

# Arrangement of Public Open Space of Palu Riverbanks in Palu City Center Area with Waterfront Development Approach

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**Abstract**—The strategic position of Palu River has made it important hub of activity in the city. The development of various public service facilities has increase the intensity of activity at the riverbanks. Various efforts have been made to improve Palu Riverbanks such as the construction of embankments and pedestrian areas with minimal impact, the open space conditions are empty and less interesting to be studied. Using qualitative descriptive research method that focuses on physical identification and non-physical study area, using two analysis techniques that is Walkthrough Analysis for the identification of physical area in the form of visual quality assessment of study area by using townscape theory which includes 4 elements that is serial view, place, content , And the functional tradition. As well as Walkability Analysis techniques for non-physical identification of the area through the impression and public perception of both the public as observers/visitors of the space and the local community as a fixed user of space. Then with triangulation method to combine the results of the analysis that has been done, with reference studies, as well as the results of stakeholder interviews as well as related experts in the field of research produced a special criteria formulation that became the reference for the preparation of the concept of regional arrangement in accordance with waterfront development approach.

**Keywords**—Public Open Space, River Banks, Central City Area, Waterfront Development.

## I. INTRODUCTION

Palu river basin area is a historical landmark of the development of Palu city, especially around the Kampung especially around Kampung Baru, West Palu district, while the Palu rivers of Jalan Raja Moili, Besusu Barat village began to grow around the 1980s, but in the spatial development of Palu (RTRW) in 2010-2030 [1] , the area along the Palu River border (DAS Palu) is a local protected area for green space development program that functions as a green belt. This area is growing but lack of

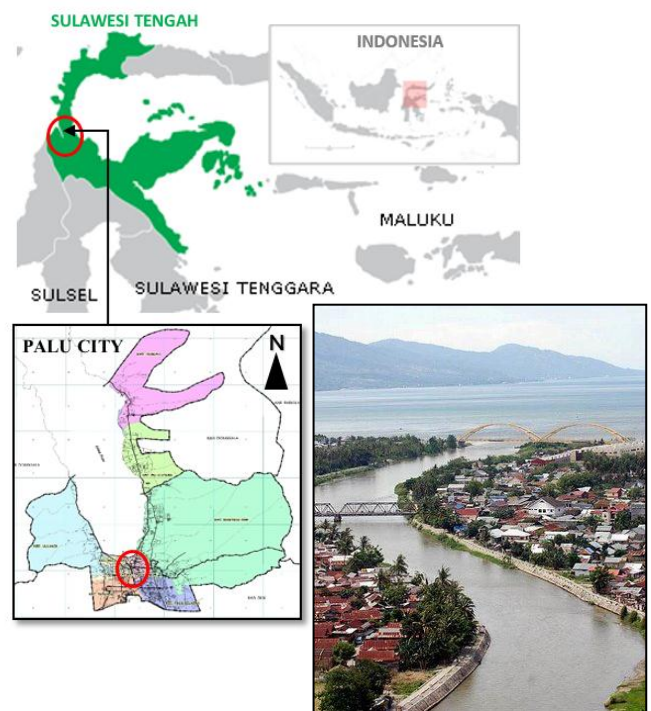


Fig 1. The location of study area

supervision resulted in the functions of public spaces into residential areas, offices, education, recreational and various social facilities.

The riverbank which is the administrative study area is located in 2 sub-districts in Palu city center, Palu Barat sub-district and Palu Timur sub-district covering 4 urban villages namely Baru Sub-District, Ujuna Sub-District, Besusu Barat Sub-District, and Lolu Utara Sub-District. With the physical boundary of the river area between Bridge III and Bridge I in accordance with the determination of the river boundary area for the Palu River is the area directly adjacent to the water edge within a radius of 25 m, which includes the border area of the water edge which is the public space area, the river protection area, Access point area and built-up area with a 100 m radius from the edge of the embankment. This is done to get more optimal results from various factors that affect the development of the area.

## II. THEORY AND METHOD

Based on the type of project, waterfront development is the effort to create a waterfront area that meets the needs of the city today and the future. Waterfront development as a concept can also be interpreted as a development process that has a relationship both physically and visually with water [2]. It is part of the development efforts of urban areas that are geographically close to bodies of water, which necessitates the development of the city face to be oriented toward the waters.

One of prerequisite aspect of waterfront development is the economic aspect, including the value of the land, as well as the economic potential that can be developed by a city, the social aspect of waterfront development includes the provision of social facilities along the water body as a gathering place for the people to have fun and enjoy the facilities available, environmental aspects concern the influence of waterfront development on the overall quality of the environment. Lastly, the preservation aspects of waterfront development result from unique/iconic feature, that have a specific wick will historically preserve the area also protect the existence of buildings or other areas that have historical value [2].

Walkthrough Analysis is a method of identifying the physical condition through the visual quality assessment of the city that is done by walking through the observed area and seeing the perceived impression all the way through the image recording/photo of the existing location called the technique [3]. The identification process using the townscape theory that includes 4 elements of serial view, place, content, and the functional tradition. The elements of the Townscape will be used as a component to read the cut out of the view/description of the observation location which is then presented graphically and descriptively [3].

Identification of non-physical conditions is obtained through the impression and public perception of the general public as observers / visitors of the space and the local community as a fixed user of space. A data-capturing technique using pedestrian pathway capability through qualitative evaluation system of site conditions is called Walkability Analysis [4]. This technique provides an overview of the importance of individual visual perception (community) as a form of participation on the environment in the planning and design of a city or a particular region [5]. Walkability Analysis is done directly through interview techniques and questionnaires related to 5 criteria, convenient, connected, convival, comfortable, and conspicuous, in answering the problems of pedestrian ways in the Study Area. Then the last using triangulation method to combine the results of the analysis that has been done, with reference studies, as well as the results of stakeholder interviews and related experts in the field of research produced a special criteria formulation that became the reference for the preparation of the concept of regional arrangement in accordance with waterfront development approach.

## III. RESULT

The results of the research stage concluded that the area has potential as a transition and relaxation area, because of its strategic location in the city center as well as the visual character of the river that can be developed in accordance with the approach of waterfront development. For more details the following conclusions that refer to the questions and targets of research:

The result of identification of physical condition and non physical area include:

- a. Based on activity and land use; the potential of the area derived from its location in the city center, the existence of relaxation activities of local communities and the visual potential of the river. The problems are found in the partial arrangement causing the remaining land / space-space negative (non-activity) that is misused. The area seems less friendly and less inviting to visit with the habit / pattern of activities of local residents as well as the poor physical condition of the environment.

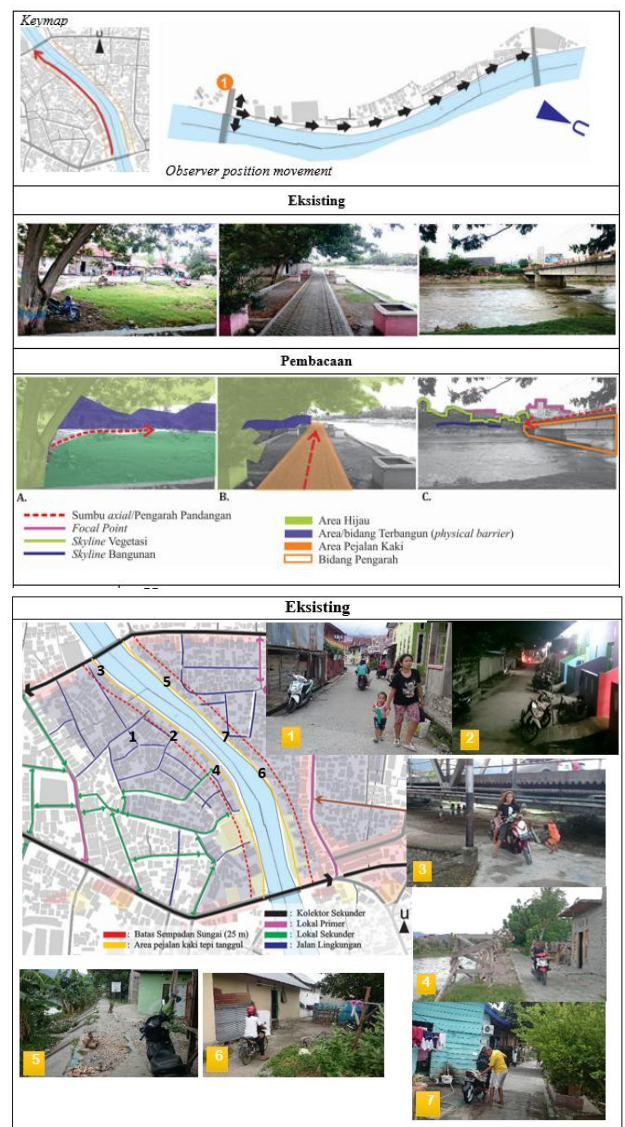


Fig 2. Walkthrough Analysis and Walkability Analysis



- b. Based on accessibility and liaison; It was found that the layout of the area made it easy to reach from various directions but the conditions of access allowed the area to be reached on foot and two-wheeled vehicles. The area seems less connected with the surrounding area because it has no directing elements and markers as the identity of access to the region.
- c. Based on the aspect of regional infrastructure, it was found that the lack of infrastructure, such as lighting, environmental utilities, and road signs caused the area to be less clear and less comfortable to visit.

From the results of physical identification and non physical and triangulation formulated seven specific criteria which later became the reference in conceiving the arrangement of the region. The seven formulas include:

1. Aspects of activities and land use; The need for mapping of activities and zoning of areas at strategic points both within and surrounding areas and determining the boundaries of areas that require structuring is a 25 meter border area, taking into account the appropriate land use aspect, as well as the establishment of zones that are functioning for protection and Cultivation.
2. Accessibility and connectivity aspects; the need to manage existing access and open new access, organization of circulation patterns that facilitate the orientation and placement of strategic points as a magnet and generator of movement within the area and the need to utilize the potential of the study area and the surrounding area as a liaison system with visual, structural and collective approach.
3. Aspects of regional infrastructure; the need for structuring that focuses on the availability of facilities and infrastructure of environmental utilities, street furniture, recreational facilities and infrastructure, and appropriate water protection and as needed. As well as the need for the use of the concept of theme / identity design for the infrastructure of an integrated area and as needed and in harmony with the environment.
4. Economic aspects; the need to implement facilities that can support the functions of the region as well as programs and events that are held that are recreation and attractive, adaptive, that accommodate and increase the economic potential of the region such as visitor centers, and local business.
5. Social aspects; the need to apply the concept of waterfront development according to social conditions and activities in the area of recreation waterfront type, and residential waterfront. As well as the type / character / type of open space suitable for in the riverside settlement area.
6. Environmental aspect; The need to consider ecological solutions of right-sided riverside protection of disaster-prone rivers, based on regional character, landscape setting, vegetation and materials, according to the applicability of waterfront type of waterfront type of environmental waterfront type.
7. Preservation aspect; The need to identify physical and non-physical elements of the area that have a strong

impression that can express the emotional feelings of residents or visitors and utilize elements of the building / infrastructure, cultural elements and local history that exists.

#### IV. CONCLUSION

The concept of public open spatial arrangement on river banks in the central area of Palu City based on physical and non-physical aspects of the area (activities and land use, accessibility and liaison, regional infrastructure) and appropriate aspects of economic, social, environmental and preservation prerequisites With waterfront development approach, as follows:

1. The area developed as a transition and relaxation area (neutral) with infill functions and new activities as needed. Structuring buildings and environment oriented toward the waters. The results of zoning based on conditions of activity and land use in the area of the Residential / Educative Zone, Recreation Zone and Commercial Zone.

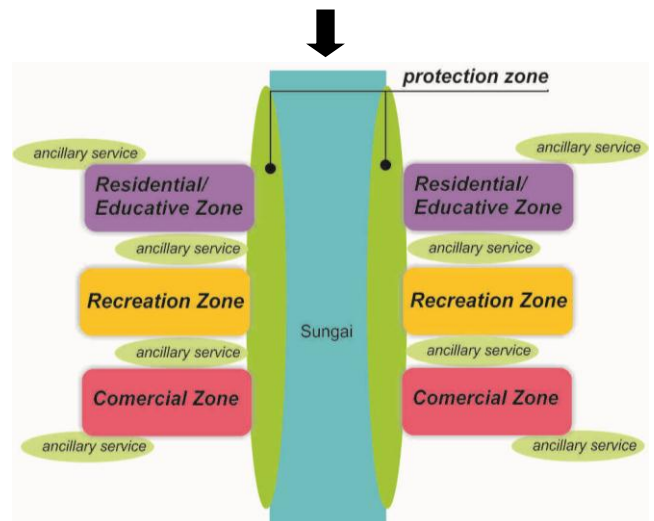
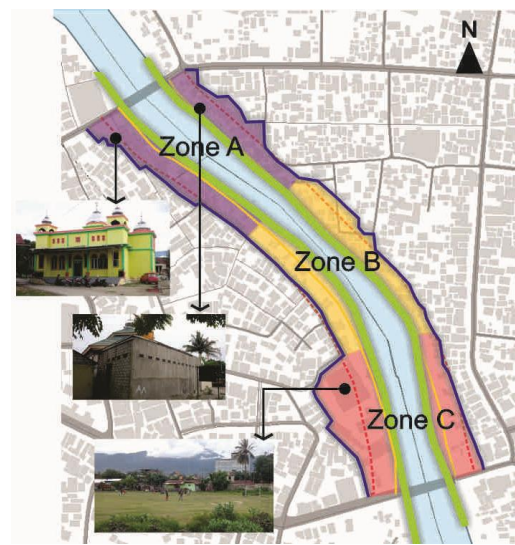


Fig 3. Zoning concept of area division based on activity and land use



Fig 4. Visualization of design

2. The circulation organization, the flow of motor vehicle movement in the area and the application of visual and structural linkage system as well as the lighting.
3. Placement of signs / signage in a strategic location that is easily visible and does not block the view. For environmental utilities are applied open channels disposal system and Sub surface storms drains are centralized and integrated and communal waste disposal facilities.
4. For economic activities by providing commercial facilities and infrastructure in the form of rattan furniture center area, culinary center, souvenir / souvenir and souvenir typical of hammer, with placement has direct access to facilitate circulation. For snack areas and street vendors (which are not permanent) provide pockets in the form of a rest area in each zone of the region
5. The development of recreation waterfront type, and residential waterfront with the development that utilizes the waters edge area, the dock facilities for fishing and rowing activities.
6. Renaturalization the embankment body with the widening of the double dome of the trapezoidal zone. Overcoming the problem of standing water with drainage of absorption wells and biopore holes.
7. Adaptation of curved forms identical to the topographic condition of Palu city on the pedestrian way pattern and the design of the yellow and floor pattern as the identity of the traditional color or the color of the nobility of Palu City. The door design (gate) / ancillary service facility adapted the custom house form Souraja. arrangement as the social control for the user of the area especially at night.

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