

Conference Paper

Landscape Design to Improve the Tourism Quality As the Part of Riverside Settlement's Revitalization

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Abstract

This research of riverside settlement in Kampung Beting extends our understanding of Kapuas riverside as a place to live and make a living. Kampung Beting set on the delta of Kapuas river branching and put it in the history as the part of Pontianak urban city developments. This research explores the phenomenon of the residents that live above the water can adapt and use the Kapuas River as their place to grow and cultivate their domestic productions. The finding shows that there are no specific programs from the residents and also from the government to improve the quality of the domestic output, so the home-based business (hydroculture) are poorly handled. Connected floating corridors, the genuine of water culture, and riverside picturesque are several of the potential factors that can be improved to transform Kampung Beting into an attractive tourist area. The study suggests the landscape design of river aquaculture that can escalate the variation of the venture, increase the resident's productivity, and create a conducive environment for stability. Designing tourist routes within Kampung Beting, not only introduces cultural and historical values but also aims to increase income for the community.

Keywords: Riverside settlement, Beting Village, Landscape Design

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1. Introduction

Beting Village has become a significant highlight in urban improvement program of the Government of Pontianak City. This Village is the first settlements that rise after the establishment of the Kadariyah kingdom, which is growing from 1771 until Dutch colonization occurred in Indonesia [1]. This area was the starting point of Pontianak Urban Development before it unfolded to alongside and crossed to another side of the river. Settlement on the Kapuas river growth along with the development of Kadariah Kingdom, that growth on the water and formed from the houseboats or stilt houses that

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standing over the water. Adapting to the morphology of Kapuas river delta that consists of muddy slope and waterways, people who lived in Beting Villages begin to build a permanent housing that follows the path of the waterway, and until now, they still use the canals for water transportation [2]



Figure 1: The housing of Beting Village viewed from Kapuas River.



Figure 2: Sultan Sjarief Abdurrahman Grand Mosque.

This village is in a very strategic location, which is located in the center of the city and is right at the intersection of the Kapuas River and the Landak River, making this village very accessible and easy to see from many sides along the river. This village also located

in the side of Kadariyah palace area, with kadariyah sultanate architectural artifacts found around the village, such as Keraton Kadariyah and Sultan Sjarief Abdurahman Mosque (Figure 2)[3] This village also has a unique morphology, the housing is built above the water with the formation of distinctive outdoor and communal spaces.

1.1. Aim and objectives

This design vision was to revitalize Beting Village into an area that can adapt to the social, economic, and cultural advancement phenomenal, and also can improve the ecological and economic sustainability. The purpose of this research was to found the ideal Landscape design guideline of waterfront settlements that focus on providing the better experiences as a tourist destination and consistent with the design vision above.

1.2. About revitalization

Revitalization is an effort to improve an area or part of town that was once had a vital/important aspect for whole the cities, that then the quality of the environment decreased. Revitalization process covers an improvement in the physical, economic, and social issues [4]. Revitalization is an effort to increase the value of land area through redevelopment that can improve the function of the area before.

[5] Revitalization process must be able to recognize and take the advantages of the existing environment's potential. Besides the historical basis, the specificity and uniqueness of the village that settles over the river, become another approach to design development. Revitalization process in Beting village use a landscape design method with the purpose of the design should improve the quality of the physical aspect, the social aspect, and the economic aspect:

- Preservation of the type and design of waterfront residential areas to encourage the growth of social and cultural traditions in the Beting Village.
- Increase the function of the open space and communal space into recreative and creative space for the children or community.
- Increased variety of business opportunities based on fisheries or tourism, increased land productivity, and create a conducive environment for business continuity.

2. Methods

This study will employ the qualitative approach in data collection and using two techniques to deliver the analysis: firstly, a field observation conducted based on substantive findings on kampung beting, used to found problematic issues, to describe a potential aspect, and to measure physical limitation on landscape design. Secondly, a literature review that evaluatively reports information on the historical perspective of Kampung beting and the study of best practice of landscape design that has a similarity with kampung beting. The findings then processed to be taken into consideration in determining the design guideline, which then becomes the reference for designing the new landscape of Beting Village.

3. Result and Discussion

3.1. About waterfront

Cities with water element inside such as river, canal, lake, or beach, have the potential to create a public space near the water (waterfront). There were several factors that should be considered on creating and maintaining water edges as open public spaces, such as Connectivity and visibility between promenade with water edges, Landmark or unique feature of architecture, vegetation, microclimate conditions, site improvement, Commercial or watersport facilities such as souvenirs shop or restaurant, Design for security, and Views [6], Utility and sanitation [2]. Besides the quality of waterfront's character, another indicator that should be considered to design a thriving waterfront [7]; The achievement level of public to the waterfront; quality of environmental cleanliness; Quality of water; and quality of vista.

In this paper, Waterfront indicators were formulated into several categories for the design of landscape in Beting villages, where parameters were measured by the usefulness of the above factors in creating and improving the quality of the kampong as a tourist destination.

3.2. Pontianak Urban planning 2013-2033 for Kampung Beting

Pontianak City government issued a settlement management program through the rejuvenation of the City in 2007, which is then recommended for the implementation in Beting Village. The Slum settlement program is characterized by an integrated approach

to regional development and long-term planning. The physical development component undertook aims to improve the living standard of society and the quality of the settlement itself. These components include improving the existing canal conditions, improving road and pedestrians way, creating a new pedestrian network, rearranging the position and orientation of the houses, and providing public facilities for residents and tourism purposes (figure

1) However, The results of the rejuvenation program were not by the planned. The project stopped at 2009 with technical and cost issues.

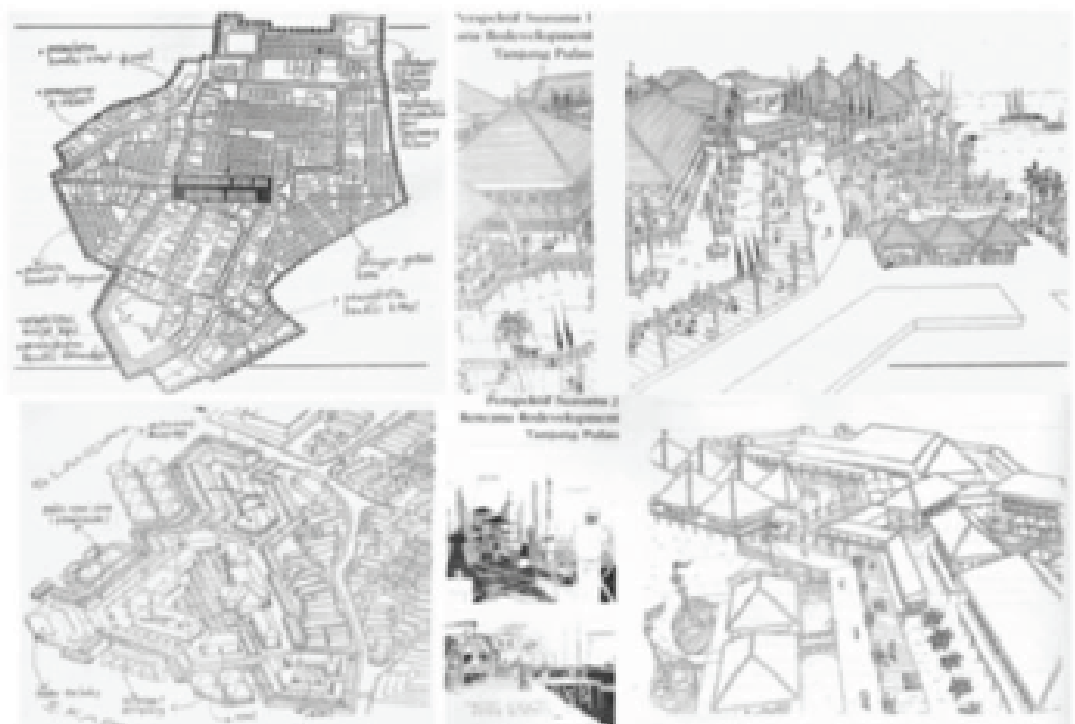


Figure 3: image of Rejuvenation at Beting Villgae Village (source: Dirjen PU, 2013).

The government of Pontianak city already planned to develop all the important node along the Kapuas riverside as a Pontianak waterfront-city branding. The development of this concept is aimed to shape the character of Pontianak as the river-oriented city. From now on explained in RTRW Kota Pontianak 2013-2023, city council comes with the idea of connecting all the open spaces along the Kapuas river, showed in Figure 2. For the future, they already set some Mikro development concept for Beting Villgae. Firstly, improve the quality of riverside pedestrians way with stretching the function not just limited as accessibility, but also design some multi programs such as providing open space for the residents, and also give more space for people to come and visit (tourism purpose) Secondly, programming some residents houses in Kampung beting as homestay-facility that serve authentic experiences as a tourist attraction.

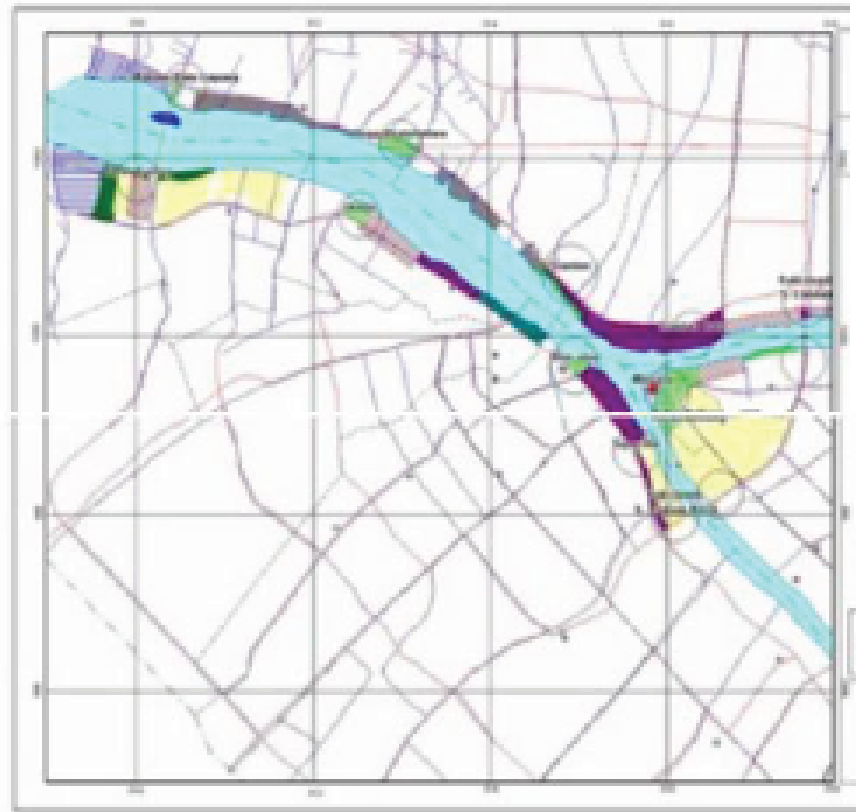


Figure 4: Pontianak riverside planning (Source: Pontianak Urban Planning Report for 2013-2033).

To encourage the tourism statistic, the government has established policies to facilitate the flow of tourists both domestically and abroad by providing various facilities, such as the expansion of flight entrances, the provision of relief for tourism business activities and so forth [3]. A well-directed and more appropriate tourism development program to increase the number of foreign tourist arrivals is needed. The right solution aimed to increase the marketing and improvement activities of various facilities and services required and utilization of various potentials. Kampung Beting designed and developed as a cultural and natural tourism area. Meeting the needs of recreational facilities is necessary, such as benches, sign system, parking area, restroom, restaurant, Shelter, water-future, tourist bus, and gift shop.

The government of Pontianak city proposed the strategy for developing trade and service areas in urban centers, with strategy:

1. developing a regional-scale trading market and services in the center of the city, with open space integrated and supported by activities, facilities, and infrastructure that support tourism activities,

2. developing public areas and pedestrian paths in embodied the connectivity of trading, service and recreation objects along the Kapuas Riverside,
3. providing space for formal and informal trading activities.

The government also proposed the Strategy for developing on economic interests, socio-culture, utilization of natural resources and high technology and the function and carrying capacity of the environment build tourism activities, recreation and nature protection in the periphery and the body of the Kapuas River with the concept of waterfront city; some points which concerned to facilitated Regarding Pontianak urban planning:

1. The design should Focus on riverside area, translated into a pedestrian way that has the quality to connect to another area outside the Beting Village, multi-program also as open space for residents and tourist
2. Street furniture and site amenities for residents and public facilities;
3. Concept of homestay for tourist to feel the experiences of living in Beting Village.

3.3. Best practice review: Venice, Italy and Zhouzhuang, China

Venice is a well-known international attraction and beauty, raised as the most famous heritage city in the world. (Russo, 2001) Venice is consist of 117 separated islands and 170 channel. The ambiance of gothic architecture with stone-paved road and coffee brewed smelled from their coffee can be found alongside the canals. Waterways with gondola have a particular part in Venice, considering that many open spaces are water oriented with residents and tourist using the canals as a transportation system. Gondola, yacht, and water taxi can be used by tourist to go through the channels.

Zhouzhuang is one of the cities in China located in Suzhou Prefecture, the eastern part of China. Founded in 514 BC, Suzhou has over 2,500 years of history, with an abundant display of relics and sites of historical interest. Suzhou is famous for its waterways that pass between traditional buildings, flowing under stoned arch bridges, with several historic gardens. [7] based on China National Tourism Administration (CNTA), Zhouzhuang are listed as Tourist attractions or scenic areas that rated as AAAAA (5A)[8], are the most important and best-maintained tourist attractions in the People's Republic of China. Suzhou is also known as "Venice from the east" because of the beauty of its canal that similar to Venice in Italy [9]. Four principal value that proposed in Zhouzhuang as Tourist attractions: (1) The building in the Zhouzhuang not impacted by war because

it located in a region that most developed in China, well presented for its local history. (2) the layout of the buildings is beautifully designed and express the balance and harmony between nature and human, (3) the water town become important for the regional economic system, (4) and the resident's local culture are famous for their simple happiness and honesty. [10]



Figure 5: Venice Canals View ([www. www.myitaliantravels.com](http://www.myitaliantravels.com)).

After reviewed some best practice of water-oriented residential and canals attraction as a tourist destination in Italy and China, it can be concluded in four significant points that can be taken into consideration in designing a tourist attraction in Kampung Beting.

1. Improve the waterways: waterways and canal always been the signature part from Kampung Beting. The design should improve the quality to support the mobility and transportation for residents and also for tourist purposed;
2. Improve the quality of green space in the channel; Generate several nodes between the canal as open spaces with landscape design and re-oriented the facade of the houses to facing the water;
3. Restrain the boardwalk for pedestrians way only. Auto-vehicle are just allowed in several routes that direct connection to the road;
4. The landscape design undertaking should manage to maintain and escalate the ambiance of authentic experience in corridor canal;



Figure 6: Zhouzhuang Canals View (Source: www.visionstravel.org).

The results of the literature review are summarized in the table below:

TABLE 1: summarize of Literature review.

Literature Review	Point of Design	Category	Conclusion
First Review : About Waterfront	Connectivity	Movement Pattern	Landscape component that should be considered for Tourism Activity in Beting Village :
	Visibility	View/ambiance	
	Landmark	View/ambiance	
	Genius loci	View/ambiance	
	Observation deck	Program	Connectivity Vegetation Open spaces
	Fishing deck	Program	
	Commercial area	Open Spaces	
	Watersport	Program	
Second Review : Pontianak Urban Planning fro 2013-2033 Report	Tree and plant	Vegetation	Activity concept potentially can be facilitated : Observation deck Fishing deck Commercial area Homestay Street furniture dan signage Restroom Restaurant Shelter Giftshop
	Riverside pedestrian	Movement Pattern	
	Parking area	Movement Pattern	
	Homestay	Program	
	Street furniture	Open Spaces	
	Signage	Program	
	Restroom	Program	
	Restaurant	Program	
	Shelter	Program	
	Giftshop	Program	
Third Review : Best practice of waterfront settlement Venice, Italy Zhouzhuang, China	Space for trading activities	Movement Pattern	
	Waterways/canals	Movement Pattern	
	Pedestrian way	Open Spaces	
	Greenspace	Activities	
	Local Wisdom		

3.4. Field observation

Beting village located in Pontianak city, West Borneo, Indonesia. Geographically, Beting Village formed on top of the Kapuas river delta that can be seen in Figure 5, which is crossed by many waterways and used as transportation routes and utility lines. The delineation of kampung Beting adjusted with Government Policy about Urban Planning of Pontianak City in 2002-2012 as a tourist Destination. Beting village consists of Stealth housing, canal corridor, and some open spaces that created aside from the Kapuas river.

Several components are found in the canal corridor [1]:

Boardwalk for Pedestrian; boardwalk is the only circulation path that founded in Beting village. It connecting all the housing, the public facilities and connected to the mainland. The pole structure and the boardwalk made by Ironwood. “gertak” are local definition (Malay Language) to boardwalk, wood structured road or pathway that escalated above the water, connecting between houses and main road with 70-150 cm in width [12] Gertak are genuine local wisdom – gertak stand on wood pole, some gertak are refurbished with concrete because the existing wood plank are damaged and potentially harm the pedestrians.

The canal for Water transportation: Besides as a drainage line, canal in Beting village also used for transportation line. The transportation used in this canal is a paddle boat that can take four or five people at a time. The dimension of the boat in Beting Village is 0.8-1.2 meter width and 2.5 meters length. **Wooden dock:** the wooden dock is a platform that is part of the boardwalk that used by the citizens to wait for the boat to come — a dock-shaped staircase leading down to the canal. The wooden dock made to adjust the shape of the tidal river. In the beting village, the wooden dock also used for washing and bathing. **Bridges;** a bridge in Beting village works to connecting all the boardwalk in the housing blocks, which are separated by the waterway (canal)

Kampung beting formed on the river intersection with constituents of wetland ecosystems, that recognized by the variety of vegetation that lived around the houses and the channels. Vegetation review intends to define the vegetation that lived in the Kampung beting, the benefit or harmful aspect of the plant will be considered as landscape design decision to fulfill the aim for this project that is to improve on the economic and aesthetic aspect.

Vegetation on wetlands is categorized by the zone where the vegetation grows. [13] The first zone of waterlogged plants, i.e. plants that are before the water limit. The second zone is a sloped area close to the water boundary overgrown with new plants. In deeper zones, new plants are replaced by floating-leaf plants with roots that still touch



Figure 7: Deliniation of Beting village (Source: Author's own work).

the soil (Floating-leaf plants). The deeper, floating-leaf plants are replaced by submerged plants, which are water plants that are completely submerged by water. Last wetlands plants are floaters, i.e., vegetation that floats above the water surface. Cultivation of plants becomes the basis for plant maintenance that will be used in certain parts of landscape design.

3.5. Tourism attraction

There were many unique cultural traditions in Pontianak city. Cultural tourism that can be enjoyed in Kampung Beting area [3]: (1) Performances of Art and Culture that are held annually in Pontianak City every October 23, which coincides with Pontianak Government Anniversary, (2) The carbide cannon held in the month of Ramadhan before



Figure 8: Components of Canals Corridor in Beting village: (a) Canals; (b) Boardwalk; (c) Jetty/dock; (d) Bridges (Source: Author's work).

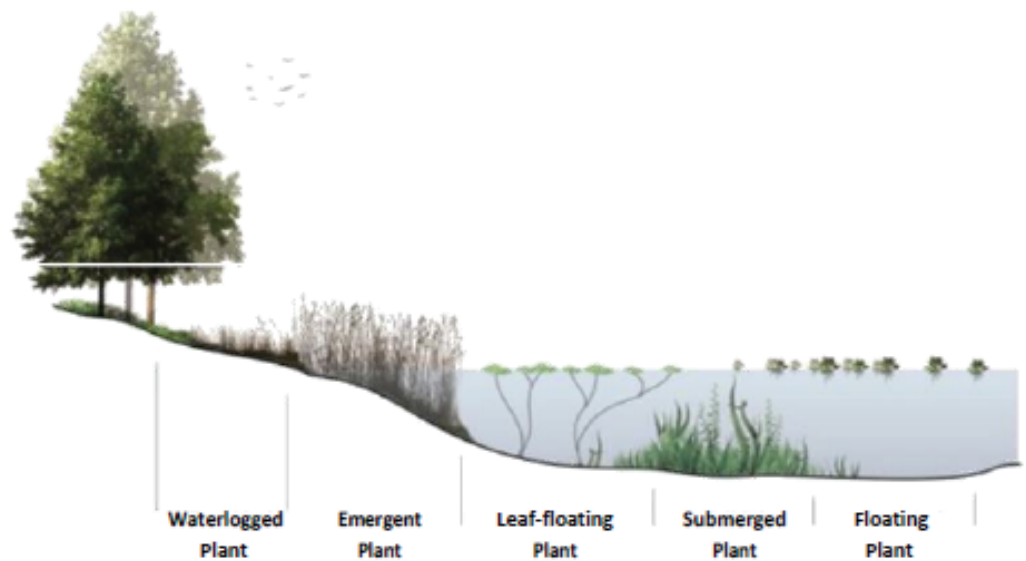


Figure 9: Wetlands Vegetation Zone (Source: aswm.org).

Eid al-Fitr, where people along the banks of the Kapuas river, turn on the cannons that are mutually calling simultaneously. Tourism Improvement must be followed by an improvement in the economic standard of the residents in Beting Village. Besides



Figure 10: Various Vegetation that can be found in Beting Village (Source: Author's work).

working as a laborer or builder, the residents fulfill their daily needs by utilizing the river body to be used as a fish farm using the Floating-net method. Floating-net cultivation has been a part of riverbank communities for a long time, but now there are only a few people who still rely on floating net as a livelihood. Besides shrimp cultivation, we can also found a water spinach cultivation. The potential aspect can be processed into a creative economy. the creative economic potential of Pontianak city tourism which can be developed in the kampong beting such as fisheries/cages, water transportation, and water tourism (water catching using canoes, fishing, river views) [3]

3.6. Landscape design concept

The main concept of that proposed on Beting Village are cover in 3 main zones:

1. Designing open spaces that can be the center of activity in beting Village, The potential for big open-space allows it to be used as an activity space for tourists,

sport, or social activity. The design is also connecting all the cultural artifacts around the Kampung Beting.

2. Developing an aquaculture area, the concept of an integrated area in producing and processing fisheries and aquatic plants that have economic value, so that they can be processed into the primary commodity of Kampung Beting.
3. The improvement of canal corridors that can generate whole villages into an attractive place for tourism. The improvement is include of redesign the water canal, boardwalk, and all the component.



Figure 11: Mapping of an Activity program in Beting Village.

3.6.1. Design development: Riverside and welcoming area

Focused on public facilities and transfer area, redesign the courtyard of Masjid Jami to fulfill the main function of extra space for shalat, and also designed for temporal purpose and activities such as playground and communal area. This area designed for welcoming area for tourist.

3.6.2. Design development: Aquaculture area

We are focused on established new sustainable aquaculture based kampung that can provide more variation of the venture, increase the resident's productivity, and create



Figure 12: Landscape Design Development in Beting Village.

a conducive environment to residents of beting Village. This area also offers tourist facilities.

3.6.3. Design development: Canal corridor

First, in the physical aspect, canal corridors design aims to adapt the way of beting Village takes response into the tidal water phenomenon over the houses. The canal corridors also contribute to creating a local ambiance of water villages with conserve the stilts house, and keep the shape of the corridor canal with green corridor concept along the canal way.

TABLE 2: Design criteria for Riverside and welcoming area.

Zone	Activities	Facilities	Area	Quantity	Sum m2
Community Area	•Gathering •Orientation •Leisure	Benches	5577	1	5577
Market	•Trading area	•Kiosk •Benches •Rest room	40	3	120
Parking Lot	•Parking	•Parking lot	365	1	365
Dock / Jetty	•Gathering •Waiting •Resting	•Benches •Dock	285	2	570
Courtyard of the Mosque	•Space for Shalat (event)	•Empty area designed with shaf-sholat pattern	2500	1	2500
	•Gathering •Playing •Leisure •Sport	•benches	285	1	285

TABLE 3: Design criteria for Aquaculture area.

Zone	Activities	Facilities	Area	Quantity	Sum m2
Communal Area	•Gathering •playing •Leisure •Sport	•Bench •Playground •Courtyard	1930	3	5790
Water plantation area	•Gathering	•Plantation area	350	4	1400
	•Planting	•Shelter	150	4	600
	•collecting	•Post-production area	50	4	200
Fisheries	•Harvesting	•Keramba / net	18	36	648
	•Feeding	•Inspection road	12	36	432
	•Cleaning	•Warehouse	125	2	250
	•fishing	•Fishing Deck	400	4	1600
Dock / Jetty	•Gathering	•Bench	120	6	720
	•Waiting for boat	•Ramp			
	•Resting				
	•Distribution				

3.7. Proposed landscape design of Beting village

Parking lot, gift shop and food market are concentrated around the main entrance. Jetty is improved bigger and wider to facilitate more people to come and generate the atmosphere of water-based kampong with more boat as visual attraction. The courtyard of Masjid Jami developed with well-paved material and giving more new shaded trees. The pavement pattern is made by adjusting the flow pattern of the shaft inside the

TABLE 4: Design criteria for Canal Corridor.

Variabel	Criteria
Boardwalk	<ul style="list-style-type: none"> •The hierarchy of Boardwalk network should be clear •The structure must be stable, flat, and strong •1.2 m minimum width •good lighting at night
Dock / jetty	<ul style="list-style-type: none"> •The dock level can adjust to the tides of the river. •The location of the Dock is close to the intersection of the canals for easy access
Bridge	<ul style="list-style-type: none"> •The bridges should be available at every 200 m, on canal corridors •The bridges should be available at every intersection •Bridge clearance is 1 m minimum from the highest daily tide.
Vegetation	<ul style="list-style-type: none"> •Using the existing plant
Communal Area	<ul style="list-style-type: none"> •not inundated during high tide •easy access •weather resistant material

mosque. On certain days, the mosque yard can be used for temporary activities, such as festivals or can be used for informal market spaces. Pedestrian way on the riverfront improved to 3.5 meters wide, with concrete and gabion foundation, and PVC paved with wooden looks. More activities program are added to the riverfront way not only for pedestrian, but also can carry more people for river-bicycling, or holding the Meriam festival for every Ramadhan.



Figure 13: Proposed Landscape Design for Riverside and Welcoming Area (Source: Author's own work).

The improvement of canal corridors can generate whole villages into an attractive place for tourism. Government able to manage the tourism system and to work with residents to improve the economic status of people in Beting Village. Canal design improved with vegetation as the border, also improve the water ecosystem quality, visual connection between human culture and nature restored. Tourist can choose between water transportation or strolling around the Beting village on the boardwalk (gertak). Additional vegetation serves to support the concept of activity in open spaces in Beting

Village. The idea of green networks to use the canal path as a guideline between riparian green space with green open space around the corridor canal. The concept of open space vegetation design area are as follows:

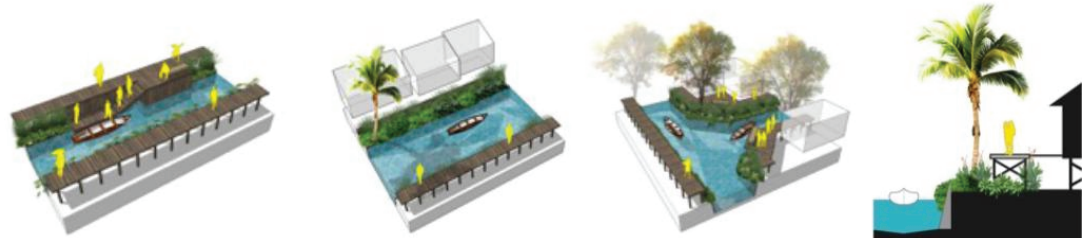


Figure 14: Proposed Landscape Design for Canal Corridor (Source: Author's own work).

In the north side of Kampung beting, unused open spaces transformed into the aquaculture village, Integrated area design with diverse cultivation activities, from freshwater fish cultivation, shrimp, to production plants. The land around the canal is engineered to become a wetland to increase the ecological value and nutrition to the surrounding area. Aquaculture area is designed with floating net cages around the housing. Tourist can come and watch the process of the production, getting information about water-based cultivation and get experience about modern fisheries inside the traditional water village.



Figure 15: Proposed Landscape Design for Aquaculture area (Source: Author's work).

4. Conclusion

The purpose of this paper is to identify the landscape design guidelines for improving the quality of the environment, and also in enhancing the waterfront settlements with good quality of tourism activity. The tourism program not only introduces cultural and historical values but also aims to increase income for the community. The study also suggests the landscape design of river aquaculture that can improve the variation of

the venture, increase the resident's productivity, and create a conducive environment for stability.

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