and urban blocks on to which buildings are then placed according to some planners' sense of order. This contrast will recur many times in the research. So will another contrast: between formality and informality. **The 'natural' city tends towards informality**, not to mention an apparent disorder **whilst the planners will want their conscious decisions to show.** Most planners aim for regularities of a kind which show that human minds have been at work; but some aim for a self-conscious irregularity of the kind we call Picturesque. This is largely about

that contrast but of course it will have to be put into context. **Broadbent, 1990.**

The Importance of Urban Waterfront is a particular region of the city. It means the land or buildings which are adjacent to the city part of the water body such as the rivers, lakes and oceans, and it plays an important role in the city:

- The waterfront is a kind of scarce resources in the city, and it has great **economic value**. Usually, the Urban Waterfront has the **advantage of landscapes and traffic**, therefore it is **active in business and real estate activities, and the land price is higher** than some other regions. Waterfront building often represents the degree of the development of each city and the social image.

- The waterfront has unique community **cultural values**. Waterfront could supply the people's lives hydrophilic sites, and attract a large number of people and business to be gathered here to view, play, and enjoy the water. For example, the hydrophilic sites which are created along will make the management of the river towards to the functions of **leisure development**, using "water" as the starting point for the public to show the story of a city through the ages.

- The waterfront has the natural advantages of **climate and landscape value**, and it can regulate the local climate, cleaning up the environment, providing people with a high quality of life, **Hongyu, 2010**. Such as the European cities, it attracts numerous tourists to spend their holidays for its picturesque landscape and pleasant weather Waterfront can provide people with **health, leisure and quality of life**, but flooding is a major threat to its security. When we are enjoying the benefits of the waterfront, **the flood prevention and hazard reduction must be focused in urban design to ensure the safety of the waterfront.**

1.2 From space to achieve place in waterfront

A sense of a place of emotional gratification of components through living in a desirable and close itself and reflects the general concepts, goals and needs as a sense of support. The identity and cohesion of the community, keeps the place memories retains its value as image, and allows for a person to dream of quietly, and carries the imagination and memory for image formation. Hence the importance of the place and felt it was one of the factors that incorporate ideas and memories to create continuity factors.

The space could transform to be place, architecture does not include traditional values

just as housing and provide protection and stability but could carry other dimensions beyond the housing or building works or urban design.

The rivers have freedom of movement, vision in motion which is a way to show the dynamic processes in simply measured with time. The section river edge works as indicator used in design since the difference in water level, river edge influence shape and form design in order to define the identity of the place.

The place is not abstract meaning, but is all made of real things and possess a moral and material, formal, sensory properties and symbolism are specific environmental identification constitutes the core of the place. The place product of many forces, **natural and social history**, and a **spatial property** create human environment satisfactory, either stages of sense of place: (**attention, sensation, feeling, perception, cognitive perception**).

1.3 Principles of the Place of Waterfront

The main feature of the waterfront area design trend to solve a series of complex and comprehensive problems; it refers to many areas of knowledge and technology. Waterfront has many functions in the city's natural systems and social systems, such as **water conservancy, transportation, recreation, urban image, and ecological function**, etc. Therefore, the waterfront project involves **shipping, river training, water reserves and supply, adjusting flood drainage, vegetation and animal habitat conservation, water quality, energy, urban security, architecture and urban design** and other aspects. Each city's rivers or the waterfront area has its own unique functional requirements and cultural characteristics, **Fig.1**. This determines the waterfront planning and landscape design should be a multi-angle designs which able to meet the characteristics of different cities. Urban waterfront landscape cultural design includes the reasonable functional of landscape visual aesthetic artistry and regional culture etc. The design achieves the **harmony between people and places**. Construction of urban waterfront areas should re-examine the city of this valuable resource based on new ideas, and carry out the waterfront urban design from the city's eco-systems, landscape systems, cultural systems and cultural factors. Among those cultural factors are particularly important, **Zhu, 2011**.

Along with the social and economical development, the construction and exploitation

of the urban shore districts has become increasingly active, particularly since this century, many cities has carved in the development of the water shore area. Generally speaking, these efforts are fruitful. But problems also exist, as in **Huang, 2011**.

1.3.1 Social purpose

The **expansion of city changes the structure of urban fabric** and alienates people from the nature. So, the people lack the necessary and useful contact with the nature. As a result, the design of waterfront shall provide the chance for city dwellers to touch the nature and protect the present water culture in a city, fully excavate and continue the historical and cultural characteristics of a city, and carry forward the profound humanistic background and **shape the new images of a city**.

1.3.2 Ecology principle

Waterfront urban design is an important part of the open space of a city and the material carrier of the entertainment activity of city dwellers. As the compound area for the intersection of land, water and wetland, water can adjust the temperature and humidity of a city.

Ecology refers to the interactive relationship between the **living beings and environment**. To protect and develop the water resource of a city and provide city dwellers with a harmonious living environment is the responsibility that cannot be avoided by the city design. The waterfront landscape space shall provide the **link for the city to contact the nature**. Together with vegetation, water can improve the physical environment of a city, create a good ecological environment and shoulder the responsibility of adjusting the ecology of a city. So It is the **green corridor of a city** and an important "base" for maintaining and establishing the biological diversity of a city.

1.3.3 Economic purpose

The waterfront space is not only a space for visiting and resting but also the material carrier of entertainment economy. Excellent waterfront space will **demonstrate the unique feature of a city** to the people, attract visitors from other places and rise people's entertainment and consumption desire, therefore, promote the development of the tertiary industry, provide more employment opportunities for the dwellers and create more **wealth for the city**.

1.3.4 Respect regional culture

The urban elements for waterfront design shall give priority to the local features so as to display the regional character, Artful application will highlight the local characteristics; meanwhile, the local plants have the advantages of high survival rate and low maintenance cost. The hard composition elements of waterfront design such as the **bulding facade, shelters, street furnitures, bank, footpath, road pavement and decoration**, etc, **Fig. 1**. should also use local materials as much as possible. The local materials can bring very striking local characteristics and reflect the language of different from the common run. The design of benches, railing and indication board shall also adopt the symbols with the local features so as to show the extraordinary temperament of the city. The modeling of waterfront shall reflect the local spirit. Therefore, the design should firstly understand the history and culture and excavate the deep historical connotation of the site. The waterfront usually embodies very rich historical memory. It seems that the **old stone bridge, ancient shipside, the building character and decoration patterns of the local folk house**, improve the vigor of waterfront and shape the new image of a city.

1.4 The Impact Factors on the Shaping Waterfront

Based on the affecting factors that planning and design of river edge, depending on the specificity of historic cities. These factors can be applied to river edge and waterfront:

1.4.1 City and water culture

The human feel with his entity about the place of memories associated with his passion and a meaningful for him, that human existence is through man's relationship to the world as meaning where the emotional and sentimental meanings leading to its **interaction with belonging to the place**.

Water is the origin of life. It is the substances that distribute the widest on the Earth. It is most important physical conditions people live on. It is closely linked with humanity's activity. The nation water culture is well-established. In the long-term production lifecycle, people have maintained a close relation with the water. From the initial worship of water, the awe to the water, the ancients had transmitted gradually to understand, exploit, utilize and appreciate water, and develop many philosophy, these thoughts are

glittering throughout in the national culture that brands deeply in each heart's. And in the human development and evolution, people also express their understanding, therefore water culture with material and the spiritual wealth formed.

1.4.2 Preparation of alternative planning strategies

Show alternatives available to study the effects of planning and process planning design principles in the development of the river contain the following interface **Fig. 2, Nickels,2006** :

- **Linear Strategies:** it depends on the open space with a strong linear axis along the water edge and then publishes the spaces and events along the water edge. It emphasizes the strong interdependence between North and South.
- **The String of Pearls Strategies:** it depends on the nodes, and in this schema have five major nodes which bind the public spaces of the city with the edge of the water. This schema defines the events along the water's sites and main poolers, which note the relationship exists and its surroundings from the land.
- **The Bow Tie Strategies:** in this schema the focus of activity in the northern and southern edge with node status and these three are linked through a linear parks.

1.5 The Components of the Waterfront

The human factors of waterfront urban design should focus on the **combination of modernity and tradition** to embody the **spirit of local color and culture**. Although it is carrying out modern-style design, it cannot be completely to depart from the local culture and local humanistic history. There are two ways to deal with this issue. **Zhu, 2011**.

- In order to retain the traditional graphic patterns or the cultural spirit, it follows the traditional layout on the whole and presents a certain modern style and modern technology on handling the materials and pitch points.
- Another method is to abstract traditional modeling form and to use symbolic forms for migrating into the modern design in order to make people to receive the information and trace of history indistinctly.

The waterfront design can pass through the following aspects of the specific designed to enhance the cultural factors, as **measured factors of urban waterfront** and problem in its design:

1.5.1 Land Use

The entire visual order of a city is like an organism in that it is not made up of self-contained parts. Interaction between the parts is continuous and essential to form a **coherent and legible urban environment**. **Mixed land-use** along the waterfront can be classified as one which includes the palace complex, residential, commercial, religious and institutional uses. Although, the social/political climate of the formative years led to definitive patterns of land use and hierarchies in the built form, they have diluted due to changes over time. However, certain influences still remain. **Samant, 2010.**

1.5.2 Activities

The River City's history is linked closely by several aspects of the ancient events that were taking place on the river edge and ancient buildings and their functions and locations for river edge and old river edge location change and dealing with the current displacement. Contribute to events taking place on the river edge and recovery as well as the nature of actors influence in determining the nature of design and furnishing. **Casalino, 2005.**

Some cities neglect the local characteristics in the construction of the waterfront. They apply mechanically the success stories home and abroad, blindly pursuing the so-called modernization. The civic culture is formed after a long term accumulation, and the waterfront often is the carrier of its history and culture. Neglecting the historical background of the city will result in the absence of the special characteristic of the city and its **spatial identity**, destroying the unique image of the water shore city, affecting the extension the urban culture. **Huang, 2011.**

1.5.3 Landscape & Plant design

Plant design should take into account of the characteristics of the waterfront landscape, namely waterside. The best choice is the cultivation of hydrophytes, such as reed, flag leaf, water lily, iris pseudacorus, etc. These plants not only contribute to the **better environment**, but also **clean the waters**. Moreover, the growing season of plants should be concerned. Specifically, there are multiple seasonal cycles of plant in the same landscape, and this produces that the landscape has a corresponding plant in each season. However, we must choose the plants, which can match the date of the historical events, in designing some

waterfront landscape of a memorial and historical of events. And this leads to the best view of the whole landscape in the activity's period. Therefore, plant is one of elements in the landscape system design and has an impact on it. (Zhu, 2011, P.6566).

1.5.4 Built Form

The place structure where the relationship between space and the viewer, or between elements as a set of relationships that appear in a specific point of time and place.

The historic area along city waterfront with its sense of place through its distinctive organic order, density, vernacular architecture and a built form that is recognizable as a singular entity. Built form is a result of evolution that has been guided by dominant determinants such as its **socio-economic hierarchy/structure, political and religious factors, climate, availability of materials and technology.** **Samant, 2010.**

1.5.5 Sidewalk design

The sidewalks along the river give opportunity to **bring the community to the waterfront**, and the successful experiences to convert a few areas to public space and promoting River environment without negative impact on them through design. As well as benefit from the extension of sidewalks in the foreground area increase River and deal with different levels provided site sitting River sessions and various optical sights, **Fig. 1.** Disconnect the movement area from seating and other events by creating two levels, one for movement and the other for other actors, as well as the use of different levels in **creating fun and diversity** of the views of the urban landscape.

In the process of the design, it is should be considered specific and various factors, such as paving design. It can use the representative image of signs or **historical signs**, and **paving brick or granite** to collage out the image texture on the floor. This can be applied to a large ground and a larger image. Another method can be applied to handle details. For instance, it collages with small stone on the corner line or a small ground. This produces that the overall design is novel and unique and harmonizes with the surrounding cultural environment. That not only riches the details of design but also enhances the depth of cultural connotation. **Zhu, 2011.**

1.5.6 Façade

Determines location based on vertical and horizontal elements, the **vertical elements are more effective** than horizontal levels in identifying where you can define space and create a sense of containment and moving in complete place perspective.

Continuous façade is formed along the river due to the positioning of various institutions, the relationship between them and the retaining wall. The elevation is dominated by the towering palace and fort walls but is also characterized by temple and domes and pavilions which are intricately carved with geometrical and floral patterns. **Samant, 2010.**

1.5.7 Public facilities design

Public facilities are an important component of the waterfront design. The feature of waterfront is closer people and water. In the design of public facilities, protective barrier is used in **protecting of seat and platform** where people can enjoy the waterscape and wood platform or wooden plank road also is used, **Fig.3**. Therefore, people can walk on the plank road, **close with water in the platform or play in the water**. Additionally, **pavilion** which is designed for visitors to rest, it's also commonly used in waterfront design. Pavilion not only takes fully into account the safety problem, but also pays attention to the cultural connotation in the design. According to the style of the overall design layout, it can use the corresponding style which can be a traditional style, simple modern style or a combination of traditional and modern elements which abstracts traditional symbols and uses modern methods to re-design, **Zhu, 2011.**

1.5.8 Streets and Squares

Represents a positional place relationship between ground place dimensions depending on the geometry and some researchers have linked between spot and area social and economic slide that occupy the place as well as events, **Fig. 2.**

The accessibility is an important index in measuring the development of the waterfront. In many urban waterfronts, we cannot see convenient **public pedestrian paths** to the water shore. With no enough **wide-open surfaces**, the water body is always **blocked by the buildings and walls**. Close to the water but seeing no water distances people and the water psychologically, **Huang, 2011.**

The street pattern was laid out to provide accessibility and create natural drainage on the

hilly terrain. Depending on the usage, a **hierarchy in the street pattern** is observed in the area. The principle streets identified were bazaar streets with higher concentration of activities that were large in scale, **connecting important nodes, punctuated by small and large landmarks, and led from city gates and culminated at the important buildings, Samant, 2010.**

1.5.9 Parks

Parks along the water edge provides a unified identity to the edge. The most vital attribute of the success of the water edge is dealing with parks, designed with all the features and details. Park is working along the water edge and provides a **unified identity** to the edge, **Casalino, 2005.**

The concept of Greenway is various, but the general accepted concept is: The greenway is the land line network systems being planned, designed, and managed with ecological, recreational, cultural, aesthetic and many other functions, which is a **sustainable pattern of land-use**. The greenway is an open space usually along the construction of a natural corridor such as river banks, valleys, and mountains or along the recreation entertainment channel transformed by railway, a canal, a landscape road or other routes. Ahern summed up the characteristics of the **greenway**: The **shape of the contour line**; with connectivity; have versatility; to meet the requirements of sustainable development strategies; and the most important thing is that the greenway is the important supplement of the other non-linear landscape planning, by connecting to other non-linear system of Landscape Architecture to form an integrated whole, in order to the purpose of protection, rather than replace other planning. The design combine the greenway and waterfront together in order to make use of characteristics of greenway to improve the landscape and spatial design of waterfront, and at the same time to perfect flood control and disaster mitigation system, **Fig. 1., Hongyu, 2010.**

1.5.10 Monument & Art sculpture

The furnishing of waterfront elements need to know the monuments and street furniture in configure those spaces which depending on the nature and form of use.

Art sculpture can be a very good performance of the waterfront cultural characteristics. Sculpture generally divided into emboss and circular

engraver: emboss often used in walls, floors texture and the decoration of public facilities; circular engraver often used in the spacious plazas and wide lawns. The artistic form of sculpture can choose **typical historical stories**, myths, legends or characters as a theme. And then using the way of telling story can display artistically the cultural history of the region. In addition, sculpture can select **modern design methods** such as abstract geometric shapes and bright colors. It can harmonize well with the surrounding landscape, natural environment and local human culture, and this contributes to contrast the cultural atmosphere of the whole landscape. **Zhu, 2011.**

1.5.11 Slips

Means water bodies inside edge are successful means in **bringing people to the edge** and make it (cross gain connection) which is historically present naturally, **Fig. 4**. In modern designs it is dealing with this part of river edge through a small stalls and aquariums, toys as well as small parks and sometimes water Bank gateways of the city. **Burden, 2005.**

City should provide convenient transportation corridor that can enable the people to reach the water area and the sight-line corridor so that the waterfront urban design can be “available completely”. The transportation system of urban waterfront area shall provide people with convenient transportation and attract people to the side of water. The transportation in the waterfront design shall **reduce the interference from motor vehicles** as much as possible so as to ensure the safety of walking and the quietness and beauty of environment. Street sight-line corridor shall provide more chances for the contact of man and nature, **Fig. 3.**

- The sight line in certain distance shall be ensured so that the visual contact between man and nature or humanistic landscape can be maintained and the beautiful sceneries **will not be blocked.**
- The water landscape should be **“penetrated” to the inner part of a city** as much as possible.
- The waterfront building should be designed to have the graded sense.
- By the side of water, some low-rise structures can be arranged and higher buildings should be far away from the water.

Furthermore, the arrangement should be arranged in picturesque disorder so as to get the best water

visual angle. By the side of water, some friendly and safe water-playing space can be deployed so that people can play and enjoy water. **Huang, 2011.**

1.5.12 Under Bridge

The bridges and cross-pillar make the edge of the River in the usual impediments to traffic. So the area under the bridge (part of river edge) must be designed so as to allow the space under the bridge to **diverse uses** along the river and **link with neighboring** river edge parts. **Casalino, 2005.**

The space strategy of flood prevention as The waterfront area is rapidly developing in cities now, and its ability to flood prevention and hazard reduction has also been greatly improved. In order to contole on the area under bridge, there are major mitigation strategies of flood prevention and hazard reduction, and its principle includes that, solid fundamental, the formation of the level of the poor and the creation of a continuous channel. **Hongyu, 2010.**

1.5.13 Materials Choice

At present, many projects, especially the government projects, waterfront landscape design project like used the expensive material, such as **marble and granite**, etc. They are belonging of the natural exploitation, such materials for the maintenance and repair costs are also extremely expensive. Therefore, we encourage using regional materials, such as the regional **wood, brick and stone**. It is not only to save material costs including raw material costs and transportation costs, but also to **coordinate with the local geographic colors** and to accord with the regional aesthetic characteristics and culture. **Zhu, 2011.**

In the process of the design, it is should be considered specific and various factors, such as paving design. It can use the representative image of signs or **historical signs, and paving brick or granite** to collage out the image texture on the floor. This can be applied to a large ground and a larger image. Another method can be applied to handle details. For instance, it collages with small stone on the corner line or a small ground. This produces that the overall design is novel and unique and harmonizes with the surrounding cultural environment. That not only riches the details of design but also enhances the depth of cultural connotation. **Fig. 2, Zhu, 2011.**

1.5.14 Types of side retaining wall

The architecture and the flinty square in these areas block the soaking of the rain water and the supplement of the underground water. The cut straight of the river course and the concretes dikes destroy a dynamic natural landscape system. Although sometimes we take much count of the a forestation in the waterfront construction, we often simply replace the original rich flora with the artificial a forestation, which causes the water shore a forestation layers monotonous and destroys the diverse habitats.

Huang, 2011.

The physical shape of water edge Divide to several types, each one of them have **unique personality**, either functionally be historical or environmental, as well as divided on the shape of that edge and physical river section where this deal affect and shape design features, such types observe in the following forms, some of which are with Boardwalk (Jetty extended) on the beach, and others are for hiking along the water, Some reuse old sidewalks located on the territory of the Park. And it all comes under the existing legislation and controls within the same edge. Help the sidewalks along the edge of the water to increase in size especially with ancient footpaths which rehabilitated for both purposes as piers and entertainment and events that do not conflict with extended downstream piers and its speed.

Burden, 2005.

The physical section of river edge Divided into **Fig. 4:**

- **Tilt River edge:** it is easy in construction, but generates several problems including distancing human from the water and make a very sharp edge which **reduce the coherence** with the River, as well as shift vertical alleys to River to be parallel, so it make **bad connection** between city and river.
- **Vertical river edge:** strengthen interdependence between human and the river, using vertical elements like a wall works to identify the edge of the river, make projection masses overlap with a wonderful view to give the impression as alley. Overlapping masses and spaces, gardens and parks, entertainment places are all combined, gave the **good connection** between the river and the city.

2 CASE STUDIES

For the design of the edges of rivers, the research will choose some cities and way of dealing with the edges of rivers and waterfront, so explore the sense of place in their respective experience in accordance with the characteristics of the place, and will address the (**Tigris River within the historic city center of Baghdad, and Seine river in the historic center of Paris**) by applying **measured factors of urban waterfront** planning and design, by studying the case studies, the summary, conclusions, recommendations and proposals on the planning side and urban design of river waterfront.

2.1 Development of waterfront in new cities

Distinguished new cities by river edge development goals of creating a thread along the river corridor and try to attract to the river, to protect the natural environment along the River as well as the interface to reflect the specificity of River City, **Casalino, 2005** the study divides river edge into three sections for each Department has its own definition and style in design, and these handling sections are **Fig. 1:**

- **Riverbank Zone** where emphases is placed on environmental terms for the edge and protect it from erosion and to preserve the historical memory of the form and direction of movement of water, as well as the protection of biodiversity on the riverbank.
- Scope of the green route is the urban area means that at least 30 m confined between the edge of the river and the development, which use of design Landscape and garden uses that do not require the establishment of buildings (**Urban Greenway Zone**).
- **Development Zone** the area associated with the city and carried out construction and redevelopment as well as new development and diverse uses, as use zoning site providing components and elements of fields and gardens, river edge and how to deal with it, **Casalino, 2005.**

Development studies focused river edge in new cities on urban design for River waterfront, stressing the role of history and environment and transport as factors that require planning and handled according to design policies for each

range of zones. Schematic design side is concentrated along the Eastern facade of the New York City overlooking the River (Hudson), the historic importance and how to use them in connection with its surroundings through Visual motor connecting lines of the diagram, **Burden, 2005**.

2.2 Development of waterfront in historical cities

River edge is divided in historic towns and cities to different sections by its characteristics; design hand emphasizes the number of axes of the historical and environmental themes of the river, by highlighting the historical pillars on the river and its edge (such as bridges and historic sites), and use cultural and entertainment. Seek to develop an environment's edge and avoid damage, through the physical components of the river edge, **Burden, 2005**. The socially focused on how to deal with edge components through the generation of both:

- Active spaces represented by **movement spaces**.
- Quiet spaces (negative) of the **seating spaces**.

Emphasis was placed on both sides and relationship of the planning and urban design of edge, planning this tip around characters especially in historical perspective plus focus on socially side in the design through positive and negative spaces taking advantage in the provision of leisure and cultural services and attract the largest amount of people.

2.3 Waterfront of Seine River in Paris Historical city center

Since Paris City emerge with different close semantic organizations, It got one of the ancient tribes in the heart of the city, called Lutetia then Parissii and finally Paris has seen spot and inclusive planning processes have changed, altered and added a lot of morphological structure of the city, and as wide and rich urban operations.

The Seine river Traverses Paris, divided it by the (left and right), this Division has affected intellectual and social factors of Parisians — **right of capital and trade, left for culture, science and art** – and the kind of impact between the river and the city overlap between masses and spaces, giving different level of city street on the River. The kind of sense of place on the Seine River as it **represents one of the main**

roads to watch Paris night and day through the many events and activities on it. Although this Division looks very simple but the impact in the development and growth of its population became part of their lifestyle, habits, and in the fabric of the entire city.(Carzou, 1982, P25-26). (Fig. 5)

2.3.1 The growth stage of waterfront inside Paris city

In the left bank there is intellectual life of the city center, a meeting of artists, writers and students. There is the first settlement of Parisii beyond the boundaries of the island, South of the river where the street St-Michel spread (which is historically belonging to the Romans) where all the buildings compact storage of masterpieces of Parisian heritage, as the University of Sorbonne and College DeFrance wall on the Roman baths, and standing in the pantheon of modern Roman arena. **Carzon,1982** and **Table 1**.

Either the right bank means in Parisian society, thought, or political mettle with work only. At a time when the left bank acquired a Latin quarter with its schools and colleges, the right bank evolved as contrary. the central axis of the city extends naturally to end along the docks of the right bank. In the early nineteenth century the Halle's emerged as a counterpart to the Sorbonne, which requests from the opposite bank. And later demolished, giving place to Beaubourg and complex high-tech architecture of the Pompidou Centre, **Carzon,1982**.

The term survives, of course, in the Faubourgs St-Antoine, St- Germain and St-Honore in Paris. The merchants built their faubourgs, when they could, just outside the gates of the existing city where they would form secondary market places. As the merchants they became rich enough, and their faubourgs grew, so they too built walls or palisades. Which meant that others had to start new faubourgs outside theirs and thus the cities grew in concentric but irregular loops? So it was that close to the old ecclesiastical towns or feudal fortresses, mercantile agglomerations were constructed; **Broadbent, 1990** and **Fig. 5**.

2.3.2 The Haussmann new planning of Paris city

The most important experience changed the image of Paris is widely credited with see and reflects on the day of rich, semantic experience Baron (Haussmann) (1853-1882). His work in Paris had no such theoretical underpinning. It was a straight, **pragmatic solution to a highly**

practical problem, which Louis Napoleon put to him; of how to redevelop Paris, after the Revolution of 1848, in such a way that never again could the angry mob build barricades in the streets and lob missiles at the police from behind them, **Broadbent, 1990**. He concentrates instead on Haussmann's formidable skills of organization pointing out also that behind Haussmann's Plan there was the clear intention of focusing '**visually and functionally**' on the great monuments of Paris: the National Assembly, the Bourse, the Church of the Madeleine, the Panthéon, the Cathedral of Notre Dame, the enlarged Hôtel du Ville, the Arc de Triomphe, Garnier's new Opera House, the old Monastery of St Germain-des-Prés and so on.

And since the new railway stations of Paris were so peripheral these too were to be connected to make for more **efficient transport** between them and into the city. There were precedents for such planning in the era of the Baroque. (Broadbent, 1990, P.116)

Napoleon III, and the achievements of Baron Georges Haussmann that led to the **reintegration of the heart of Paris** and a strengthening of its interior structure on a scale commensurate with the forces of regional expansion. This reversal of the direction of energy, from outward explosion of the **avenues** and palaces of Louis Kings to the implosion of the connecting and life – giving **boulevards** of Haussmann, is one of the most dramatic in any city. Each development was devised and inspired by social and economic forces far different from those prevailing today, but each has **proved to be resilient**, to be capable of **providing a structure suited to modern needs**, **Bacon, 1978** and **Fig. 5**.

Haussmann created strong semantic relationships through Visual axes of broad boulevards, **linking significant Visual high points** in both built and non-built forms, he was intended to achieve three objectives through adoption of the Visual system, **Fig. 6:-**

- Produces the monument to spatial isolation and connects them to each other visually.
- Wipes and removes oldest and change everywhere to the images of modernity: space and light.
- Facilitates the move from station to station and from neighborhood to neighborhood.

Haussmann had derived the idea of the strong bond between the axis of the classic culture. As it is well known that the **emergences of holistic**

level in the city by linking its parameters to the **visual axis** the most important baroque city properties. And with the need of Paris in urban growth phase for the type of structural adjustment, training new elements in the **Boulevards & Avenues**, which are dictated by the imperatives of links (in contradiction with the city focused on concepts such as **compartmentalization and overlap**).

So Haussmann's Boulevards by no means were designed for any kind of **intrinsic beauty**. They did indeed give long perspective views towards the major monuments and, with the various round points in front of or around they also speeded up the flow of traffic between them. But they also afforded the longest feasible sight-lines for Louis Napoleon's troops. As for the trees which seemed to humanize the boulevards it was they, above all, together with the great width of the boulevards themselves, that made barricade building difficult, **Fig. 6**.

Boulevard planning became the norm towards which most great European cities were developed, or redeveloped in the 1870s, **Broadbent, 1990** and **Table 1**.

2.4 Waterfront of Dijla River in Baghdad Historical City Center

The historical city of Baghdad chose its location on the river. In the ancient the beautiful urban design along the river and the **connected two sides (Karkh & Rusafa)** has formed the urban pattern. Thus the Baghdad city becomes alive with the water, and the water charms because of the urban inverted reflection. The city and the water shine on each other, wherein the unique urban reflection culture is formed.

Perceptions of the old city and river edge, Built on the schematic side through the roles of history and environment in a street movement's relationship with the river and its edge, where the **streets perpendicular to the river and not paralleled** by through alleys, and **linking important architectural icons and monuments** of the River through the incision extended alleys. To provide initial scenarios to deal with the planning of river edge of Baghdad according to history (environment, planning standards, movement problem) need in-depth studies of the policies to deal with waterfront urban design. Focusing on the planning of the waterfront along Tigris River in central Baghdad, which depends on land use according to history and technology, as a basis for waterfront design **without any effect**

to the historical architectural values (archaeological & heritage), **Table 1.**

2.4.1 The situation of waterfront inside Baghdad city

Tigris River is one of the most important monuments of Baghdad city, where the River runs through this historic city from North to South. The length of the **Tigris River in Baghdad (52,300) km** starting from the tourist island of Baghdad in the Tarmiyah area to the south of Diyala River estuary.

It features within the city there are a number of bends and twists as well as three distinct Islands (tourist island of Baghdad and Al Aaras Island and Abu Rmeal island), these Permanent islands which divide the river bottom to unequal parts. **Euphrates Center, 1998.** Flowing water levels change over time, so emerged from a process of **coatings for the Tigris River**, which began at the **end of the 1990s.**

The width Changes of the River in the center of the city to be the limits of **190 meters in the rectum.** To be cut relatively narrow in this part, and an advanced development should be good type protection of the banks of the to prevent erosion in the upper parts of this section. **Euphrates Center, 1988.**

2.4.2 Rusafa Development project - Japanese Consultants JCP in 1984

The study focused on planning terms based on the historical side of the region in the planning of several aspects, reviving old traffic hubs and connect them with the modern movement as metro areas, as well as on **historic buildings the river edge and revive it.**

The markets represent an essential element of traditional urban life for Baghdad. The target is to **reintegrate the architectural value of the market system and restore the central axis**, for example the direction beginning on the river side nearly the Al Shohadai bridge till al-Kilani mosque, **JCP, 1984.**

However, this study came in the urban planning aspect and not to the river edge, as well as it did not address the urban design of River waterfront.

2.4.3 Karkh development project - office of alusi technical advice in 1982

The study focused on planning terms based on a number of factors working in the **social, economic and historic as well as traffic and transport**, the study was an evaluation of all criteria within a chart.

The project is based on the development of Karkh on the traditional **opening of the market to the river** with a large interface and coming in some parts inside to relive the most powerful river, **Alusi, 1982.**

2.4.4 Baghdad Municipality; Integrated capital development plan of Baghdad 2015, 1998

The report addresses the review and update of studies and designs developed by foreign institutions to re develop the city of Baghdad. This report addressed the waterfront in two chapters: Chapter IV-III (**waterfront in the City Center**).

It offers to the waterfront of River in the city centre and the area between Bab Al-Mu'azzam District Bridge to Aljamuria Bridge on the South, highlighting the most important disadvantages of City River and relation of movement and edge design (waterfront) contains the following:

- **The absence of open spaces** bordering the River dedicated to public use, recreation and tourism.
- **Absence of pedestrian corridors** as there are streets in the river bank (as in the Abu Noas) overlooking the River.
- **Lack of clear focus of traffic links between open spaces for historic buildings** overlooking the River.
- **Lack of clear architectural style** leading to confusion in the elevation of waterfront.

With regard to section III study indicates **neglect the river and design of waterfront in several levels including access and openness to the river and the absence of an informed and transfer to river edge**, about abuses function of river and waterfront, **Baghdad Municipality, 1998.**

2.4.5 Kirkpatrick , Scott Wilson: Baghdad comprehensive transport study: 1982

The study focused on the **movement of various kinds and the relationship** between those different types, but **did not clarify the relationship with the river traffic and the performance edge** that was to transport goods or persons as tourists and daily transportation and organization shape and its relationship with other transaction types. So it point to the absence of a river where the use of river traffic controls in

their stations and their interdependence with other traffic types, **Kirkpatrick, 1982.**

2.4.6 Ministry of irrigation, preventing edge of Digjla river, 1998

River edge investment process is one of the most important means, by which edge is preserved and maintained. through previous studies and study the edge of the Tigris River, the process of maintaining the stability of the river course is important not only in the process of preserving the River, but to develop its edge and maintain static areas have managed to deal with various types of physical as well as the **preservation of the natural environment of the erosion and sediment** to water streams and affecting agriculture.

So, emerged from the Tigris River finishing at the end of 1990s which was a comprehensive study with a view to **identifying a refinement** to the Tigris River in Baghdad, identify abuses occurring and the impact of the abuse on the line and examine the absorption of the River to flood the vicissitudes of time.

The study included many axes to define discipline line the river within the city and the results of studies that attributed the discharge is expected when it pass (35, 30 m) in the South and North of Baghdad sites (31, 34 m) and (37, 70 m), respectively, **Euphrates Center, 1998.**

2.4.7 Comprehensive development planning Baghdad 2030 - Qateeb & Alame and PCI Japanese consultants - 2010

The objective of the project development plan of the city of Baghdad, deal this city as an integrated **environment includes all aspects of social, economic, environmental, administrative,** and other aspects, beyond the current building to meet the needs of their citizens.

Includes a series of **strategic interventions in the fabric** of the city, take into account the relationship between the center of Baghdad and its immediate environment, as well as between the city of Baghdad and its suburbs adjacent to it, especially for projects that are currently being implemented there.

The functions of the draft comprehensive development plan for the city of Baghdad in 2030, consists of and focusing on the following elements: (land use, planning, management of growth, The environment, Natural resources in and outside the city, entertainment, social resources, The historical and cultural

resources, Housing. Transport, Infrastructure services, The development of the economy, Guiding principles for urban design). Although the Comprehensive development planning Baghdad 2030 complete the three stages and prepare for fourth stage, but it is important for a new study for developing of greater Baghdad, and **historical city center and waterfront treatments which till now not appears with details.** (Qateb, 2010, CD Rom)

3 CONCLUSIONS

- According to the result gain from (table 1), The emergence of many problems on the level of urban planning and urban design for reality of river edge in Baghdad, which faced waterfront of Baghdad historical city center, needed to taken in the studies especially in the Comprehensive development planning Baghdad 2030.
- During the historical city urban design, it should make scientific and reasonable layout on near-water environment, creating conditions for reaching each good performance for city; coordinate the normal operation between human construction and natural ecology, setting up a balanced ecological system; pay attention to the mutual connection between city and water, making water system involved in the city environment; respect local culture, create local character, and the harmonious water environment between human and water.
- Produce many facilities in the Baghdad water edge as public domain for everyone to use them as equal, without distinction of party at the expense of the other, and is open at all times. Encourage people to increase their pass throw water edge by creating attractive elements for different slides.
- Create linkages along Tigris river waterfront and continuity with the surroundings edge of land, water and urban context (Karkh & Rusafa).
- Affect physical shape of river edge and the section on the feasibility form of usage and design result. The vertical edge best than Tilt edge in creating Visual and motion connection as follows between the city and the River (the River work as alley), with control of water level.
- In the contemporary society, the roles and missions of urban waterfront urban design should be not just creating and promoting the aesthetic quality of urban environment, but

also integrate the local human environment, ecological quality and the public awareness. This creates that cultural landscape and its promotion will become an effective approach to contribute to better material life and spiritual life of citizens.

- Promote activities of the walk on the river edge to the city and create a set of visual communication points during public space and distribution of furniture, lighting and landscaping.
- Take advantage of sidewalks in river edge and more space to deal with different levels providing River sessions of shelters and ceiling with various visual sights.
- Bridges and pillar located across the River in the usual impediments to traffic, so the area under the bridge (part of river edge) must be designed, so as to allow the space under the bridge to diverse uses along the river and link with neighboring river edge parts, and providing means of access to river boats.
- There are many established and temporary Islands did not invest well on the level of urban planning and urban design to develop of the Baghdad city.
- One of the big problems is the establishment of river edge as car parking which cut the human connection with the river.
- Lack of open spaces and overlooking the river for recreation and tourism, because of the lack of clarity of the main axes of movement up to this space.
- There are many irregular anchors on the edge of Tigris river, which not connected with other types of movement, so for the revival of river transport requires the characterization and the duties of the transport and link it with other types of transport through the study of traffic
- Tigris river suffer from significant pollution due to throw various and waste accumulation.
- The locating waterfront away from the edge of River (15) meter from the river without any investment or building or even to provide the possibility of intervening to avert the danger of flooding and the forbidden River led to many problems including the weak building view on the River and connecting with context of city.
- The wide width of Tigris river and problems of water level control increased the separation of both edges of the Al Rusafa and Al-Karkh. In Baghdad's old layout there was interaction between the city and the River through the visual and motional axes and flowing into the River, and through the overlapping blocks and

spaces with Riverbed. Which is lacking at the present time, bringing a sense of place for the Tigris River is very weak and seeing River only when crossing bridges.

4 RECOMMENDATIONS

- Cancelling the law of not allowing development in areas where the proportion of Tilt edge 20% gradient and the proposed design to keep them as green areas only, generating problems in the River facade on the urban context of the city.
- Establish organization to solve problems in the construction of the Iraqi waterfront area. Like Common problems are monotonous content, formulate style and non-innovative landscape because of the limited understanding of the designers and finance issues of local government.
- Solve problems of the waterfront urban design which is being built in the most of cities, it only regarded as a project, focusing on certain utilitarian values such as architecture, urban design, social requirement, economical requirement, flood control, water transport, irrigation, etc. It is not involved in the public space design systematically and scientifically, but also lack of considerations of people's physical and psychological needs. This leads to alienate, blunt, cold, non-innovative in design. Moreover, in some developed cities, the government has put a lot of money in the construction of the waterfront area for more reasonable and modernized design. However, this design is lack of local cultural characteristics, and not be able to enrich the historical and human spirit on the basis of functions, which causes the method of copying and formulating, lacking connotation and vitality.
- Iraqi's ancient people focused on "water body" concept and believed. Therefore, the city's location and layout were associated with water. Nowadays, on the re-construction of old waterfront area, we have to face the problems of transformation of buildings and water environment in this region. The most important of urban waterfront cultural design should protect and re-use all round the existing historic buildings.



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Table 1: Comparative factors of waterfront between two cities, **Author, 2013.**

		Measured factors	Measured cities	
			Baghdad	Paris
3.5 The components of the waterfront	3.5.1	<i>Land Use</i>	Privet or without facilities	Public facilities
	3.5.2	<i>Activities</i>	Not attractive facilities	Attractive facilities
	3.5.3	<i>landscape & Plant design</i>	Not cooperated with urban design	Trees as part of urban design
	3.5.4	<i>Built Form</i>	As wall without penetration	As wall with penetration
	3.5.5	<i>Sidewalk design</i>	Not available	Available
	3.5.6	<i>Façade</i>	Set back from edge of the river	There are cantilevers somewhere on edge of the river
	3.5.7	<i>Public facilities design</i>	car parks & markets	Streets and culture facilities
	3.5.8	<i>Streets and Squares</i>	Separated from river	Intersection with river
	3.5.9	<i>Parks</i>	No parks	Open parks overlook with river
	3.5.10	<i>Monument & art sculpture</i>	Rare available	Available everywhere
	3.5.11	<i>Slips</i>	No equipments make integration between human and water	Many equipments make integration between human and water
	3.5.12	<i>Under bridge</i>	Negative and useless space	Space as part of waterfront
	3.5.13	<i>Materials choice</i>	Entering new artificial materials with brick	Still using stone as traditional material
	3.5.14	<i>Types of side retaining wall</i>	Tilt retaining wall	Vertical retaining wall

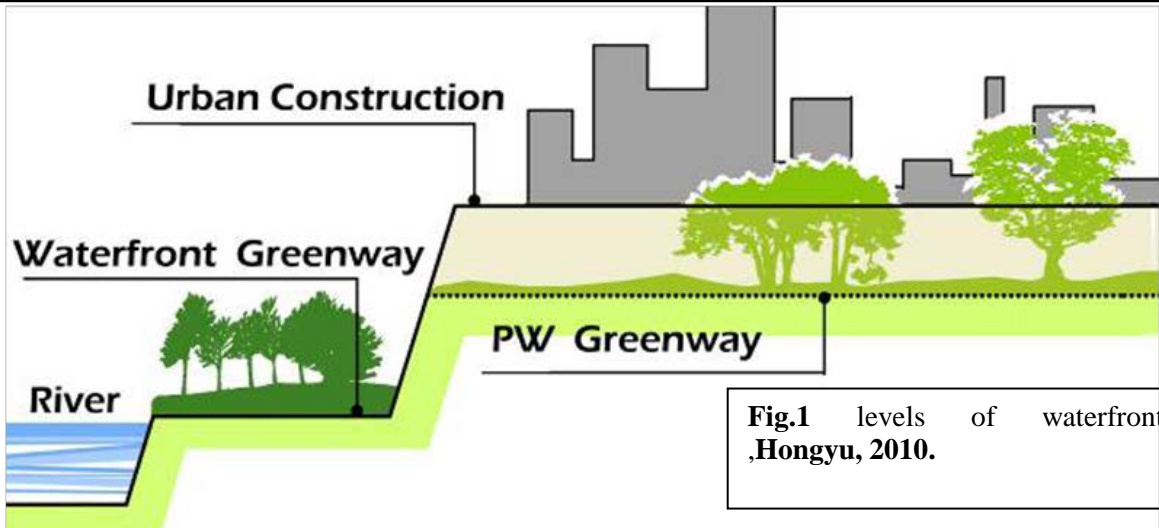


Fig.1 levels of waterfront, Hongyu, 2010.



Figure 2. Alternative planning strategies of waterfront, Nickels, 2006.

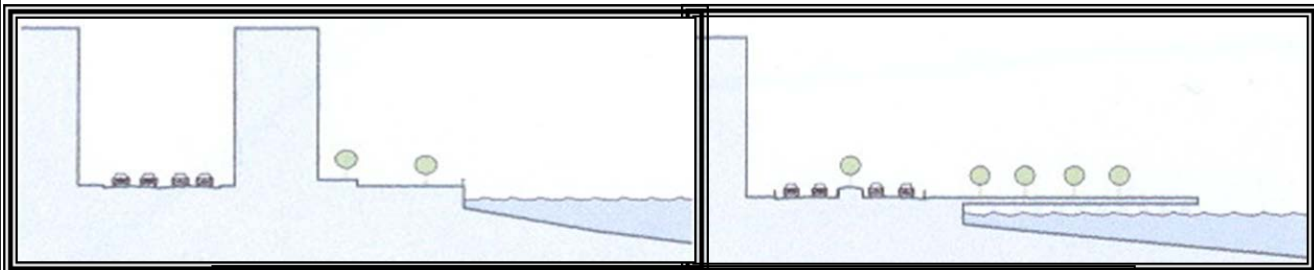


Figure. 3 The river edge and its relation with water, Burden, 2005.

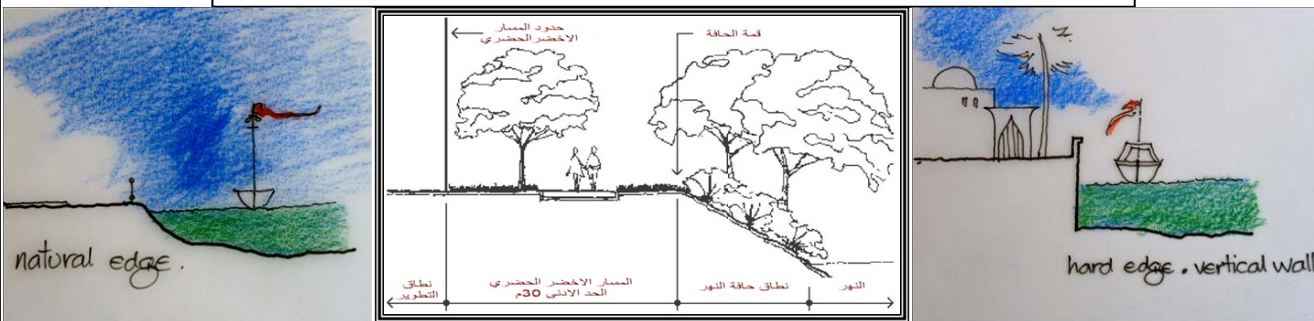


Figure4. Types of river edge, Casalino, 2005.



Figure 5. Tardieu (1787) Plan of Paris showing successive clotures by Medieval and later walls culminating in Broadbent, 1990 and Bacon, 1978.



Figure 6. Paris waterfront treatments with vertical retaining wall edge and public facilities, Author, 2010.

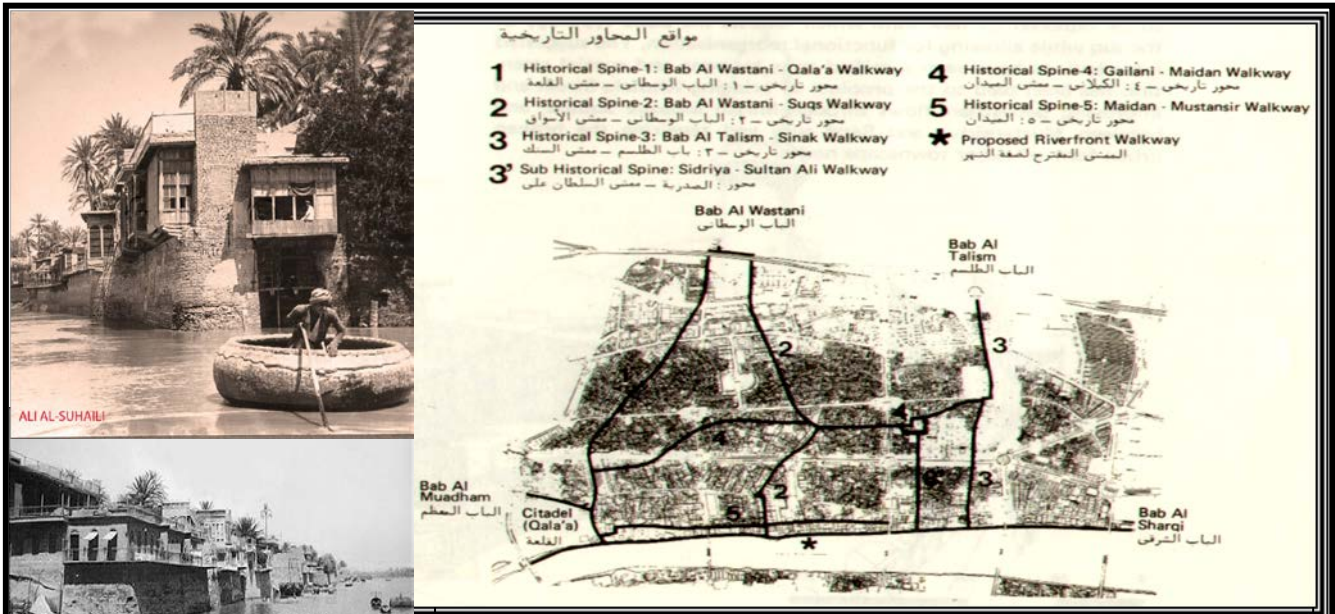


Figure 7. The main spines were vertical on the river with vertical edge in ancient Baghdad, JCP.1984.



Figure 8. Baghdad waterfront treatments with tilt retaining wall edge and neglected public facilities without clear paths, Author, 2010.