

"The Public Attitude" on Visual Impact Assessment of the Chao Phraya River Waterfront Redevelopment Project in Bangkok, Thailand

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Abstract

The waterfront areas, often counted as one of the city portraits, are invaluable assets in several countries. They play parts in defining the characteristics of the city and determining the quality of local inhabitants. Their significant roles have led to attempts to develop the areas in vicinity of the river. Several developments projects, largely long-term and national projects involving a number of stakeholders, have taken place with different goals and methods. Oftentimes, governments, policy makers, developers and designers are responsible for designing and realizing the project. However, prior to commencing the project, they would only conduct satisfaction surveys or research into functional usages and designs. Benefits and impacts are also assessed but there have not been many researches covering the topic of possible affected visual quality. As a result, the research main aim is to assess the attitude from publics towards visual impacts of the waterfront development project on tentative users. The research put an emphasis on the case of Bangkok's Chao Phraya River. The evaluation of the visual impacts and other underlying impacts will be made.

The findings reveal that the new promenade redevelopment may have negative visual impacts on all cultural public nodes. The magnitude of impact depends on areas. From

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analysis, the most influential factors are the existing appearance, the values of places, the height and scale of the new promenade structure.

In this study, the outcomes of the research may be applied as guidelines or considerations to help finding solutions for visual impacts caused by the redevelopment project. The findings will also be beneficial for further phases of the riverfront development in Bangkok, and for further researches in the future.

Keywords: Chao Phraya River, Waterfront Redevelopment, Visual Impact Assessment, Attitude Impact, Cultural Public Nodes

1. Introduction

Widely taken place in several countries, the waterfront development projects have been established in hope of mitigating a number of problems. The waterfront projects were set up to eliminate improperly expanded areas encroaching onto the rivers, and enhancing the urban fabric development in urban cities. In some cases, riverfront areas have been redeveloped to serve as recreational areas so that the community would possess more pleasurable physical appearance. Last but not least, some projects have been initially planned and designed to help protect the city from natural calamity (Tsukio, 1984).

To narrow down the large scope of the widespread waterfront development projects, the spotlight is on the case of Chao Phraya River's development scheme. Specifically, Chao Phraya, a major river in the center of Thailand, originates in the country's northern part from the joining of four rivers. It then flows, for around 370 kilometers, through the central plains and Bangkok before ending up into the Gulf of Thailand. It is not surprising that Chao Phraya River has played an important part in Thailand's history and the river's importance is still recognizable nowadays. Once dubbed "Venice of the East", the river has been the main artery of transportation serving as the waterway for private and commercial transport even when other transport modes, such as roads or rails, exist (Thuan, 2016). Lots of communities and temples have settled along the river banks, leading to the environment livelihood and the rich culture, in other words, civilization. As of today, people still commute by speedboats in Chao Phraya River to avoid the road traffic and different types of settlements along the banks can be observed.

Along with other national development plans, the Thai government has originally planned to improve the waterfront areas, along both of the river banks, and recently it has officially announced the riverfront development project plan, called "Chao Phraya for All", the development of riverfront areas of Chao Phraya River. The aims of the project are to

increase recreational spaces along the river in some Bangkok's districts, where public spaces lack, to create pedestrian walkways and non-motorized networks linking neighboring communities, and to solve encroachment on the riversides resulting from the current informal settlements (Advisor of the Secretariat of the Cabinet, 2015).

Despite its ongoing process, the project has failed to obtain positive reactions from the public and became disputable because the public finds the riverfront development project useless and threatening to the existing surroundings. It might be from the fact that the project, subsidized by the government, will build pedestrian paths and bike lanes along both sides of the river. These paths and bike lanes, 15 meters in width, 1.80 meters in height from the ground level of the existing site, will be located right next to the edges of the river covering 57 kilometers in length. The first phase of the paths, 14 kilometers in length divided into 7 kilometers on each side of the river from Rama VII Bridge to Phra Pinklao Bridge (Thairath Online, 2016). With the diverse in functions and features of Chao Phraya riverfront areas, the public concern that the provided design of this development is lacking in details and understanding of each area. The project design only is too generalized and offers only one feature, which might not be able respond to the different physical features and local needs in the areas of 14 kilometers or the first phase of development. Thus, until now, it is still debatable whether this project will be efficient or it will affect the existing areas.

1.1 Research purposes

The research, gathering reliable information and analyzing the data obtained from surveys conducted with end-users will primarily focus on the assessment of visual changes and impacts brought about by the Chao Phraya River waterfront development project in Bangkok, Thailand. The main objectives of this research are set as follows;

1. To assess the satisfaction level of tentative users as the public attitude towards the appropriateness of waterfront development project, by focusing on visual evaluation of the site.
2. To identify the anticipating visual impacts on tentative users caused by the waterfront development project
3. To analyze other underlying impacts linked with/caused by anticipating visual impacts, and upon completion of the research, provide suggestions for further researches or studies

1.2 Research Questions

In order to fulfill the objectives of the research, the research main questions are; “The new development of Chao Phraya Riverfront will be appropriate to the contexts in terms of the visual quality or will it cause any visual impacts to the existing?”

In order to answer the main question, following questions also need to be taken into account which are:

1. In terms of visibility, are tentative users satisfied with the developed waterfront areas?
2. In terms of visibility, how will the development project affect the lives of tentative users?
3. Will anticipating visual impacts lead to/ be linked with other aspects, e. g. social impacts?

1.3 Scope of Research

The research scope covers the Chao Phraya River riverfronts, which will be developed and converted into promenades and bike lanes. Due to the long duration of the project, the study will be focusing solely on the first phase of the development project, expected to be finished by mid-2018 as it is more accessible and easier in terms of data collection and analysis. In addition, some of the first phase public nodes will also be focused. Tentative users, including residents in the local river communities, the waterfront space users and commuters using the river, will be the focus group, providing opinions and feedbacks towards the project since they are familiar with the areas prior to the new construction.

With the aim of the research to assess the level of appropriateness and related impacts arising from the upcoming development project, certain theories, in particular visual quality assessment and visual impact assessment, will be referred to and used as guidelines for the preparation of survey and interview questions.

2. Methodology

The methodological process in this study consists of the site observation, the attitude questionnaire, and the photo-questionnaire. The process is adapted from the Visual Impact Assessment and other similar methods in Thailand. A field study had been conducted in the waterfront public areas along the Chao Phraya River and in certain river communities, in order to gain precise knowledge of the studied areas. The methodical process of the research consists

of 6 steps with set as follows; 1). Data collection, 2). Defining the variables of the research, 3). Create and distribute questionnaires, 4). Analyze the results, 5). Summarizing and collecting the results, and 6). Result of the research.

2.1 Data Collection

Gathering and studying previous studies regarding the waterfront development projects and their assessments will be the foundation for other areas of work in the research, such as the research approach, or even the research methodology. In terms of Context study, the analysis of sites to shed some lights on how the local occupy and utilize the spaces at the moment. Collecting the general information and significant history about areas along the Chao Phraya River helps understand the existing context. Current situations of the project or any upcoming developments needs to be studied and collected from the news and other sources. And the survey is set to commence in order to help pick three representative sites for further data gathering and analysis.

2.2 Defining the Variables of the Research

To define which variables will affect to the visibility from existing surrounding and the new development, setting the related variables in the questionnaire is important in order to clarify the real reflections and opinions from the tentative-users. To determine the variables to be used in the photo-questionnaire in the research, the significant variables can be divided in three parts which are;

(a) The representative sites along the Chao Phraya River: The three sample nodes are chosen from other the rest of the public areas by the interviews from experts and information were analyzed by following the data from Geographic Information System (GIS) of Fine Arts Department. In the Figure 1, the three chosen sites are chosen are: 1) Phra Sumen Fort, 2) Grand Palace, and 3) Temple of dawn.

(b) The new structure's promenade and features of the waterfront's construction: Thairath Newspaper (2016) provided further information that the project in the Figure, subsidized by the government, will construct the pedestrian paths and bike lanes along both sides of the riverbanks. These promenades will be assembled in various widths depending on the width of Chao Phraya River and the functions which will be approximately 15 meters wide as the previous announcement. These tracks will be located right next to the edges of the river covering 57 kilometers in length. The first phase of the riverfront development will cover 14 kilometers in length divided into 7 kilometers on each side of the river (Thairath Online, 2016).

(c) The respondents: choosing people who are familiar with or actually use spaces in the selected areas in order to get the indubitable expressions and opinions. The end-users are the target group of this survey which the respondents are; 1) A person who uses these areas frequently such as using this route daily, 2) A person who lives in the community areas along this river as the local.

Name of Places	Type of Area		Zoning		Type of Area	Accessibility				*The level of historical value	Explanation of Symbols
	RP.	AP.	CH.	R.		BO.	C.	BL.	W.		
1. Wat karuhabodee	LL	LL			Public Area Medium-size	●	●	●	●	Important	+ Type of Area RP. - Religious Places AP. - Archaeological Places NL - National Level RL - Regional Level LL - Local Level
2. Rama VIII Bridge green space	-	-			Public Area Large-size (Green space)	-	●	●	●	Somewhat Important	+ Zoning CH - Cultural Heritage Zone RC - Residential Zone
3. Phra Sumen Fort	-	NL			Public Area small-size (Green space)	●	●	●	●	Very Important	+ Accessibility BO - Boat C - Car BL - Bike W - By walk
4. Wat Rakhang Khositaram	RL	RL	●		Public Area Medium-size	●	●	●	●	Important	+ The level of historical value * - Assessing by experts
5. Grand Palace	NL	NL	●		Semi-Public Area Large-size	●	●	●	●	Very Important	+ the chosen sites
6. Temple of Dawn	NL	NL	●		Semi-Public Area Large-size	●	●	●	●	Very Important	
7. Wat Kalayanamitr	RL	RL	●		Public Area Large-size	●	●	●	●	Very Important	

Figure 1 The representative site analysis



Figure 2 The section of the new development, Source (Phachachat Online,2015) 2

2.3 Create and Distribute Questionnaires

(a) Observation: To help understand the physical features of the sites, for example, river edges, urban fabric, visibility and accessibility, the author will firstly conduct the observation. Results gained with the visual impact evaluation will enable the author to identify the compatibility or incompatibility of the project and the existing areas.

(b) Attitude survey: To understand what people know about this upcoming project, the questions will both of short-answer questions and some are Likert-scale questions. This section will have the general questions following the framework of Image aspect from the Project for Public Space for example: feeling, upcoming impacts from the constructions, impression, satisfaction, and expectation. The Likert-scale are divided into six levels from the very inappropriate level (1) to very appropriate (6) as shown in the Figure 2 below.

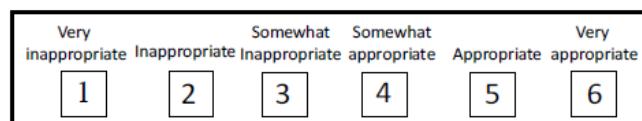


Figure 2 The meaning of the 6 level in Likert-scale

(c) Photo questionnaire: The photomontages are used in the section of the photo-questionnaires set. The objective of this section is to comparing the results between the current situations and the simulated situations by participants assess the set of photos which are from the Likert-questions and short answered questions

4. Analyzing the Results

The analysis part consists of three main results which are;

(a) The observation analysis

Basing on the three dimensions of Visual Impact Assessment from the U.S. Department of Transportation Federal Highway Administration as measurements to evaluate the visual quality of the project, cultural environment, natural harmony, and project coherence are key criteria used to analyze the level of visual effects the project has caused in terms of observation aspect. The chosen sites results are provided on the Table 1.

Table 1 Visual Character Compatibility Description

List	Natural Harmony	Cultural Environment	Project Coherence
Project Scale	<ul style="list-style-type: none"> - Naturally, the wide of the river is varied, some parts of the river are narrow which is not appropriate to set the wide structure inside. - Impair the greenery features 	<ul style="list-style-type: none"> - Improper scale to the old areas - Low rise sites will make the constructions are more dominant - The differences between heights of the new promenades, the old existing buildings will disturb by the new structure. 	<ul style="list-style-type: none"> - Huge project, but not vary in scale, height, and levels - The compatibility of the Project in terms of scale, in the residential zone and other zones
Project Form	<ul style="list-style-type: none"> - As the constructions will be held on the river, the flow of the river will be effected from the development and also aquatic ecosystem. 	<ul style="list-style-type: none"> - The edges of the river are different in features Thus; the form of the project should take the differences of areas in the considerations - Buildings, low-rise, residential, historic and cultural sites, and communities are different 	<ul style="list-style-type: none"> - Huge project, but not vary in form, features, and materials. - The compatibility of the Project in terms of form, in the residential zone, and other zones

List	Natural Harmony	Cultural Environment	Project Coherence
	<ul style="list-style-type: none"> - The width of the promenade structure which will be in the river 	<p>types of functions. It should be consider about the form of each function.</p>	
Project Visual Character	<ul style="list-style-type: none"> - Contrast with the greenery - Lead to have the environmental impacts 	<ul style="list-style-type: none"> - Diverse in design, not proper with only one feature in the entire of phase. - Contrast of visual views, because the lowland areas make the structure are higher 	<ul style="list-style-type: none"> - One design does not fit in the entire of 14 kilometers - The appearances of the Chao Phraya will permanently change

The observation analysis found that in terms of cultural environment and project coherence, the new development would lead to visual impairments and visual impacts because of the scale, form and visual character. The constructions will be the obstruction of visibility and some design are not proper to some certain areas. Moreover, in natural element, the development would lead to the other underlying impact such as environmental impact, and functional impact.

(b) The Attitude Questionnaire Analysis (A part of the statistical Analysis)

The 100 set of on-site questionnaires were conducted in July 2016 and the distribution locations were public nodes and green spaces in the studied area along the Chao Phraya River. The target survey is tentative users of the project which are local people in the river communities (37 people), and daily commuters (63 people). The attitude questions were adapted from the Project for Public Space to explore the public's feelings and attitudes towards the current waterfront areas (Project for Public Spaces, 2001).

The responses from the attitude survey questions show that the majority of tentative users considered that the areas along the Chao Phraya River have their own characteristics. The first representative picture of the river is cultural and historical sites along the river, simply put, these site are the city portraits. The second notable characteristic of the areas is the compound of the river communities and commercial areas along the river. The respondents ranked

the river itself as the third characteristic of the areas. This is because this river has been the center of the country driving the agricultural, industrial sectors as wells carrying the nation's history. However, minority of tentative users voiced out that the areas along river are hard to depict and characterize as the areas have undergone rapid changes of urbanism and some areas are also left unorganized.

To sum up, the attitude questionnaire findings illustrate significant concerns of the public. Even though the public agreed that there has been a lack of public spaces and improvements of waterfront areas should be realized. However, after having a visual experience with the photos of the project, dissatisfaction and disagreement with the project plan arose. It can be assumed that the upcoming project causes visual impacts to some extent.

(c) The Photo Stimulation Questionnaire Analysis

Following the observation and attitude analysis, it is likely that the upcoming project may trigger visual impacts to the public and the existing environment to certain degree. To prove the hypothesis, another analysis will be conducted. In this part, photos of three case studies were used. The new construction was stimulated and put in the picture of each site for respondents to see clearer pictures. Pictures were taken from both views; from the river and from the inland. The same group of respondents attended the survey, 37 local people from the water communities and 63 daily users of the river. The SPSS statistical program, version 24 was used as the instrument to evaluate and analyze answers from the photo-questionnaire set.

The photo questionnaires are prepared in order to analyze and find the results from the opinions and appropriateness about the visual impact of the new design development through the photos. The processes in this section can be summarized into two parts which are; first, the answers from a Likert-scale is included 6 levels. The mean of appropriateness level, both of the current situations and on the future situations (12 photos, 6 pairs) in the Figure 3. Then, The Paired Samples Test is applied to evaluate the meaning of each pair in different situations.

Places	View point	Current situations	Anticipating situations
Phra Sumen Fort	River to Land	Pic (1) 	Pic (2) 
	Land to River	Pic (3) 	Pic (4) 
Grand Palace	River to Land	Pic (5) 	Pic (6) 
	Land to River	Pic (7) 	Pic (8) 
Temple of Dawn	River to Land	Pic (9) 	Pic (10) 
	Land to River	Pic (11) 	Pic (12) 

Figure 3 The 12 photos will be used in the Photo-questionnaires section

Second, the open-ended question, is another question in the photo-questionnaire, will be asked after the Likert-question, aims to know the narration and opinions of the different places. To process the data in this open-ended question, the similar answers are classified in the same groups and the most popular reasons will determine the majority's opinions

- Paired Samples Test

The Mean of Paired Test is applied (Figure 4) in order to know that which situations have the statistically significant. It can be seen that most of the pairs have the significant levels less than 0.05 which are statistically significant. The pair number (1), (2), (3), (5), and (6) have the significant level = 0.00 which less than 0.05 of the significant level, it means that the relationship between each pair is statistically significant. Only the pair number (4) is not the statistically significant because significant level = 0.101 which more than 0.05. As the statistical results, most of the pairs are statistically significant which are affected by the alterations from the development.

By considering from the statistically significant figures, it can be summarized that almost of the case studies are affected by the changes of the waterfront development. Only one paired situations, the internal view or the open space of the Grand Palace, which is not affected as much as others because of the unsystematic environment and untidy existing. As the result, people tend to accept the development more. However, people ponder about the environment surrounding such as the important places are concerned about the changes.

No	Pictures	N	\bar{X}	SD.	Mean of Paired Differences						
					\bar{X}	Std. Error Mean	95% Confidence Interval of the Difference		T – test	df.	sig.
							Lower	Upper			
1	Fort_1_appro	100	4.56	0.57	1.65	1.28	1.40	1.90	12.869	99.0	0.000*
	Fort_2_appro	100	2.91	1.06							
2	Fort_3_appro	100	4.52	0.83	1.15	1.49	0.85	1.45	7.701	99.0	0.000*
	Fort_4_appro	100	3.37	1.19							
3	Palace_5_appro	100	4.35	0.80	1.26	1.09	1.04	1.48	11.578	99.0	0.000*
	Palace_6_appro	100	3.09	1.13							
4	Palace_7_appro	100	3.21	0.91	0.22	1.33	-0.04	0.48	1.654	99.0	0.101
	Palace_8_appro	100	2.99	1.12							
5	Tem_9_appro	100	4.39	0.78	1.33	1.24	1.08	1.58	10.730	99.0	0.000*
	Tem_10_appro	100	3.06	1.00							
6	Tem_11_appro	100	4.36	0.75	1.39	1.41	1.11	1.67	9.884	99.0	0.000*
	Tem_12_appro	100	2.97	1.21							

*Significant level = 0.05

Figure 4 the Mean of Paired Differences

- The public opinions the different situations

The results from the opinion analysis can be assumed that the new promenade structure are directly affected to the existing or backgrounds in all of the case studies. The impacts from each area are different depends on features, existing area, and the functions of places. According from the opinion's analysis, of the visual impact between the new promenades and the existing can be summarized case by case hereunder;

1. Phra Sumen Fort: From the river view, following the photomontage, the tentative users thought that the area will be invisible and obstructed by the structure. And these barriers will make, people are inaccessible to the water both of inland and riverside. This area uses as the public green space, tentative-users concerned about the openness in both

river and inland views will be affected in terms of the visibility. In the anticipating situations, the opinions of users were negative and totally different from the current situation as people need the public space to be open space and be able to visualize the view during doing activities.

2. Grand Palace: This area affects from the new development from the user's visibility, especially the river view. As the Grand Palace is the national important place, the height of the new promenades will be the wall-effect to obstruct a uniqueness of the place which the majority of the opinions from users gave this reason. As the result, the scenery of the Grand Palace will be changed from threatening by the new structure which make the list of the value of place. Another obvious visual impact is the incoherence of the existing and the promenades, because of the uniqueness of place, therefore it is not an appropriate design in this area. However, inland of this area, users tend to accept the waterfront development because of the courteous environment and surroundings. Although, some agreed with this project due to the courteous environment, but lots of users spread their opinions that this area is inappropriate to be developed following this design because this area still use as the area of cultural events.

3. The temple of Dawn: This area also extremely affects from the new development. The visual effects can be seen from both views, inland view, and river view. Because this is the landmark of Chao Phraya River, the users also concerned about the incoherence between the old and new which this issue is similar to the Grand Palace. According to the courtyard of the temple is used as the recreational purpose, thus, lots of users' opinions thought that this upcoming promenades will make the distance and inaccessibility to the water. Moreover, there are some opinions provided that this development in this green space area should not have the bike lanes to separate the temple and river because users thought that these bike lanes will be used by motorbikes instead.

The photo stimulation questionnaire analysis, the assessments of the appropriateness of the project clearly answer the main research question. The new structure affect to the visual images in every example case study. However, the visual impacts and the level of effects are different depending on several factors which are; the background or existing, the new structure, and so on. The backgrounds, or existing are the most relation factor which related to the visual impact. It can be seen from the survey, that users gave the feedbacks from the importance and background or features of areas. However, the visual pollution of

existing is the one factor that makes the inverse feedbacks. As can be seen in the internal view of the Grand Palace that people more agreed with the waterfront development due to the improper of the current situation. The findings from the both Likert-scale and opinion questionnaire are similar which most of respondents considered the anticipating images or the new project inappropriate in terms of visibility.

To summarize, the three sections the analysis of observations, the attitude section, and the photo-questionnaire answers are corresponding. The tentative users both of the locals and the daily use people respond quite similar which only slight differences in scores. And it is clearly that most of tentative users think that the new development will make totally changes which is negative in terms of visual impact. Some of the end-users believed that this development will make other issues not only the visual impact.

4. Conclusion

Overall, the findings from observation analysis, the attitude questionnaire analysis, and the photo stimulation questionnaire analysis are able and sufficient to answer all the research questions and can be summed up below;

1. The new development project is inappropriate to the contexts in terms of the visual quality and there is a tendency that it will affect the lives of tentative users: From the photo stimulation questionnaire analysis, the assessments of appropriateness of the project clearly answer the main research question. Most of respondents considered the project inappropriate. The results from the questionnaire sets using the Likert-scale and from the open-ended question show similar points of view on this matter.

2. The tentative users are likely to be dissatisfied with the new development: From the attitude questionnaire analysis, the findings answer the research questions in term of public satisfaction with the project. The majority of respondents are not satisfied with the project, with different degrees of dissatisfaction.

3. The development directly affects the lives of tentative users in terms of visual aspects: From the observation analysis, the assessment of the visual quality and compatibility between the existing site and the upcoming project by three dimensions as criteria; cultural environment, natural harmony and project coherence, suggests direct visual impacts that the local and daily users of the riverfronts may face. In terms of cultural environment and project coherence, the project form and visual character as a consequence of the single design, which

actually would not be able to fit will with the different contexts. This would lead to visual impairments as some of the construction would hinder the visibility to the cultural sites along the river. The local communities have to cope with a lower accessibility and visibility to the river, causing a weakening relationship between the locals and the river. The river lives may not be the same resulting the disappearance of some cultures.

4. Anticipating visual impacts are assumed to be linked to other issues such as environmental, social issues and accessibility: The findings from the observation also suggests underlying impacts, that is, environmental and accessibility impacts- In terms of natural harmony, the river will be narrower hindering the waterway as a result the constructions. The current pathways along the river will be closed down making it hard or impossible for the local people to reach the river.

Similar to the findings from the attitude survey, the majority of respondents did not agree with the project and raised concerns about other anticipating impacts; waste management, homeless people management, increasing number of crime and pollution caused by motorbike traffic. These environmental and social impacts are expected to occur as well.

5. Recommendations for Further Studies

1. Policy makers, Designers and Government:

Policy-makers and designers should provide the transparency and update information about the project to the public so that they understand the features, details, and process of the development. They should provide the public with more in-depth studies successful and failed cases, therefore the public are able to cast their vote and raise their opinions with more understanding.

As seen from the findings that the majority of survey participants are not fond of the project, the policy makers and government should need more time or revise their development plan. As the waterfront development is the national mega project, it is important to study on all feasible aspects. Learning from the contexts and analysis impacts is a significant process to ensure the compatibility of the project. More engagement from the public is something policy makers and designers should keep into their consideration.

2. Public Participations and users:

In the Chao Phraya Waterfront development, public involvement seldom occurs. The locals from a few communities along the Chao Phraya River have been participating in the

public conference once, according to the Chao Phraya for all websites. It means that the decisions of the first phase of the development were from only a few group of people while a great number of tentative-users have not had chance to engage in the design of the project. Thus, the public cannot express their needs and their opinions toward this project.

It is necessary that the public should participate in giving opinion and casting their votes for the project. They need to be informed of every step and progress of the project. The planning procedures need to be more open and tangible and the public should play a part in it. The community involvement should be encouraged and the planning and decision making process should be done among several stakeholders including the public.

6. Implications of This Research

Learning from this present study, it makes a better understanding of the context along Chao Phraya River in the inner parts of the city and also the waterfront development program. The relevant references and the review of the background history towards the Bangkok city are explained. The research uses the framework to analyze the perceptions from tentative-users in terms of the visual aspect to find out the appropriateness of new development project to the context.

The current study is the visual assessment of the design quality of the waterfront in the inner city of Bangkok, which the study helps to understand the visions of public opinions and feedback perception. As the recommendation, the further projects must involve the public or the real users. These research outcomes may be used as the considerations to help find solutions for visual impacts caused by the development. Moreover, the findings are also beneficial for further phases of the riverfront development in Bangkok, and for further researches in the future.

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