



RIVER-SPACE DEVELOPMENT AS A SOCIAL INTERACTION SPACE THROUGH THE PLACEMAKING APPROACH

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ABSTRACT

Urban water management has increasingly given the use of rivers to infrastructure, industry, and navigation; stripping away its use as a space and cutting people off while creating the phenomenon of social disconnection. Awareness to implement social planning during river development is important in order to integrate rivers into the urban fabric. This research examines the "City is Not a Tree" theory as a basis to understand how cities need to have a semi-lattice structure with overlapping spaces in order to integrate themselves into the city. As the nature of this research is *bottom-up*, it saw appropriate the placemaking approach in creating river-spaces into a place for the people. The method used in this research includes analysis and comparison to theories, guides, and ideal precedents. Furthermore, this research resulted in finding guides for creating good river-spaces through the placemaking approach. The guides are of elements and variables needed to create a good river-space and a guide for the required programs that need to be implemented. Through this research, it is found that developing river-spaces as a space to host social interaction with the placemaking approach, creates not only a livelier environment but also improves the overall quality of the river-space.

Keywords:

River-space, Social Dis(connection), Placemaking

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1. Introduction

Human settlements have always been built near rivers and have become an integral part in the establishment and development of human civilization (Zhang et al., 2015). Their use and value continue to uphold great significance in an urban setting. However, with shifting priorities and the nature of modern anthropogenic activities, rivers often have to conform with city water management in order to exist in the built environment.

To exist in the city, there are two approaches to how urban rivers can be managed: (a) the Command and Control approach, or (b) an Ecosystem-based approach (Haygarth, 2009). The practice of a Command and Control approach is much more favored due to its practicality, and has long taken place since the 19th century, in which it "focused only on guaranteeing water use and safeguarding humans from floods and diseases" (Zingraff-hamed, 2018). Although its simplicity is appealing, in hindsight increasingly giving the use of rivers to infrastructure, industry, and navigation (M. Kondolf et al., 2018) has transformed rivers into a utility or engineering asset, rather than as a space where human activities once took place.

It is clear that the people's activities are cut off from the

river, indicating the phenomenon of social disconnection between mankind and their urban rivers. However, as we progress in the 21st century, we as a post-industrial society have begun to realize and experience firsthand the consequences of our actions. It took time to shift priorities from concerns of economic considerations to efforts in improving the health and well-being of people with their river-ecosystem (Zhang et al., 2015). We can witness this in several developing countries such as Korea, Japan, and the majority of European countries that have taken the initiative to begin the river-development era.

Therefore, in this research it found necessary for current and future river-development to re-implement social planning into urban rivers. By analyzing the "City is Not a Tree" theory which underlines "the massive problem of social planning and its expression in the structure and forms of the modern city" (Alexander, 1966), it became a basis to understand the need for rivers to become river-spaces that can host social interaction. A great amount of emphasis is placed on the creation of a good river into space (river-space), with the means to easily integrate them into the urban fabric.

Consequently, the nature of this research is one of a *bottom-up*, to fit the context and social needs by

involving the people's and communities' aspirations. Likewise, it saw fit the placemaking approach on how to create a space into a place for the people. Therefore, the aim of this research is to find a set of guides on how to create a good river-space through the placemaking approach, in hopes of creating a livelier environment and improve their overall quality as a whole.

2. Literature Review

Prior to the guides in creating good river-spaces, pinpointing and unravelling the urban phenomenon in this research is important to identify key aspects that led to river's social disconnection and what could be resolved. This goes by understanding first, mankind's relationship with the river over the course of history.

2.1 Phases of Mankind's Relationship with the River

Mankind's relationship with the river has undergone three phases and has since followed a predictable trajectory (Zhang et al., 2015). Those three phases are divided according to the types of society that has developed throughout history and are as follows:

a. 1st Phase: Primitive Society

Human settlements are built near main river waterways and are used for irrigation and fishing. However, the meandering nature of river streams made settlements vulnerable to water disasters, limiting the development of society in this era.

b. 2nd Phase: Traditional Agrarian Society

Starting around 10,000 years ago, humans built water conservation projects that had very little impact on the environment. For a brief period there was stability between mankind and the river environment, due to relatively low water demand.

c. 3rd Phase: Industrial Revolution Society

From the year 1760 until the beginning of the 20th-century, this period experienced rapid development in human science and technology. Large-scale water conservation facilities were built to facilitate better use of river resources. It is during this period that many human activities resulted in disasters, worsening the relationship between humans and the river.

As each phase progresses we can notice the change in mankind's relationship with the river. That change is a shift in principle, where initially it was nature over mankind to mankind over nature. Apart from that, it was not until the third phase where it became a point of no return for deep human involvement, and as power increasingly became held in the hands of the government and industry (Brierly, 2019), the river's best interest had to fit into their agenda. Likewise, urban rivers have more than often been forced to conform with city water management and regulations in order to exist in the built environment.

2.2 Types of City Water Management

For most cities, river resources are managed under government policies and regulations. It involves planning, developing, distributing, and managing the optimal use of river resources (Water Management Importance, 2014). There are two approaches to how urban rivers can be

managed:

a. Command and control approach

This approach seeks to create simple and predictable water systems. They view rivers as conduits that are uniform, stable, and homogeneous. Forms in which rivers take under this approach are those such as normalization, canalization or *betonisasi* (paving the entire channel with concrete). Apart from that, this approach views human activities as separate from river ecosystems (Haygarth, 2009).

b. Ecosystem-based approach

This approach seeks to maintain the natural structure of the river, and recognizes that waterways are naturally messy, irregular, and rough. In addition, this approach takes into account the complexity of river-life and its dynamic ecosystems, thus view people as part of the river ecosystem (Haygarth, 2009).

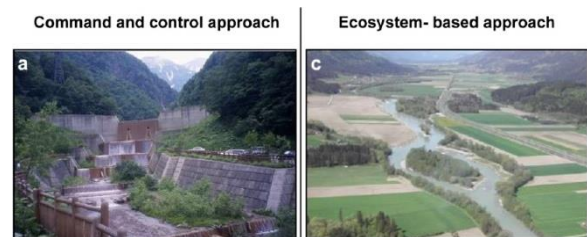


Figure 1. (a) Sabo dams in Hokkaido, Japan built under the Command and Control approach. (b) Returning natural streams that have previously been channelized through the "space to move" program in Europe

Source: Haygarth (2009)

Although there are two choices for river management in cities, there is a tendency to choose the Command and Control approach, ever since the 19th and 20th-century only focused on using rivers to guarantee water use, expand navigation routes and protecting humans from floods or diseases (Zingraff-hamed, 2018). As a consequence, rivers are stripped of their use as a space, people are cut off from the river and the phenomenon of social disconnection between mankind and their river became ever more prominent.

Similarly, in the case of Jakarta, Indonesia, all of our river systems are managed under the Command and Control approach. It is due to the city's dependency on using rivers as primary drainage systems and lack of natural absorption terrains, that Jakarta's rivers undergo normalization. Furthermore, river normalization is part of the Government's regulation and flood control program as indicated in the Regional Regulation (PERDA) for the Capital City of Jakarta No. 6 year 1999 regarding Spatial Planning for the Capital Region of Jakarta (Prabowo, 2020).

2.3 4th Phase: Post-Industrial Society, Moving Towards a River Development Era

With realization and first-hand experience of the consequences of our past society's actions, our post-industrial society has now begun to enter the 21st century with a new outlook. We have become more aware of the urban phenomenon of social disconnection in rivers, and took the time to shift priorities from concerns of economic considerations to efforts in improving the health and well-being of people with the river (Zhang et

al., 2015). Likewise there is hope, our society is now moving towards an era of river repair and development. Several developing countries such as Korea, Japan, and the majority of European countries are examples that have taken the initiative. Social planning is highly taken into account as part of the river-space, with a means to re-establish the urban river's existence as part of the lively urban fabric.

2.4 "City Is Not a Tree" Theory on Social Planning in Cities

Nevertheless, with regards to understanding social planning within a city's structure, the "City is not a Tree" theory is one that unravels "the massive problem of social planning and its expression in the structure and form of the modern city" (Alexander, 1966). Its title "a Tree" does not refer to those of a green tree with leaves, but rather the abstract structure that forms a city. Alexander in his theory categorizes the inner nature and structuring principles that make up a city into two structures:

a. Semi-lattice structure

This structure is one that is closest in describing the natural city, where "overlapping sets belong to a collection" and those sets are how each element, space, and many more of the city are connected to one another. The semi-lattice structure depicts a complex structure, that is, the structure of all living things. It is emphasized that "a living city is and needs to be in a semi-lattice structure" (Alexander, 1966).

b. Tree-like structure

The tree-like structure is one that best describes the inner nature of the artificial city, in which "2 sets in a collection, one is either wholly contained or disjoint". Apart from that, the "structural simplicity of trees is [based upon] the compulsive desire for neatness and order" (Alexander, 1966).

2.5 Jakarta's Rivers Existing in a Tree-Like Structure

Understanding the nature of both "City is not a Tree" structures, help indicate what kind of structure Jakarta City like many cities exist in, that is the Tree-like structure. The diagram that is proposed by Alexander himself gives a clearer picture on how social interaction or activity flow in both of the structures. Below is an adaptation of that diagram with regards to the existing river condition and that of an ideal one:

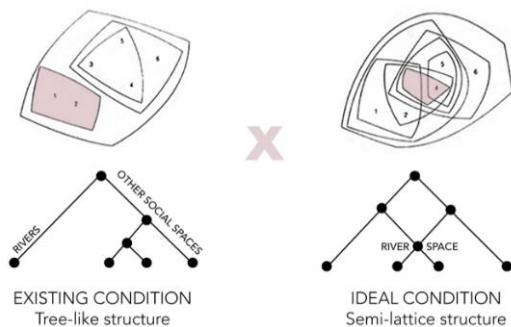


Figure 2. (a) Jakarta's rivers exist in a tree-like structure where it is clearly disjoint from the rest of the Urban Spaces (b) Rivers should be treated as a space where social connectivity can occur and flow

Source: Adaptation from Alexander (1966)

What can be interpreted from this diagram is that since Jakarta's rivers are designed in a tree-like structure, due to the government's desire for neatness and order, rivers are only treated as channels or an instrument of infrastructure. Rivers in the diagram are depicted as dead ends, they are not really considered as a valid space where social interaction can flow or connect to other social spaces. Therefore, Jakarta's rivers are completely disjoint from the urban fabric as a whole. What needs to be changed is for rivers to become spaces – a river-space, that can overlap with other social spaces. In the diagram, it is expected that rivers as spaces would become part of the city's semi-lattice structure and with it open the opportunity for social connectivity to take place and flow throughout the river-space.

2.6 The River-Space Terminology

Prior to the development it is important to clarify the term and what comprises a river-space. In this research the author takes into account the division of zones for waterfronts or in this case riverfronts. Riverfronts are part of the city that borders a water body and its division with relation to the city is as follows:

- a. Adjacent city area, meaning other social spaces within the city
- b. The riverfront area, the area that borders the river-stream
- c. The river-stream, comprises of the water body itself where water runs

Therefore, when it comes to determining a river-space, river-space in this research consists of both (b) and (c), which is the river-stream itself and the riverfront area. A clearer picture of this term is presented in the following diagram:

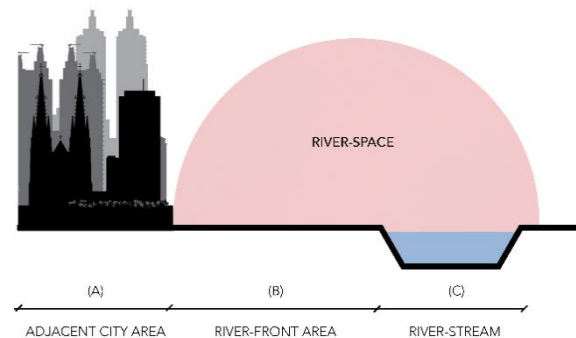


Figure 3. Division of river-space and its relation to the city

2.7 Developing Rivers as Spaces (River-Space)

Since the first issue in resolving the phenomenon of social disconnection between mankind and the urban river is to transform rivers into a space, it needs to be understood that planning its social connectivity acts upon three spatial dimensions: longitudinal, lateral and vertical (or the x,y,z axis), and one temporal dimension (Schmutz, 2018).

Accordingly, these dimensions will be elaborated, starting with the river's spatial dimensions:

- a. Longitudinal connectivity refers to the path along the entire river stream
- b. Lateral connectivity refers to the river's floodplain
- c. Vertical connectivity refers to the atmosphere and

groundwater (Connectivity: Four dimensions - Minnesota DNR, n.d.)

In terms of the river's longitudinal connectivity, it is one that has been long developed as seen throughout history, with the river's use as channels to expand transportation and navigation routes. This development is what cut people off from the river and has led to sacrificing the river's lateral and vertical connectivity.

Meanwhile, as stated in a "City is Not a Tree" theory, a set (in this case the river's set of spatial dimensions) need to overlap with one another in order to create a semi-lattice structure as a first step in transforming rivers into a space that allow social movement to flow. Therefore, a suitable description for social connectivity in river-spaces is best described as:

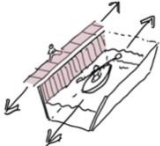
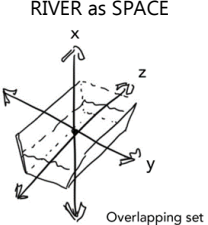

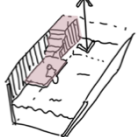

"The communication and movement of people, goods, ideas, and culture along and across rivers, recognizing longitudinal, lateral and vertical community, much as has been described for rivers for hydrology and ecology." (G. M. Kondolf & Pinto, 2017)

On the other hand, the temporal dimension of rivers is associated primarily with the continuous interaction between man and river over a period of time. How these interactions can exist within a river-space is best understood through the "use-value" connection which underlines the various types of ways in how society values and utilizes rivers (Haygarth, 2009). The types of "use-value" connections between man and river are resource, recreation, and aesthetic.

- Resource, meaning rivers as a commodity such as water or trade route
- Recreation, meaning rivers as a place with physical characteristics that allow water-based or related activities to take place within and around the space
- Aesthetic, being rivers as more explicit and dependent on the intrinsic value that they have, as well as the effect that it can have on human well-being (Haygarth, 2009)

All these dimensions and factors that affect thus shape social connectivity in rivers are laid out in the following table, with a result of two formulas:

Table 1. Dimensions and factors that shape the formula for social connectivity in Urban Rivers

River Dimension (Schmutz, 2018)	Current River Condition (Schmutz, 2018)		Ideal River Condition	Formula for Social Connectivity in Urban River
Spatial Dimension (Tangible Aspect)				
Longitudinal Connection (z)	Exists and has long been developed		Continue to develop, with the condition to consider the vertical and lateral connectivity. Can be achieved by softening the edges, prevent using concrete or replace with natural rocks to allow water absorption to the earth.	<p>RIVER as SPACE</p>  <p>Overlapping set</p>
Lateral Connection (y)	Does not exist		Needs to be developed. Several ways to connect laterally could be by placing tactical bridges, stepping-stones and others.	
Vertical Connection (x)	Does not exist		Needs to be developed. Several ways could be by placing stairs, ramps, creating natural slopes, wooden docks, and others for people to reach the water.	
Temporal Dimension (Intangible Aspect)				
Continuous interaction between man and river over a period of time	Direct interaction between man in river does not exist. How interaction can be achieved is by attaching the "use-value" connection humans have over rivers.	Resource (Haygarth, 2009)	River as a commodity such as water or trade route	<p>PROGRAMS as ACTORS</p> 
		Recreation (Haygarth, 2009)	River as a place with physical characteristics that allow water-based or related activities to take place within and around the space	
		Aesthetic (Haygarth, 2009)	River as more explicit and dependent on the intrinsic value that they have as well as the effect that it can have on human well-being	

Source: Adaptation from Schmutz (2018) and Haygarth (2009)

The formulas needed for social connectivity in river-spaces is as follows:

- a. River to first be treated or transformed as a space, in which it acts as a medium for social interaction to take place and flow. The said river-space means that all of its spatial dimensions overlap with one another. With the river's longitudinal, lateral and vertical connections overlapping one another, it will create a semi-lattice structure that can connect to other social spaces and the urban fabric.
- b. Consequently, programs need to be placed in the already created river-space, to act as actors in initiating social interaction. Programs that are placed in the river-space can be determined by understanding the "use-value" connection that humans have with rivers. The presence of these programs creates activities for humans to interact with the river-space over the course of time.

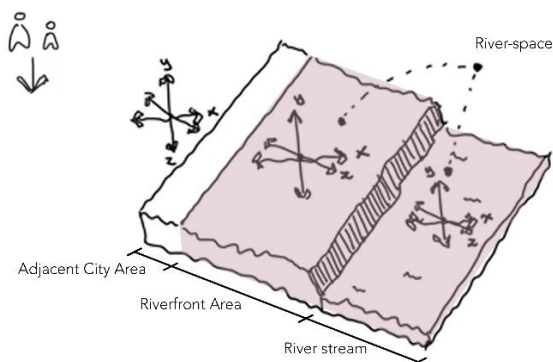


Figure 4. Diagram explaining the intent to implement social planning in river-spaces that can connect with the rest of the Urban Fabric

3. Research Method

Despite finding the two formulas for social connectivity in river-spaces, a set of guides need to be determined for the formula to perform well. For the first formula which is rivers as space, creating a good river-space guide will be derived from the placemaking approach, on how to create a space into a place for the people. As for the second formula, which is programs as actors, a guide which lists possible activities to implement in river-spaces will be derived based on the use-value connection.

Therefore, as a method, this research will conduct a comparison and analysis of existing theories and guides.

For the first river-space guide, theories that are used include PPS' placemaking diagram, crossed over by PPS' 10 Great Qualities of a Great Waterfront Destination with the guide from Reframing Urban Spaces, along with this, the previously formulated needs for social connectivity in river-spaces will also be added to complete a river-space guide which includes needed variables and elements. How this comparison works is by using PPS' placemaking diagram as a base, then grouping elements, variables or parameters from other guides and theories that are similar, to eliminating those that are not in to context of the research and finally re-ordering and renaming them to fit into context of river-spaces.

For the second guide, activities will be selected in context to Jakarta's river. Afterwards, G. Mathias Kondolf's diagram of river activities is adapted with Haygarth's

category of use-value connection between mankind and the river. After both guides are determined, they are compared to ideal precedents to confirm and revise its final content.

4. Results and Discussions

The whole intent of this research is to create a good river-space that can host social interaction as well as connect to other social spaces. River-space is a form of public space, and to create a good river-space means to create a good public space. Therefore, river-spaces are not inseparable from elements and qualities that any good public space should have.

4.1. Developing a Good River-Space That Can Host Social Interaction

To determine aspects, qualities, elements, and variables in developing a good river-space, the following theories and guidelines will undergo several comparisons to synthesize a final guide that is fit specifically for river-spaces. The following theories and guidelines used are as follows:

- a. Project for Public Space's (PPS) Placemaking approach. This approach becomes the basis of the river-space guide as its nature is bottom-up and strives to create a space into a place for the people. The placemaking approach considers the needs and aspirations of people who live, work, and play as part of good space development to encourage health, happiness, and welfare of the community (Jacob, 2006).
- b. PPS's 10 Qualities of a Great Waterfront Destination.
- c. Qualities from the book Reframing Urban Spaces.
- d. Formula for social connectivity in river-spaces. Rivers as spaces, and programs as actors.

With regards to the final guide on creating a good river-space through the placemaking approach, its composition comprised of aspects, elements, variables, and parameters.

To synthesize the final guide the first step was to look at the four aspects from the placemaking approach: (a) Access and Linkage, (b) Comfort and Image, (c) Uses and Activities, and (d) Sociability. These were compared with "10 Qualities of a Great Waterfront Destination" as well as Reframing Urban Spaces, and resulted that the aspect (d) Sociability would not be used as it was more of an intangible aspect to describe character of users, thus would not be physically useful on creating a good river-space. However, it found necessary to add Identity and Character from both "10 Qualities of a Great Waterfront Destination" and Reframing Urban Spaces, as an aspect.

After the aspects are determined, the second step was to compare "10 Qualities of a Great Waterfront Destination" and Reframing Urban Spaces to find elements and variables fit for river-spaces. They are arranged and filtered according to the necessity of the previous aspects; this applies to determining the parameters as well. In addition, factors that play into the formula for social connectivity in river-spaces are added as well into the elements and variables. Towards the end of the guide, several of the previous aspects had a change in name or were even divided to fit the description of its

corresponding elements, variables, and parameters specific to river-spaces.

In the final guide there are six aspects needed to create a good river-space and are (a) External and Internal interface, (b) User Access, (c) Water attraction, (d) Public Facility and Management, (e) Use and Activity, (f) Identity and Character, each of them have their corresponding elements, variables, and parameters. An outline of this process is depicted in the following diagram:

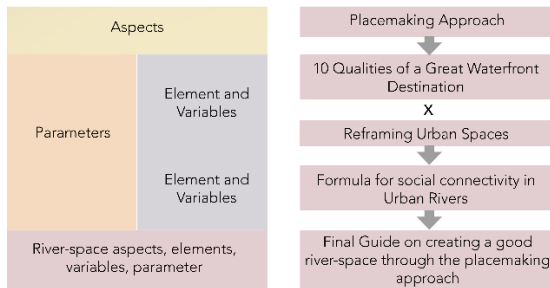
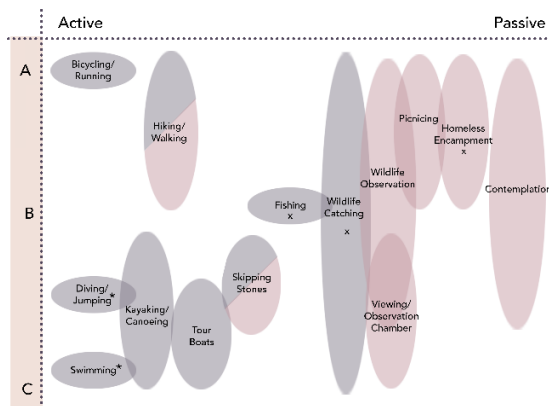


Figure 5. Outline on synthesizing the final guide for river-spaces

4.2. Determining Programs to Initiate Social Interaction

Programs are needed as actors in initiating social interaction. The “use-value” connection has provided insight into how humans interact with rivers, which are: resource, recreation, and aesthetic. A list of activities taking place in a river can be found through the list created by G. Mathias Kondolf, as to where they can take place in a river-space are based on their dependency on water (Timur, 2013).

In this research a newly adapted diagram of G. Mathias Kondolf’s was created to include the type of activity, placement in the river-space, and nature of the activities. The diagram is as follows:



LEGEND (A) Adjacent City Area (B) River-front (C) River stream ● Recreation ● Aesthetic

Figure 6. Adapted diagram of activities. Nature of activity (x-axis) and where activity takes place in the river-space (y-axis)

Source: Adaptation from G. M. Kondolf & Pinto (2017)

It is important to note that in this research, the use-value connection of rivers as a resource was eliminated due to the concern that urban rivers are not fit to drink or used as a navigation route anymore. Apart from that, the author found that several activities from G. M. Kondolf’s list need to be eliminated as its impact is negative and can

ruin the river ecosystem, those activities are fishing, wildlife catching, and homeless encampments.

Furthermore, since the final guide of programs is put into the context of Jakarta’s rivers, which a majority are polluted, several water-dependent activities are not recommended to take place. In the diagram, activities marked with an asterisk (*) are ones that require good water quality. However, it needs to be acknowledged that once river-spaces in Jakarta undergo rapid and mass development, public awareness should increase, people will start to appreciate their rivers and will want to clean and care for their rivers; this is what will eventually lead to implement activities that need direct contact with water (G. M. Kondolf & Pinto, 2017).

Nevertheless, the success of riverfront development is when all activities can function at all sections of the river-space and benefit all stakeholders. Integrating harmonious uses between those that are dependent and non-dependent on water can provide a more stable economic base. If water-dependent activities slow down due to economic conditions, weather, or seasonal fluctuations, harmonious use of non-water activities can help maintain the local economy and continue to serve the daily needs of people who live, work, and play in the community (National Oceanic and Atmospheric Administration, 2019).

4.3. Evaluating the Guides to Ideal Precedents

With the two guides created, which are (a) guide on creating a good river-space through the placemaking approach and (b) guide for activities that can take place in a river-space, they are tested and compared to ideal precedents. These precedents are river-spaces that successfully develop and implement social connectivity to create a lively and connected river-space in the urban fabric. The following precedents are the Cheonggyecheon River in South Korea, Battery Park in Cape Town, and Chicago Riverwalk in the United States.

In comparing the two guides to the ideal precedents, the author was able to confirm the guide’s relevancy and found two new use-value connection in a river-space, which are commercial and facility. Apart from that new variables and programs from each precedent were found to complete the final guide.

Table 2. Guide additions from precedent analysis

Precedent	Guide A		Guide B
	Element	Variable	
Cheonggyecheon River, South Korea	Water Attraction	Habitable ecosystem for all living things Opportunity for imagination	Art installation, Busking, Children Playground, Walking the dog, Stone hopping
Battery Park, Cape Town	Identity	Thematic segments Type and variation of material	Ride scooter, Paddle boarding, Children Playground, Sports Park, Walking the dog

Chicago Riverwalk, United States	Identity	Thematic Segments	Paddle boarding, Children Park, Art Installation, Walking the dog
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Water Attraction	Water Attraction	User access
		Inclusive access
Public Facility and Management	User Comfort Management	Spatial value
		Focal point of activities
		Landscape and waterscape
		Habitable ecosystem for all living things
Use and Activity	Activity	Opportunity for imagination
		Shade and light intensity
Identity and Character	Identity	Flexibility of public facility
		Facility and services
		Security
Use and Activity	Activity	Water quality
		Variety of choice for activities
Identity and Character	Identity	Activity running all year long
		Imageability
		Presence of art and culture
		Type and variation of material
Use and Activity	Activity	Thematic segments

Source: Precedent Analysis

Analysing the precedents helped to confirm the relevancy of the two guides and add on missing factors that were necessary to create a good river-space. Two final guides are now able to be concluded, one for creating a good river-space through the placemaking approach and the other which is a guide for programs needed in the created river-space.

4.4. Final Guide on Creating a Good River-Space Through the Placemaking Approach

The guide below consists of aspects, elements, and variables needed to create a good river-space through the placemaking approach.

Table 3. Guide on creating a good river-space through the placemaking approach

Aspect	Element	Variable
External and Internal interface	Connectivity	Connection between nodes
		Axis of spatial dimensions
		Sightline and wayfinding
User Access	Continuity	Pedestrian activity
	Accessibility	Entry points

Source: Adaptation from PPS (2018) and Cho (2015)

4.5. Guide for Programs Needed in the Created River-Space

The following guide consists of a list of programs that should be implemented in a river-space for users to initiate social interaction. This guide lists the name of the program or activity, its type, location in the river-space, nature of dependency to water as well as needed facilities to support the existence of these programs.

Table 4. Guide of programs needed in the created river-space

Location in River-Space	Type of Activity	Activity or Program	Dependency on Water			Facilities Needed for Support
			Water Dependent	Water-Related	Non-water-dependent	
(C) River-stream	Recreation	Diving/Jumping*	X			Connection to dock, locker, changing room
	Recreation	Swimming*	X			Connection to dock, locker, changing room
	Recreation	Tour Boats	X			Connection to dock, ticket booth
	Recreation	Kayaking/Canoeing	X			Connection to dock, kayak/canoe rental booth, locker, changing room
	Recreation	Paddle-boarding	X			Connection to dock, ticket booth, paddle-boarding rental booth
(B) River-front	Recreation	Skipping stones		X		Dock connecting to river-stream
	Recreation	Stone skipping		X		Stepping-stones
	Aesthetic	Viewing/Observation Chamber		X		Public facilities i.e. bench, seating areas, docks or glass chambers
(B) and (C) River stream and River-front	Aesthetic	Wildlife Observation		X	X	Public facilities i.e. bench, seating areas, landscape
	Aesthetic	Contemplation		X	X	Variety of seating options, landscape, docks, pergola
(A) and (B) Adjacent City areas and Riverfront	Commercial	Boutique, Café, Restaurant, etc.			X	Boutique, Café, Restaurant, Co-working space, Bazaar, etc.
	Recreation and Aesthetic	Bicycling/Running			X	Bicycle and pedestrian lane, bike shelter, shading
	Recreation and Aesthetic	Riding Scooter			X	Scooter lane (can be combined with bicycle lane), scooter shelter
	Recreation and Aesthetic	Hiking/ Walking			X	Pedestrian pathway
	Aesthetic	Picnicking			X	Landscape area
	Recreation	Sports Park			X	Basketball court, Skateboarding Area, Jungle Gym, etc.
	Aesthetic	Art Installation			X	Public Mural, Nodes for placement
	Recreation	Busking			X	Multifunction area or Nodes
	Recreation	Playground			X	Playground

Recreation and Aesthetic Facility	Walking the dogs	X	Pedestrian Lane
Facility	Toilet	X	Toilet
Facility	Praying (specific to Jakarta's context)	X	Praying room

*Activity dependent on Good Water Quality

Source: Adaptation from G. M. Kondolf & Pinto (2017), Schmutz (2018), and Haygarth (2009)

5. Conclusion

To conclude, this research found it necessary for current and future river-development to consider social planning as a means of integrating them into the urban fabric. Two guides were concluded in this research, which are (a) a guide on how to create a good river-space through the placemaking approach and (b) a guide on programs needed in the river-space. With these two guides, it is hoped that applying them during river-development will not only create a livelier environment, but also increase the whole quality of the river-space.

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