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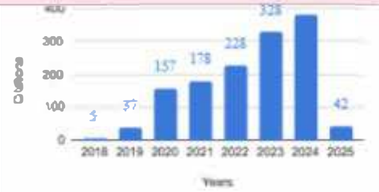

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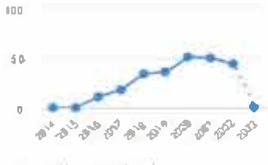

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Revitalizing slum residential areas through land consolidation approaches in Pekalongan City

A case study of Kampung Bugisan

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ABSTRACT

The development of housing and residential areas plays a crucial role in creating livable environments and mitigating the rise of slum areas in urban settings, which often result from inadequate urban planning. This study focuses on addressing slum settlements through the Land Consolidation approach in Kampung Bugisan, Pekalongan City, Central Java. The method employed is qualitative through analysis of regulations and design considerations as well as determining design criteria and concepts through community participation. The results of the study indicate that community participation and collaboration among stakeholders are key factors in the success of this Land Consolidation program. The findings of this research are expected to provide insights and sustainable strategic solutions for improving environmental quality and addressing slum settlement issues in densely populated urban areas in major cities across Indonesia.

Introduction

Slum environments and settlements pose negative impacts not only on public health but also on various aspects of the inhabitants' quality of life. Creating livable environments and reducing the proliferation of urban slum areas can be achieved through proper settlement development. One effective method to address slum settlements is by implementing Land Consolidation.

Land Consolidation is a strategic effort in spatial planning for slum settlements, focusing on optimizing land use efficiency (Sitorus 2015). The benefits of Land Consolidation in slum settlement revitalization include:

1. Improving Environmental Quality
   Land Consolidation facilitates the provision of livable, safe, and healthy housing for communities, thereby enhancing their living environment (Nur and Sarwadi 2021).
2. Land Use Efficiency
   By consolidating land, more efficient land use can be achieved both vertically and horizontally, reducing negative environmental impacts.
3. Enhancing Accessibility
   Land Consolidation is often accompanied by the development of improved infrastructure, such as roads, drainage systems, and public

facilities, which increases accessibility for residents.

4. Community Participation
   The consolidation process involves community participation in planning and implementation, fostering a sense of ownership and responsibility toward their environment (Nurlinda 2011).
5. Natural Resource Management
   Land Consolidation can support sustainable natural resource management, including environmental preservation with proper planning.
6. Disaster Risk Reduction
   Revitalizing slum areas reduces disaster risks, such as floods, through better spatial planning.

A key challenge in providing housing lies in the limited availability of land (Nur and Sarwadi 2021). The varied characteristics of land and differing environmental carrying capacities are crucial factors in determining development strategies.

Collaboration across various fields of expertise is essential to produce comprehensive and sustainable solutions. This interdisciplinary approach enables a deeper understanding of complex problems while facilitating the development of innovative strategies (Halim 2005).

In Central Java, Pekalongan City is a strategic node along the northern coastal route (Pantura), as it lies midway between Jakarta and Surabaya on Java Island.

Pekalongan City is situated in a lowland area at an elevation of 0–2 meters above sea level. The flat topography, with a slope gradient of 0–8%, indicates low ground movement levels but makes the area susceptible to inundation, particularly in the coastal regions along the northern coastline (Direktorat Konsolidasi Tanah dan Pengembangan Pertanahan 2023). Additionally, the region frequently experiences daily tidal flooding (rob), independent of seasonal changes.

As a coastal city, Pekalongan is also home to various heritage buildings from the Dutch colonial era, most of which are located in Pekalongan Utara District, particularly in the Jetayu Area (Hendro and Sari 2018).

Historically, Kampung Bugisan was a docking point for ships from the Bugis Tribe of Makassar during trade transactions. This history is reflected in its location upstream of Pekalongan City and its development into what is now known as "Kampung Bugisan."

Today, Kampung Bugisan is classified as a slum area according to Pekalongan Mayor's Decree No. 430/1131 of 2020, covering an area of 9.51 hectares with 246 household lots, 326 families, and a total population of 1,150. Approximately 99% of the resident's work in the informal sector (Pemerintah Daerah Tingkat II Pekalongan 2020).

This historical and socio-economic background underscores the importance of targeted efforts, such as Land Consolidation, to address the challenges faced by Kampung Bugisan and similar areas. A general overview of Kampung Bugisan is provided in table 1.

Table 1. General Overview of Kampung Bugisan

Aspect	Note
Area boundaries	Located in RW 001, RT 1–5.
	Total Area: 9.51 hectares
Population	Total households: 326
	total population: 1,150
	population density: 120 people/ha.
	Predominantly workers in the informal sector.
Buildings	150 units located along the riverbanks
Land and legal status	*Surat Hak Milik* (SHM)
Public and social facilities	2 places of worship
	1 sports facility
	2 communal sanitation facilities (MCK).

The delineated area for the Land Consolidation process is shown in figure 1.

Figure 1. Scope of the land use area and spatial planning in Kampung Bugisan

The current environmental conditions within the delineated area are presented in figure 2.

Figure 2. Kampung Bugisan Settlement

Kampung Bugisan is prone to tidal flooding, particularly during heavy rainfall when river water overflows into the residential areas. The infrastructure, including drainage, clean water supply, waste management, and the lack of adequate sanitation facilities, is also insufficient. In addition, road damage and environmental pollution are major concerns that affect public health.

Although tidal flooding is caused by rising sea levels and climate change, land subsidence in Kampung Bugisan is a primary factor that contributes to daily tidal flooding.

Activities and stakeholders

The Ministry of Agrarian Affairs and Spatial Planning, National Land Agency (BPN), as the Project Implementation Unit (PIU), is collaborating with the World Bank in organizing the Land Consolidation Program for a Slum-Free City (KT-KOTAKU). The Ministry of ATR/BPN is supported by the National Development Planning Agency (Bappenas) as the Central Collaboration Management Unit (CCMU) and the Ministry of Public Works and Public Housing as the Project Management Unit (PMU) (Direktorat Konsolidasi Tanah dan Pengembangan Pertanahan 2021).

In the planning phase of Land Consolidation, local governments and stakeholders collaborate to create the best planning outcomes (Nur and Sarwadi 2021). Key participants include regional state-owned enterprises (BUMD), private sectors, cooperatives, and other community-based organizations. Moreover, support from various urban development stakeholders is crucial in the implementation phase of the KT-KOTAKU program (Direktorat Konsolidasi Tanah dan Pengembangan Pertanahan 2023), as shown in figure 3.

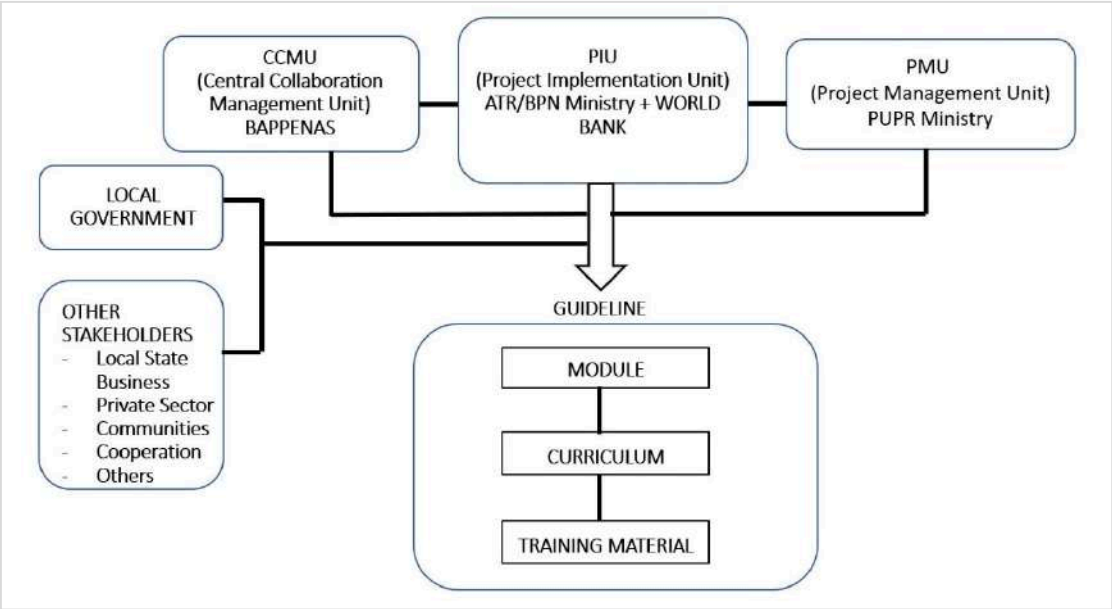


Figure 3. Activities and stakeholders
Source: Final report, O.S.P. Support for KOTAKU, 2023

Regulations and design considerations

The policy for handling slum settlements refers to several national regulations and considerations when planning urban areas. National regulations include the Regional Spatial Plan (RTRW), Detailed Spatial Plan (RDTR), Building Line Regulations (RTBL), and Urban Design Guidelines (UDGL), which guide spatial regulations, city structures, and urban morphology. Design considerations for the area include regulations for Land Consolidation and strategies for slum housing development, as shown in figure 4.

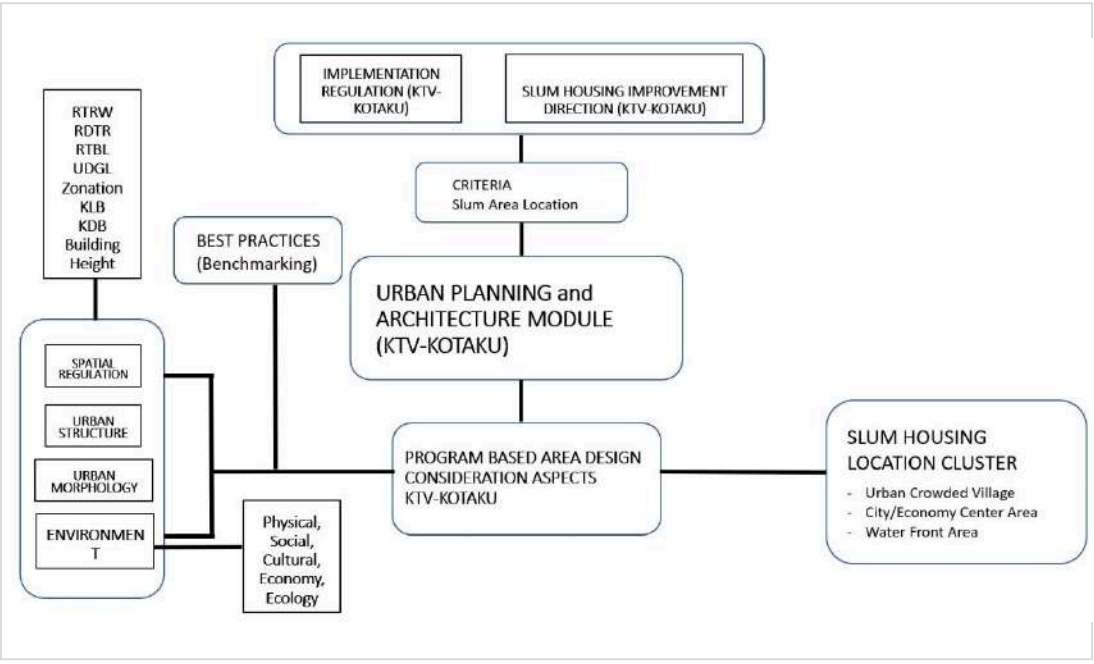


Figure 4. Regulations and design considerations for urban areas
Source: Final report, O.S.P. Support for KOTAKU, 2023

Design criteria and concepts

In its application, urban planning and architectural design must adjust to the local environment, considering specific environmental conditions and the carrying capacity of the area. Slum environments in densely populated urban villages, economic development zones, and waterfront areas (such as riverbanks, lakes, or coastal zones) require different design solutions, as illustrated in figure 5.

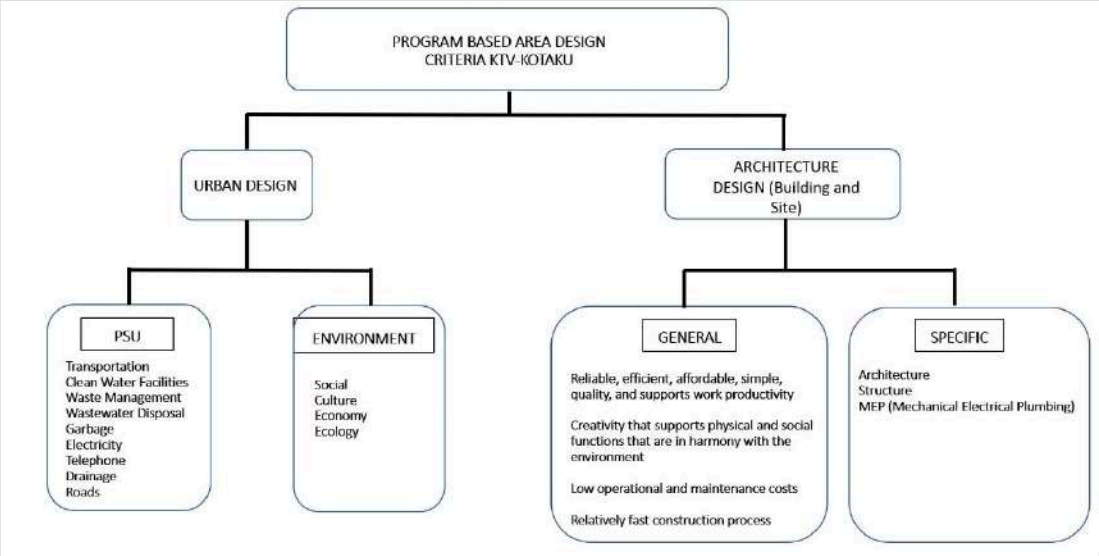


Figure 5. Design criteria and concepts for urban areas
Source: Final report, O.S.P. Support for KOTAKU, 2023

State of the art

The Land Consolidation activity is relatively new in its implementation. Its success is still under evaluation in several areas of Indonesia, given that the impacts of Land Consolidation are long-term. This situation is reflected in the issuance of new guidelines and technical instructions by the Ministry of ATR/BPN, beginning with the publication of the Profile of Vertical Land Consolidation Potential in 2020.

Several journals on Land Consolidation written by Sitorus, O., Nurlinda, I., and Wijaya, G. P. in 2015, 2011, and 2016 provide theoretical reviews without case studies. However, in 2021, Nur, Y., and Sarwadi, A. examined the practical application of Land Consolidation in Gadingsari Village, Sanden District, Bantul, Yogyakarta, in the Journal of Land Policy.

Methods

The research methodology used is qualitative, involving the analysis of both general and specific data (Arnowo 2022), covering regulations, design considerations, and the determination of design criteria and concepts. The primary focus of this research is on Land Consolidation and the revitalization of slum residential areas in Kampung Bugisan, Pekalongan City.

According to the final report by the Oversight Service Provider of the Ministry of ATR/BPN in 2023, the implementation of Land Consolidation includes a series of processes involving field case studies, and social, economic, and physical data analysis from the affected areas (Direktorat Konsolidasi Tanah dan Pengembangan Pertanahan 2023). These processes include: planning, socialization, and deliberation, measurement and assessment, land acquisition, infrastructure development, land utilization, and monitoring and evaluation.

Data collection involves land measurement and assessment of Land Consolidation objects, as well as legal data concerning land ownership. A participatory approach is also used, engaging key stakeholders such as local communities, local governments, and international agencies (e.g., the World Bank). Spatial planning studies and data collection through surveys and interviews are conducted to assess the relevance of proposed solutions.

The background, objectives, and issues leading to the involvement of stakeholders are analyzed. By examining regulations and design considerations and determining design criteria and concepts, urban planning elements and architectural design elements for the buildings and site are developed. These design elements are then applied to Kampung Bugisan, Pekalongan, as a pilot project to create design proposals as part of the Land Consolidation process, as shown in figure 6.

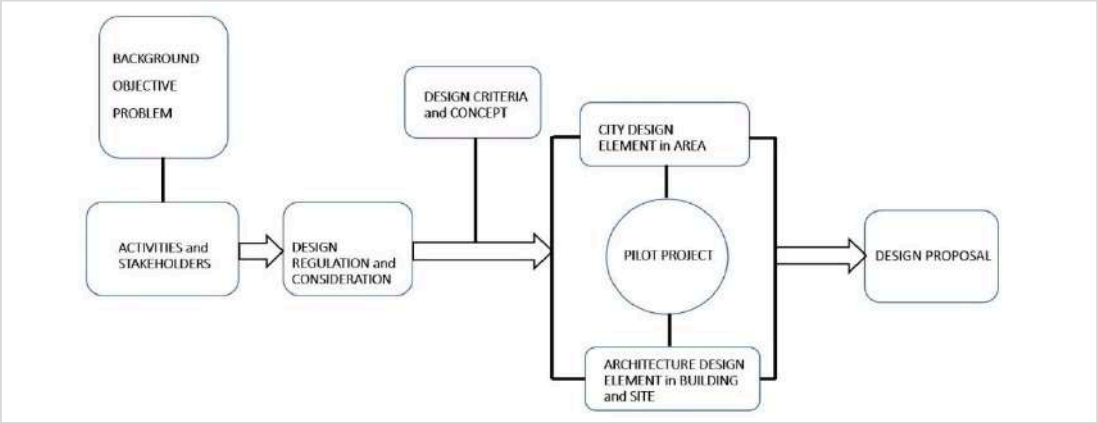


Figure 6. Methodology of activities implementation

The proposed design is then grouped into two phases based on the planning process that involved community consultations:
• 2022 Design Proposal
• 2023 Design Proposal
This includes the planning of infrastructure in the Bugisan area.

Results and discussion

The design process is dynamic and evolves from the initial phase in 2022 to the final phase in 2023, incorporating several design changes. The 2022 and 2023 design proposals are based on the qualitative research methodology and the Land Consolidation process, which includes planning, socialization, and deliberation, measurement and assessment, land acquisition, infrastructure development, land utilization, and monitoring and evaluation.

2022 Design proposal

The surveyed area is located in RT 02, 03, 04, and 05 in RW 01, Panjang Wetan Village, Pekalongan City. This area was selected for Land Consolidation due to recurring tidal floods that affect the comfort of local residents. The research area is presented in figure 7.

Figure 7. Research area in Kampung Bugisan

Based on the survey and the data collected from the Inventory of Land Ownership, Use, and Utilization (IP4T), the land use area is calculated as follows:

a. Area after river widening: 1.53 hectares (16% of Kampung Bugisan's total area of 9.5 hectares or 39% of the total residential area).
b. Area for the River Buffer Zone (GSS) of 3 meters: 0.25 hectares, which includes a promenade/inspection path of 2.5 meters, pedestrian paths, and Green Open Space.
c. Residential area: 1.53 hectares – 0.25 hectares = 1.28 hectares.

- Residential: 0.6 hectares
- Pedestrian way: 0.15 hectares
- Green open space within plots: 0.5 hectares.

2023 Design proposal

Based on the existing conditions, there were challenges in measuring land areas, so the Master Plan still uses IP4T data, as shown in figures 8-12.

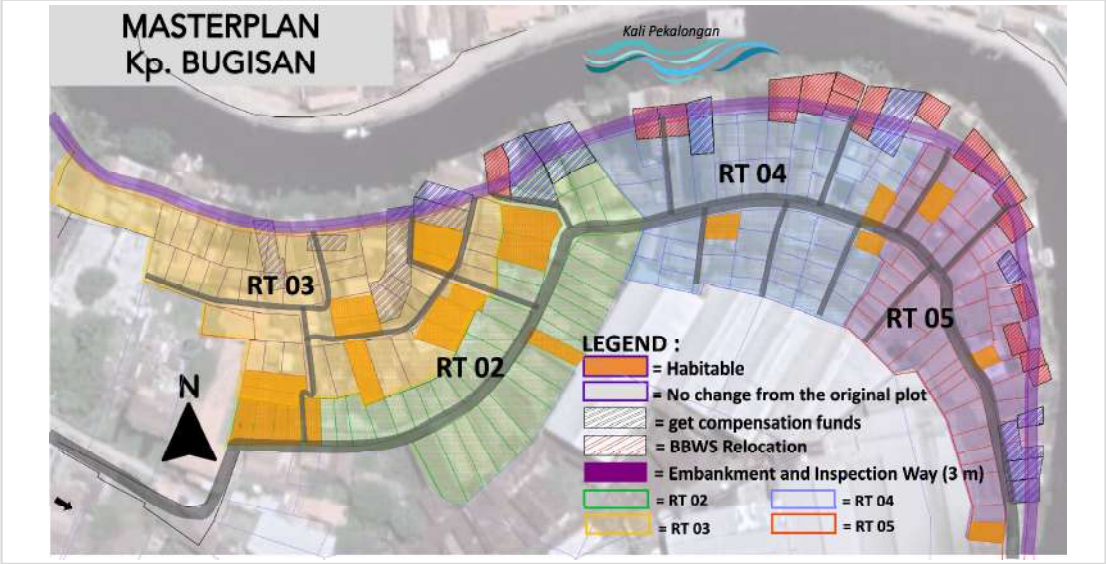
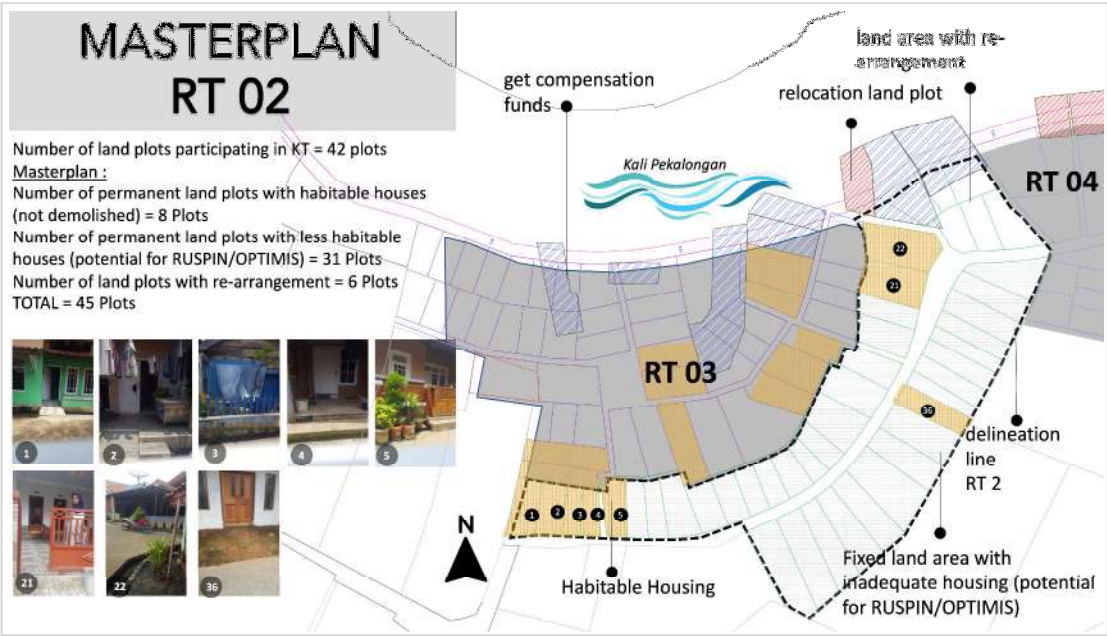
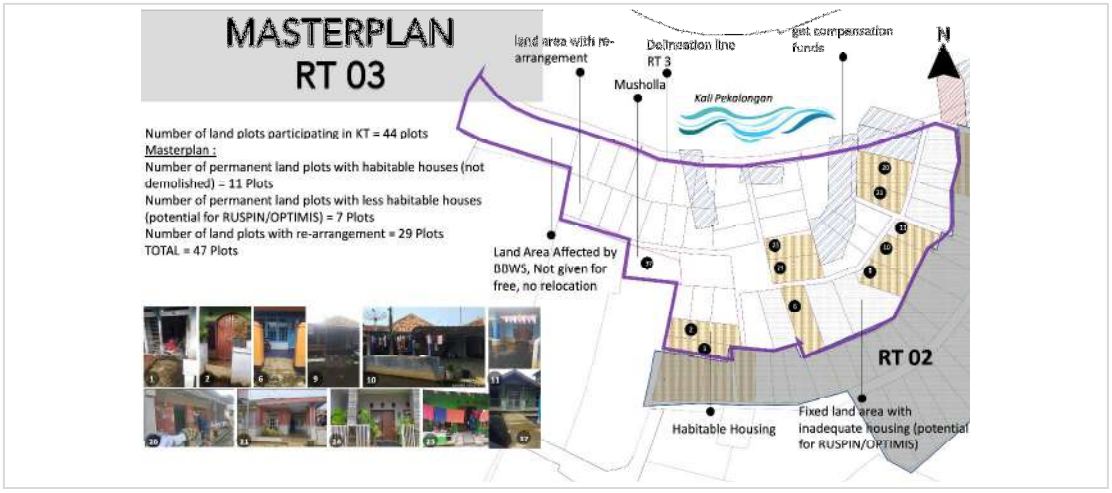


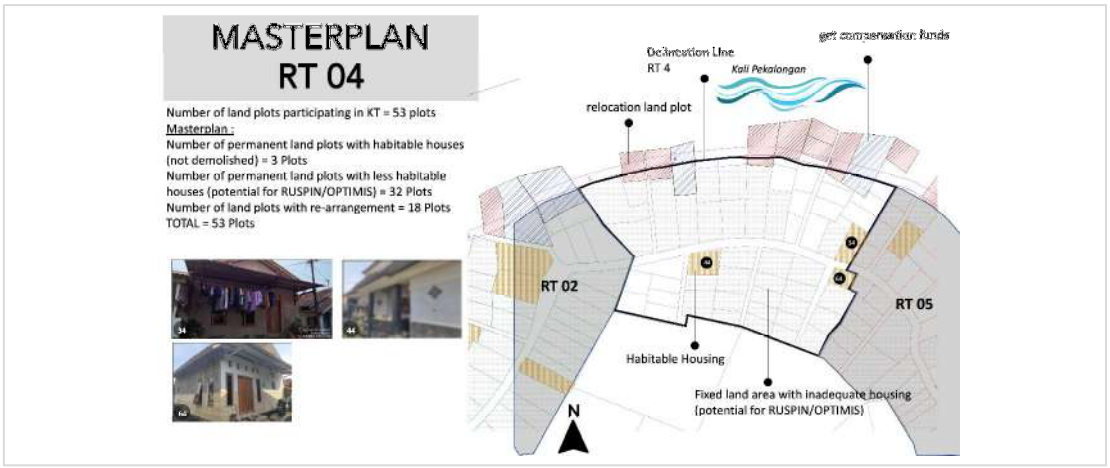
Figure 8. 2023 Initial land consolidation designs for Kampung Bugisan



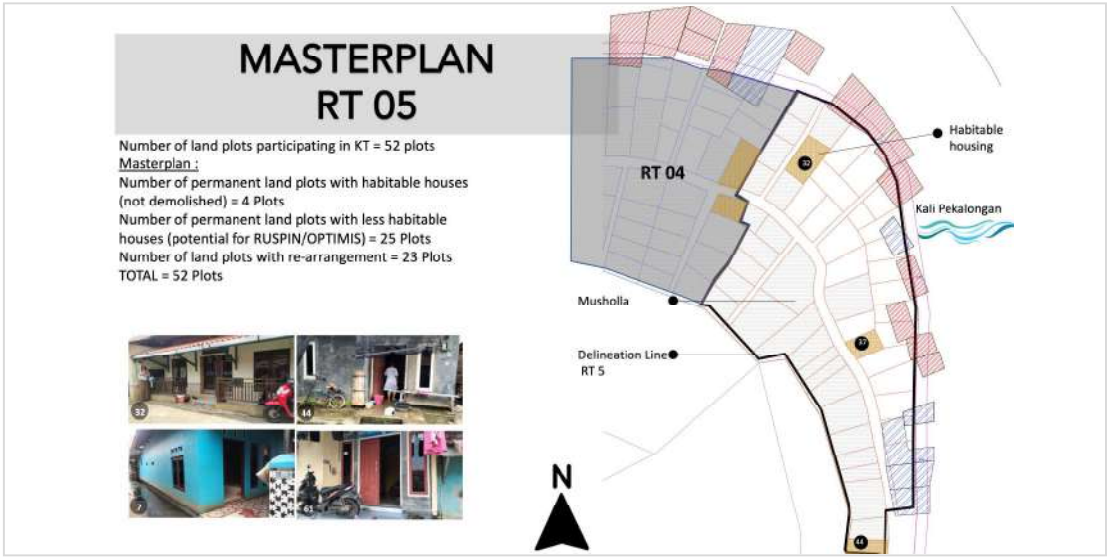
Figures 9. 2023 Initial land consolidation designs for Kampung Bugisan RT 02



Figures 10. 2023 Initial land consolidation designs for Kampung Bugisan RT 03

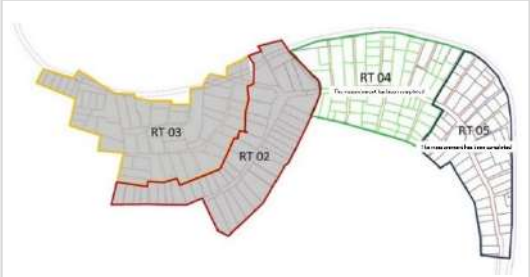


Figures 11. 2023 Initial land consolidation designs for Kampung Bugisan RT 04



Figures 12. 2023 initial land consolidation designs for Kampung Bugisan RT 05

The measurement process has just been completed for 2 out of 4 RTs, specifically RT 04 and RT 05. The delineation of the masterplan design for the Land Consolidation of Kampung Bugisan has been designed in these two RTs, where the measurements have been completed, with the number of land plots being 62 in RT 04 and 51 in RT 05, for a total of 113 plots. The area of RT 04 is 5,777 m², and the area of RT 05 is 5,154 m². The total area of the land consolidation planning delineation is approximately 10,931 m². The measurements resulted in 113 land plots, consisting of 62 plots in RT 04 and 51 plots in RT 05, with two existing facilities, namely a mushola (prayer room) and a public toilet, located in RT 05. The results of the measurements for the delineation design can be seen in figures 13-14.



Figures 13. Delineated design based on measurement results

On these two RTs, the following measurement results are noted:

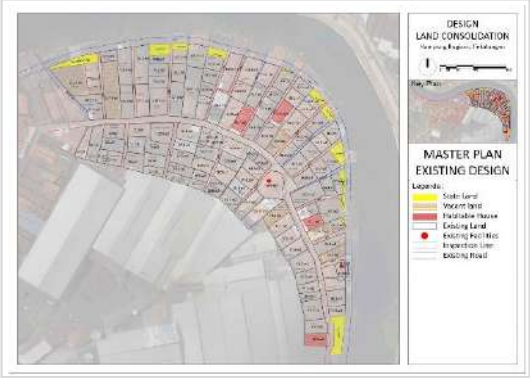


Figure 14. Measurement results for land plots and existing buildings in RT 04 and RT 05

There are 4 habitable plots scattered across the area, and 6 vacant plots, one of which is used as a community hall. In the area next to the inspection road, there are several state-owned lands that can be utilized for open space, as shown in figure 15.

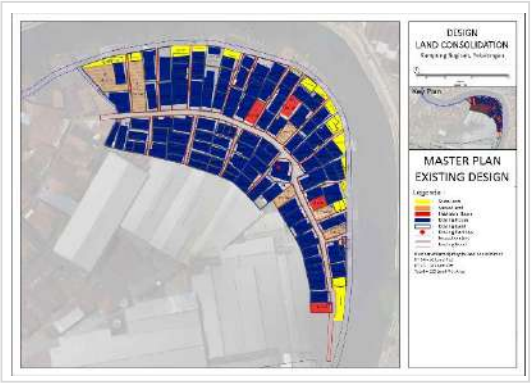


Figure 15. Measurement results of existing land and houses in RT 04 and RT 05

The initial delineation of the Land Consolidation planning covers 4 RTs (neighborhood units), namely RT 02, 03, 04, and 05. Based on the measurements, only RT 04 and RT 05 have been fully measured. In the following figure, the masterplan design is illustrated in full for the two RTs where measurements have been completed, with the areas of RT 02 and RT 03 that have not been measured shown using IP4T data, as seen in figure 16.

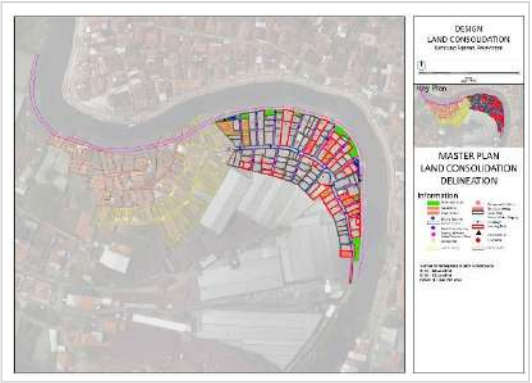


Figure 16. Final design of land consolidation in Kampung Bugisan RT 04 and RT 05, June 2023

The masterplan design for the Land Consolidation in Kampung Bugisan, Panjang Wetan subdistrict, Pekalongan city, takes into account the results of community discussions, which prioritized not relocating the land plots so that neighbors would remain the same, as depicted in figures 17–19.

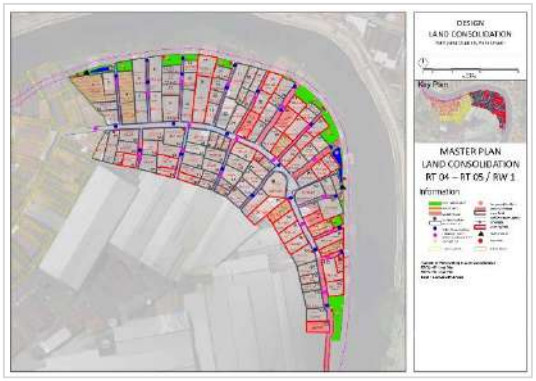


Figure 17. Land consolidation design in Kampung Bugisan RT 04 and RT 05, June 2023

Figure 18. Land consolidation design in Kampung Bugisan RT 04, June 2023

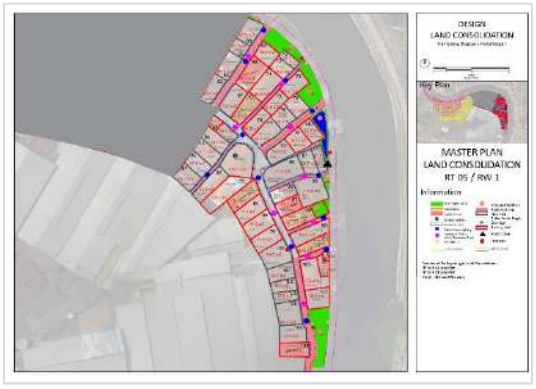


Figure 19. Land consolidation design in Kampung Bugisan RT 05, June 2023

Infrastructure planning in Bugisan area

In addition to the design proposals for 2022 and 2023, the infrastructure in Kampung Bugisan is also planned with consideration for flood management in Pekalongan. The placement of retention ponds and pumps is considered as an effort to address the tidal flood issues in Kampung Bugisan, with the concept of land shifting to maximize space by closing non-functional drainage channels and converting them into roads. Additionally, there is a proposal for a 1.5-meter widening of the secondary road to ease motor vehicle access, and a 3-meter widening of neighborhood roads to allow access for four-wheeled vehicles, as shown in figure 20.

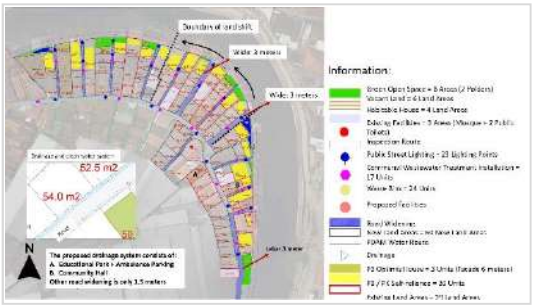


Figure 20. Concept of land shifting arrangement

The road widening concept in front of the mosque creates a grand impression in the area and also allows easy access for emergency vehicles to reach the mosque. On the other side, the widening of the road facilitates maneuvering for four-wheeled vehicles. The concept of road widening can be seen in figure 21.

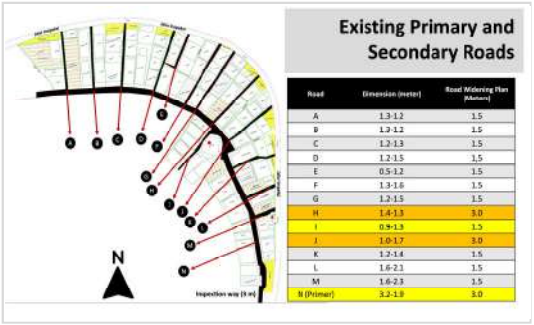


Figure 21. Comparison of existing road width and road width after design

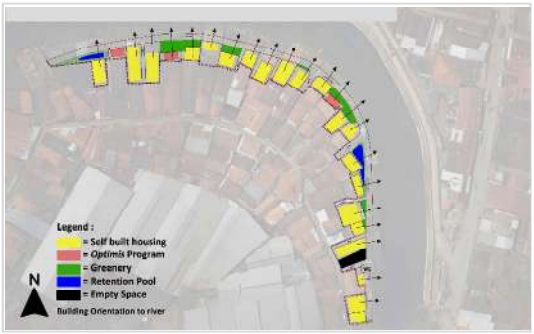


Figure 22. Concept of waterfront housing arrangement

As illustrated in figures 21-24, the housing located beside the river inspection road applies the waterfront concept using Optimistic Houses, which are Simple Ownership Panel Houses, 6 meters long and 3 meters wide with 2 floors, and a building area of 32 m². These modular houses are planned with the first floor for residential use and the second floor for commercial purposes, thus contributing to the local economy. The waterfront concept considers the economy while also focusing on the facade's view toward the Loji River.

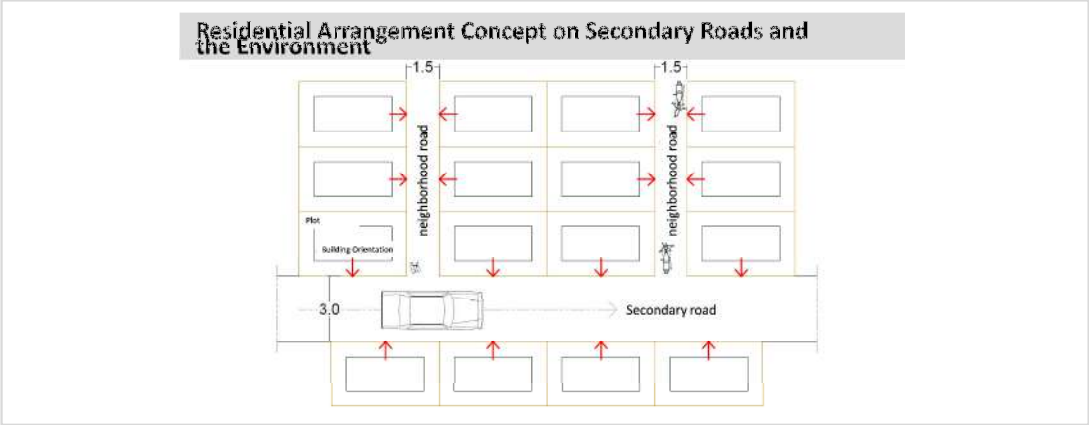


Figure 23. Orientation concept for housing arrangement

The land arrangement optimizes the orientation of the houses so that no plots are sandwiched between two roads, thus minimizing slum conditions with back-to-back houses. Every house faces the road.

The neighborhood road width of 3 meters is planned to minimize the land loss for residents. Existing drainage is planned to be covered with concrete pipes, making the road width more efficient, as shown in figure 24.

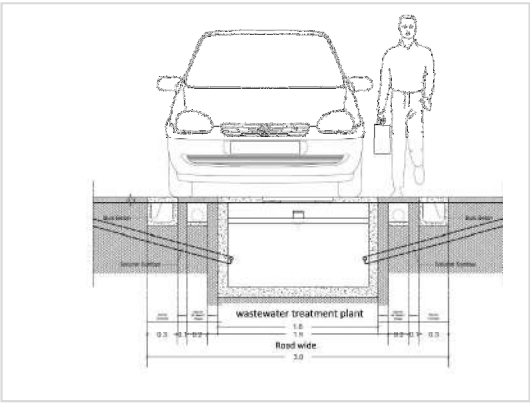


Figure 24. Utility concept

Percentage of land area in land consolidation

The existing land area compared to the designed land area for the Land Consolidation has undergone changes, which can be seen in tables 2 and 3.

Table 2. Percentage of area change in RT 04

No	Land Name	RT	Status	Existing Land Area (m2)	Area After Design (m2)	Area of the Cut Plane (m2)	Land Cut Percentage (%)
1	Land to 1	4	Owned	61.2	60.4	0.8	1.31%
2	Land to 2	4	Owned	211.5	210.6	0.9	0.43%
3	Land to 3	4	Owned	77.5	75.2	2.3	2.97%
4	Land to 4	4	Owned	217.5	214.1	3.4	1.56%
5	Land to 5	4	Owned	104.3	102	2.3	2.21%
6	Land to 6	4	Owned	120.4	118.4	2	1.66%
7	Land to 7	4	Owned	101.2	99.4	1.8	1.78%
8	Land to 8	4	Owned	131.2	128.9	2.3	1.75%
9	Land to 9	4	Owned	118	116.6	1.4	1.19%
10	Land to 10	4	Owned	55	54.5	0.5	0.91%
11	Land to 11	4	Owned	57.7	57.4	0.3	0.52%
12	Land to 12	4	Owned	39.9	39.8	0.1	0.25%
13	Land to 13	4	Owned	107.3	104.9	2.4	2.24%
14	Land to 14	4	Owned	45.3	44.5	0.8	1.77%
15	Land to 15	4	Owned	62.7	61.7	1	1.59%
16	Land to 16	4	Owned	180.7	180.7	0	0.00%
17	Land to 17	4	Owned	108	108	0	0.00%
18	Land to 18	4	Owned	62.5	60.3	2.2	3.52%
19	Land to 19	4	Owned	51.6	50.6	1	1.94%
20	Land to 20	4	Owned	45.9	44.6	1.3	2.83%
21	Land to 21	4	Owned	56.3	56	0.3	0.53%
22	Land to 22	4	Owned	110	108.9	1.1	1.00%
23	Land to 23	4	Owned	118	118.9	-0.9	-0.76%
24	Land to 24	4	Owned	110	108.9	1.1	1.00%
25	Land to 25	4	Owned	37.3	35.7	1.6	4.29%
26	Land to 26	4	Owned	37.3	36.1	1.2	3.22%
27	Land to 27	4	Owned	57.1	54.8	2.3	4.03%
28	Land to 28	4	Owned	57.1	54.8	2.3	4.03%
29	Land to 29	4	Owned	84.7	84.7	0	0.00%
30	Land to 30	4	Owned	73.1	73.1	0	0.00%
31	Land to 31	4	Owned	78.2	78.2	0	0.00%
32	Land to 32	4	Owned	83.8	83	0.8	0.95%
33	Land to 33	4	Owned	72.8	72	0.8	1.10%
34	Land to 34	4	Owned	76.3	74	2.3	3.01%
35	Land to 35	4	Owned	32.2	30	2.2	6.83%
36	Land to 36	4	Owned	28.9	27	1.9	6.57%
37	Land to 37	4	Owned	37.2	36	1.2	3.23%
38	Land to 38	4	Owned	33.3	32	1.3	3.90%
39	Land to 39	4	Owned	63.5	63	0.6	0.94%
40	Land to 40	4	Owned	65.8	66	-0.2	-0.30%
41	Land to 41	4	Owned	34.2	34	0.2	0.58%
42	Land to 42	4	Owned	26.5	26	0.5	1.89%
43	Land to 43	4	Owned	25.5	25	0.5	1.96%
44	Land to 44	4	Owned	91.5	90	1.5	1.64%
45	Land to 45	4	Owned	57.8	57	0.8	1.04%
46	Land to 46	4	Owned	72.6	72	0.6	0.83%
47	Land to 47	4	Owned	57.6	57	0.6	1.04%
48	Land to 48	4	Owned	69	64	5	7.25%
49	Land to 49	4	Owned	38	38	0	0.00%
50	Land to 50	4	Owned	66	66	0	0.00%
51	Land to 51	4	Owned	74	74	0	0.00%
52	Land to 52	4	Owned	102.8	98	4.8	4.67%
53	Land to 53	4	Owned	67	67	0	0.00%
54	Land to 54	4	Owned	71	71	0	0.00%
55	Land to 55	4	Owned	78	75	3	3.85%
56	Land to 56	4	Owned	50	50	0	0.00%
57	Land to 57	4	Owned	26	26	0	0.00%
58	Land to 58	4	Owned	68	68	0	0.00%
59	Land to 59	4	Owned	44.4	44	0.4	0.90%
60	Land to 60	4	Owned	99	98	1	1.01%
61	Land to 61	4	Owned	62	62.1	-0.1	-0.16%
62	Land to 62	4	State Land	55.4	54.7	0.7	1.26%
					Average percentage of land cutting		1.04%

The percentage change in land area in RT 04 for 62 plots is 1.64%.

Table 3. Percentage of area change in RT 05

No	Land Name	RT	Status	Existing Land Area (m2)	Area After Design (m2)	Area of the Cut Plane (m2)	Land Cut Percentage (%)
1	Land to 1	5	Owned	67.4	60.9	6.5	9.64%
2	Land to 2	5	Owned	71	65.2	5.8	8.17%
3	Land to 3	5	Owned	40.2	37.5	2.7	6.72%
4	Land to 4	5	Owned	71.4	67.2	4.2	5.88%
5	Land to 5	5	Owned	76.9	76.2	0.7	0.91%
6	Land to 6	5	Owned	90.5	90.5	0	0.00%
7	Land to 7	5	Owned	56.4	56.4	0	0.00%
8	Land to 8	5	Owned	73	71.1	1.9	2.60%
9	Land to 9	5	Owned	91	86.9	4.1	4.51%
10	Land to 10	5	Owned	46.8	45	1.8	3.85%
11	Land to 11	5	Owned	29.5	28.7	0.8	2.71%
12	Land to 12	5	Owned	58.2	58.2	0	0.00%
13	Land to 13	5	Owned	48.6	48.6	0	0.00%
14	Land to 14	5	Owned	64.1	64.1	0	0.00%
15	Land to 15	5	Owned	80.5	68.5	12	14.91%
16	Land to 16	5	Owned	57.6	54	3.6	6.25%
17	Land to 17	5	Owned	53.7	52.5	1.2	2.23%
18	Land to 18	5	Owned	65.5	63.6	1.9	2.90%
19	Land to 19	5	Owned	60.3	60.3	0	0.00%
20	Land to 20	5	Owned	19.2	19.2	0	0.00%
21	Land to 21	5	Owned	37.4	36.7	0.7	1.87%
22	Land to 22	5	Owned	63.3	61	2.3	3.63%
23	Land to 23	5	Owned	61.8	61.1	0.7	1.13%
24	Land to 24	5	Owned	61.6	59.8	1.8	2.92%
25	Land to 25	5	Owned	68.2	66	2.2	3.23%
26	Land to 26	5	Owned	85.4	82.5	2.9	3.40%
27	Land to 27	5	Owned	125.1	125.1	0	0.00%
28	Land to 28	5	Owned	120.3	117.6	2.7	2.24%
29	Land to 29	5	Owned	54.4	53.7	0.7	1.29%
30	Land to 30	5	Owned	55.2	53.7	1.5	2.72%
31	Land to 31	5	Owned	116.7	115	1.7	1.46%
32	Land to 32	5	Owned	79.1	79.1	0	0.00%
33	Land to 33	5	Owned	78.2	78.2	0	0.00%
34	Land to 34	5	Owned	74.6	74.6	0	0.00%
35	Land to 35	5	Owned	57.1	57.1	0	0.00%
36	Land to 36	5	Owned	71.3	71.3	0	0.00%
37	Land to 37	5	Owned	84.2	84.2	0	0.00%
38	Land to 38	5	Owned	94.6	94.6	0	0.00%
39	Land to 39	5	Owned	62.3	62	0.3	0.48%
40	Land to 40	5	Owned	60.8	60.8	0	0.00%
41	Land to 41	5	Owned	96.4	96.4	0	0.00%
42	Land to 42	5	Owned	47.6	46.2	1.4	2.94%
43	Land to 43	5	Owned	40.8	39.5	1.3	3.19%
44	Land to 44	5	Owned	89.1	86.5	2.6	2.92%
45	Land to 45	5	Owned	69.1	69.1	0	0.00%
46	Land to 46	5	Owned	73.3	73.2	0.1	0.14%
47	Land to 47	5	Owned	66.3	66.3	0	0.00%
48	Land to 48	5	State Land	50.9	50.9	0	0.00%
49	Land to 49	5	State Land	37.9	37.6	0.3	0.79%
50	Land to 50	5	State Land	27.8	27.8	0	0.00%
51	Land to 51	5	State Land	8.6	8.6	0	0.00%
					Average percentage of land cutting		2.07 %

The percentage change in land area in RT 05 RW 01 for 51 plots is a 2.07% reduction in land. Thus, the land reduction in the design is about 2% of the existing land area. The blowup of the existing and designed land areas for the Land Consolidation can be seen in figure 25.

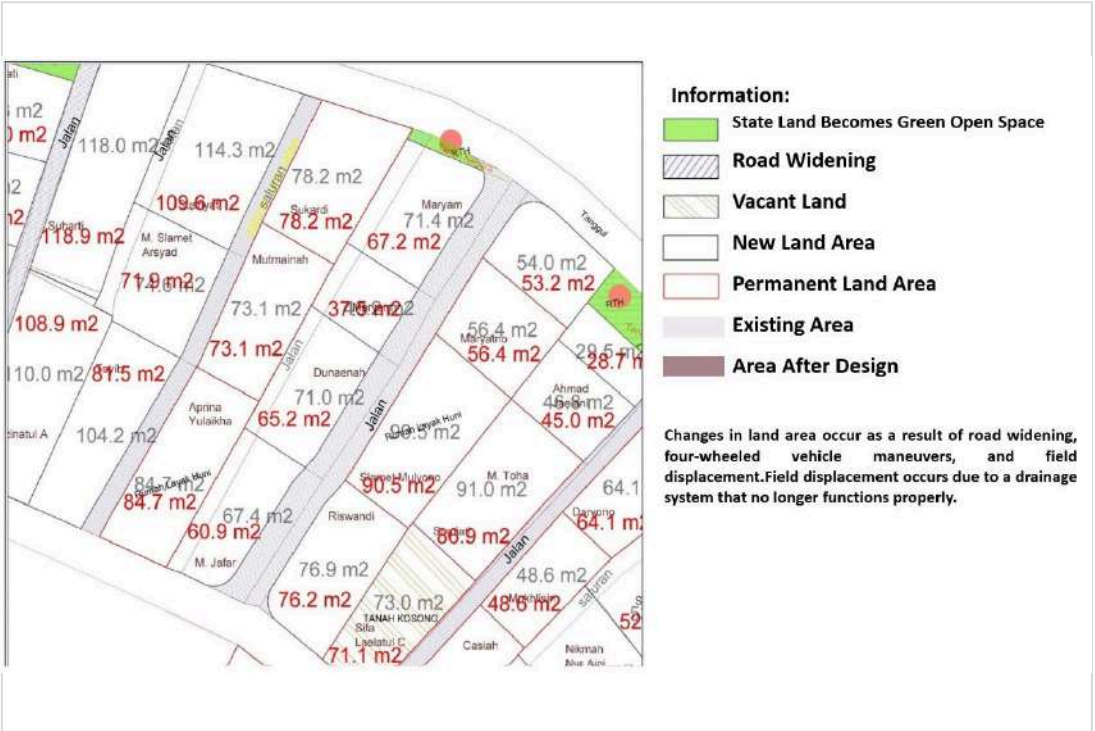


Figure 25. Example of land area change

Conclusions

This program has successfully implemented a comprehensive Land Consolidation concept with a sustainable approach in a slum urban area. Through collaboration between the central government, local government, community, and private sectors, the program has improved the environmental quality of the slum area and enhanced the urban spatial planning. Additionally, the participatory approach and the use of modern technology in architectural design and urban planning have contributed to achieving long-term sustainable solutions.

This research also provides an overview of the design proposal process that adjusts to the existing conditions, data, and directions from various stakeholders, including community participation. The design changes have been communicated to all parties and used as a basis for engaging the community to reach a consensus.

The results of this study will also serve as one of the foundations for the implementation of the Land Consolidation process and housing arrangement based on the interests of the community, while still adhering to various regulations, laws, and decisions. With the various directions and design constraints, it is hoped that a healthy, good, safe, and sustainable environment can be produced.

Furthermore, the proposed design is expected to be used for the implementation of construction, which will be clearer and more measurable. Community involvement in decision-making for its implementation remains a priority in the subsequent Land Consolidation process, which also involves related stakeholders. Therefore, feedback and suggestions from all parties involved in the development and arrangement of housing in Kampung Bugisan, Pekalongan, Central Java, are still needed to ensure the success of the planned Land Consolidation program.

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Author(s) contribution

I Gede Oka Sindhu Pribadi contributed to the research concepts preparation, methodologies, investigations, data analysis, visualization, articles drafting and revisions.

Nida Fadhilah contributed to the research. concepts preparation and literature reviews, data analysis, of article drafts preparation and validation.

Astrid Novika Pramita contribute to methodology, supervision, and validation.

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Revitalizing slum residential areas through land consolidation approaches in Pekalongan City

A case study of Kampung Bugisan

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ABSTRACT

The development of housing and residential areas plays a crucial role in creating livable environments and mitigating the rise of slum areas in urban settings, which often result from inadequate urban planning. This study focuses on addressing slum settlements through the Land Consolidation approach in Kampung Bugisan, Pekalongan City, Central Java. The method employed is qualitative through analysis of regulations and design considerations as well as determining design criteria and concepts through community participation. The results of the study indicate that community participation and collaboration among stakeholders are key factors in the success of this Land Consolidation program. The findings of this research are expected to provide insights and sustainable strategic solutions for improving environmental quality and addressing slum settlement issues in densely populated urban areas in major cities across Indonesia.

Introduction

Slum environments and settlements pose negative impacts not only on public health but also on various aspects of the inhabitants' quality of life. Creating livable environments and reducing the proliferation of urban slum areas can be achieved through proper settlement development. One effective method to address slum settlements is by implementing Land Consolidation.

Land Consolidation is a strategic effort in spatial planning for slum settlements, focusing on optimizing land use efficiency (Sitorus 2015). The benefits of Land Consolidation in slum settlement revitalization include:

1. Improving Environmental Quality
   Land Consolidation facilitates the provision of livable, safe, and healthy housing for communities, thereby enhancing their living environment (Nur and Sarwadi 2021).
2. Land Use Efficiency
   By consolidating land, more efficient land use can be achieved both vertically and horizontally, reducing negative environmental impacts.
3. Enhancing Accessibility
   Land Consolidation is often accompanied by the development of improved infrastructure, such as roads, drainage systems, and public

facilities, which increases accessibility for residents.

4. Community Participation
   The consolidation process involves community participation in planning and implementation, fostering a sense of ownership and responsibility toward their environment (Nurlinda 2011).
5. Natural Resource Management
   Land Consolidation can support sustainable natural resource management, including environmental preservation with proper planning.
6. Disaster Risk Reduction
   Revitalizing slum areas reduces disaster risks, such as floods, through better spatial planning.

A key challenge in providing housing lies in the limited availability of land (Nur and Sarwadi 2021). The varied characteristics of land and differing environmental carrying capacities are crucial factors in determining development strategies.

Collaboration across various fields of expertise is essential to produce comprehensive and sustainable solutions. This interdisciplinary approach enables a deeper understanding of complex problems while facilitating the development of innovative strategies (Halim 2005).

In Central Java, Pekalongan City is a strategic node along the northern coastal route (Pantura), as it lies midway between Jakarta and Surabaya on Java Island.

Pekalongan City is situated in a lowland area at an elevation of 0–2 meters above sea level. The flat topography, with a slope gradient of 0–8%, indicates low ground movement levels but makes the area susceptible to inundation, particularly in the coastal regions along the northern coastline (Direktorat Konsolidasi Tanah dan Pengembangan Pertanahan 2023). Additionally, the region frequently experiences daily tidal flooding (rob), independent of seasonal changes.

As a coastal city, Pekalongan is also home to various heritage buildings from the Dutch colonial era, most of which are located in Pekalongan Utara District, particularly in the Jetayu Area (Hendro and Sari 2018).

Historically, Kampung Bugisan was a docking point for ships from the Bugis Tribe of Makassar during trade transactions. This history is reflected in its location upstream of Pekalongan City and its development into what is now known as "Kampung Bugisan."

Today, Kampung Bugisan is classified as a slum area according to Pekalongan Mayor's Decree No. 430/1131 of 2020, covering an area of 9.51 hectares with 246 household lots, 326 families, and a total population of 1,150. Approximately 99% of the resident's work in the informal sector (Pemerintah Daerah Tingkat II Pekalongan 2020).

This historical and socio-economic background underscores the importance of targeted efforts, such as Land Consolidation, to address the challenges faced by Kampung Bugisan and similar areas. A general overview of Kampung Bugisan is provided in table 1.

Table 1. General Overview of Kampung Bugisan

Aspect	Note
Area boundaries	Located in RW 001, RT 1–5.
	Total Area: 9.51 hectares
Population	Total households: 326
	total population: 1,150
	population density: 120 people/ha.
	Predominantly workers in the informal sector.
Buildings	150 units located along the riverbanks
Land and legal status	*Surat Hak Milik* (SHM)
Public and social facilities	2 places of worship
	1 sports facility
	2 communal sanitation facilities (MCK).

The delineated area for the Land Consolidation process is shown in figure 1.

Figure 1. Scope of the land use area and spatial planning in Kampung Bugisan

The current environmental conditions within the delineated area are presented in figure 2.

Figure 2. Kampung Bugisan Settlement

Kampung Bugisan is prone to tidal flooding, particularly during heavy rainfall when river water overflows into the residential areas. The infrastructure, including drainage, clean water supply, waste management, and the lack of adequate sanitation facilities, is also insufficient. In addition, road damage and environmental pollution are major concerns that affect public health.

Although tidal flooding is caused by rising sea levels and climate change, land subsidence in Kampung Bugisan is a primary factor that contributes to daily tidal flooding.

Activities and stakeholders

The Ministry of Agrarian Affairs and Spatial Planning, National Land Agency (BPN), as the Project Implementation Unit (PIU), is collaborating with the World Bank in organizing the Land Consolidation Program for a Slum-Free City (KT-KOTAKU). The Ministry of ATR/BPN is supported by the National Development Planning Agency (Bappenas) as the Central Collaboration Management Unit (CCMU) and the Ministry of Public Works and Public Housing as the Project Management Unit (PMU) (Direktorat Konsolidasi Tanah dan Pengembangan Pertanahan 2021).

In the planning phase of Land Consolidation, local governments and stakeholders collaborate to create the best planning outcomes (Nur and Sarwadi 2021). Key participants include regional state-owned enterprises (BUMD), private sectors, cooperatives, and other community-based organizations. Moreover, support from various urban development stakeholders is crucial in the implementation phase of the KT-KOTAKU program (Direktorat Konsolidasi Tanah dan Pengembangan Pertanahan 2023), as shown in figure 3.

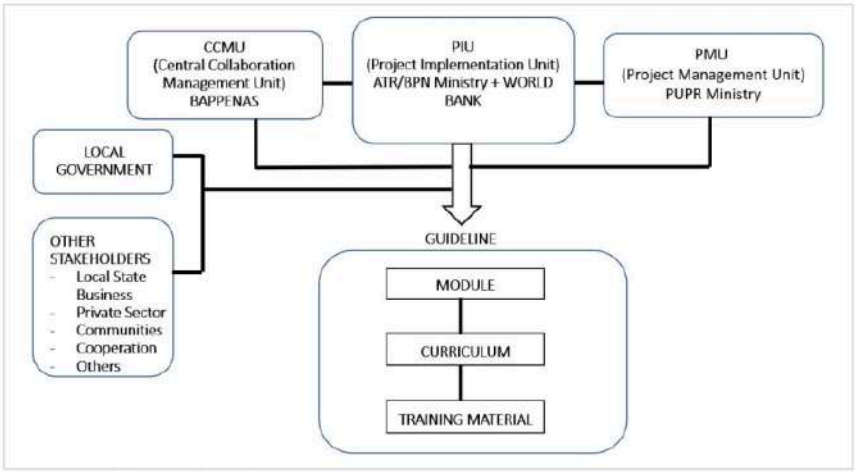


Figure 3. Activities and stakeholders
Source: Final report, O.S.P. Support for KOTAKU, 2023

Regulations and design considerations

The policy for handling slum settlements refers to several national regulations and considerations when planning urban areas. National regulations include the Regional Spatial Plan (RTRW), Detailed Spatial Plan (RDTR), Building Line Regulations (RTBL), and Urban Design Guidelines (UDGL), which guide spatial regulations, city structures, and urban morphology. Design considerations for the area include regulations for Land Consolidation and strategies for slum housing development, as shown in figure 4.

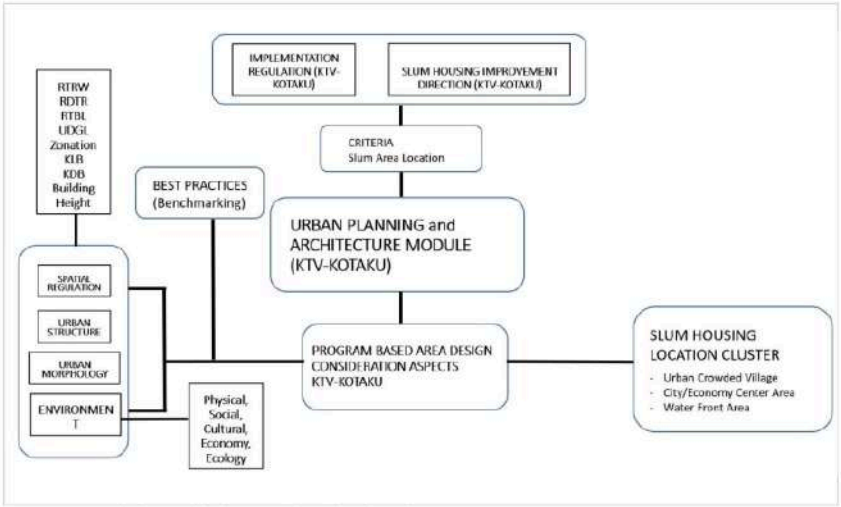


Figure 4. Regulations and design considerations for urban areas
Source: Final report, O.S.P. Support for KOTAKU, 2023

Design criteria and concepts

In its application, urban planning and architectural design must adjust to the local environment, considering specific environmental conditions and the carrying capacity of the area. Slum environments in densely populated urban villages, economic development zones, and waterfront areas (such as riverbanks, lakes, or coastal zones) require different design solutions, as illustrated in figure 5.

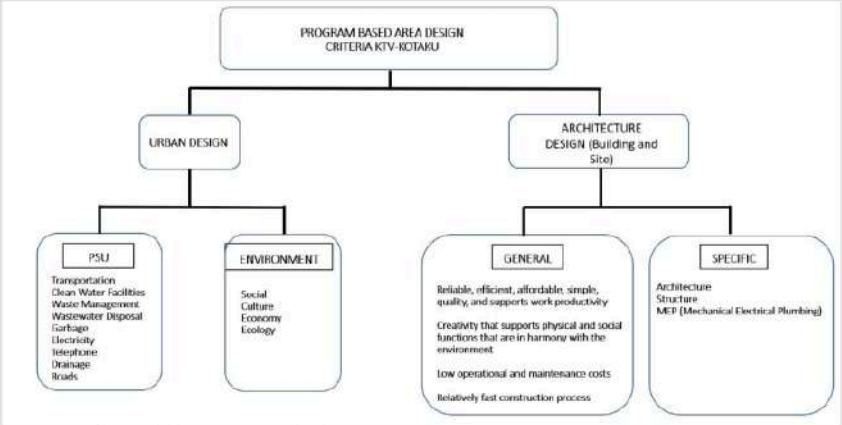


Figure 5. Design criteria and concepts for urban areas
Source: Final report, O.S.P. Support for KOTAKU, 2023

State of the art

The Land Consolidation activity is relatively new in its implementation. Its success is still under evaluation in several areas of Indonesia, given that the impacts of Land Consolidation are long-term. This situation is reflected in the issuance of 3new guidelines and technical instructions by the Ministry of ATR/BPN, beginning with the publication of the Profile of Vertical Land Consolidation Potential in 2020.

Several journals on Land Consolidation written by Sitorus, O., Nurlinda, I., and Wijaya, G. P. in 2015, 2011, and 2016 provide theoretical reviews without case studies. However, in 2021, Nur, Y., and Sarwadi, A. examined the practical application of Land Consolidation in Gadingsari Village, Sanden District, Bantul, Yogyakarta, in the Journal of Land Policy.

Methods

The research methodology used is qualitative, involving the analysis of both general and specific data (Arnowo 2022), covering regulations, design considerations, and the determination of design criteria and concepts. The primary focus of this research is on Land Consolidation and the revitalization of slum residential areas in Kampung Bugisan, Pekalongan City.

According to the final report by the Oversight Service Provider of the Ministry of ATR/BPN in 2023, the implementation of Land Consolidation includes a series of processes involving field case studies, and social, economic, and physical data analysis from the affected areas (Direktorat Konsolidasi Tanah dan Pengembangan Pertanahan 2023). These processes include: planning, socialization, and deliberation, measurement and assessment, land acquisition, infrastructure development, land utilization, and monitoring and evaluation.

Data collection involves land measurement and assessment of Land Consolidation objects, as well as legal data concerning land ownership. A participatory approach is also used, engaging key stakeholders such as local communities, local governments, and international agencies (e.g., the World Bank). Spatial planning studies and data collection through surveys and interviews are conducted to assess the relevance of proposed solutions.

The background, objectives, and issues leading to the involvement of stakeholders are analyzed. By examining regulations and design considerations and determining design criteria and concepts, urban planning elements and architectural design elements for the buildings and site are developed. These design elements are then applied to Kampung Bugisan, Pekalongan, as a pilot project to create design proposals as part of the Land Consolidation process, as shown in figure 6.

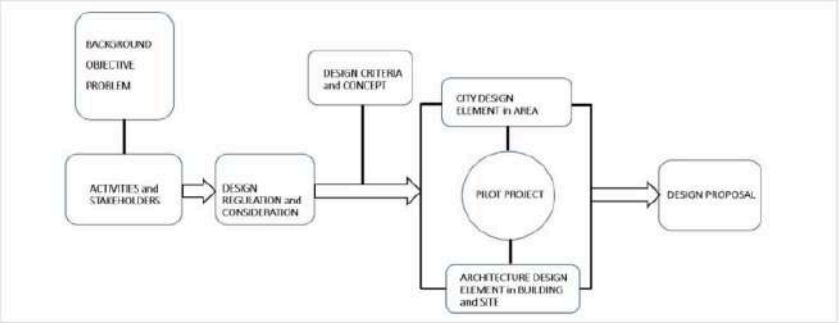


Figure 6. Methodology of activities implementation

The proposed design is then grouped into two phases based on the planning process that involved community consultations:

- 2022 Design Proposal
- 2023 Design Proposal

This includes the planning of infrastructure in the Bugisan area.

Results and discussion

The design process is dynamic and evolves from the initial phase in 2022 to the final phase in 2023, incorporating several design changes. The 2022 and 2023 design proposals are based on the qualitative research methodology and the Land Consolidation process, which includes planning, socialization, and deliberation, measurement and assessment, land acquisition, infrastructure development, land utilization, and monitoring and evaluation.

2022 Design proposal

The surveyed area is located in RT 02, 03, 04, and 05 in RW 01, Panjang Wetan Village, Pekalongan City. This area was selected for Land Consolidation due to recurring tidal floods that affect the comfort of local residents. The research area is presented in figure 7.

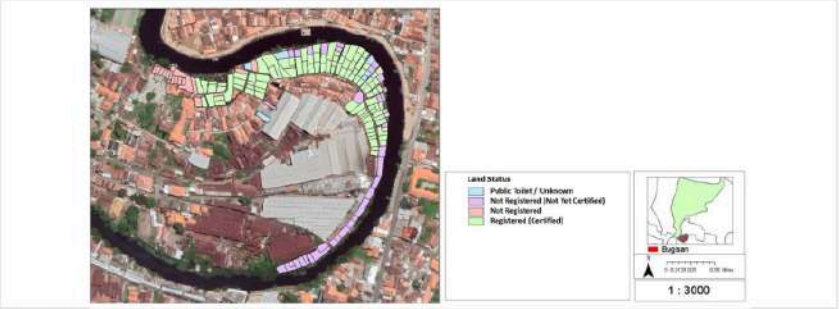


Figure 7. Research area in Kampung Bugisan

Based on the survey and the data collected from the Inventory of Land Ownership, Use, and Utilization (IP4T), the land use area is calculated as follows:

a. Area after river widening: 1.53 hectares (16% of Kampung Bugisan's total area of 9.5 hectares or 39% of the total residential area).
b. Area for the River Buffer Zone (GSS) of 3 meters: 0.25 hectares, which includes a promenade/inspection path of 2.5 meters, pedestrian paths, and Green Open Space.
c. Residential area: 1.53 hectares – 0.25 hectares = 1.28 hectares.

- Residential: 0.6 hectares
- Pedestrian way: 0.15 hectares
- Green open space within plots: 0.5 hectares.

2023 Design proposal

Based on the existing conditions, there were challenges in measuring land areas, so the Master Plan still uses IP4T data, as shown in figures 8-12.

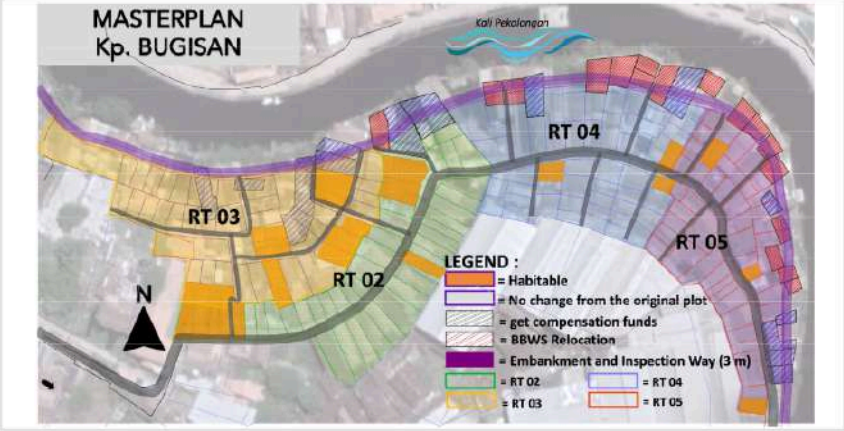
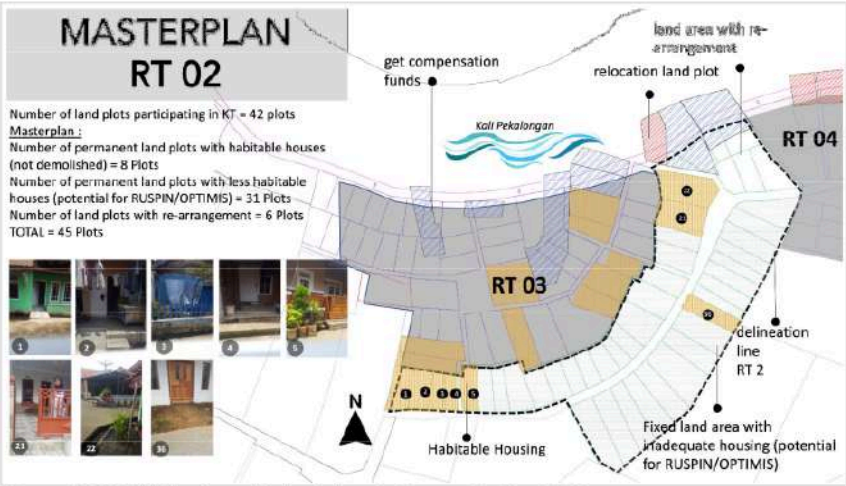
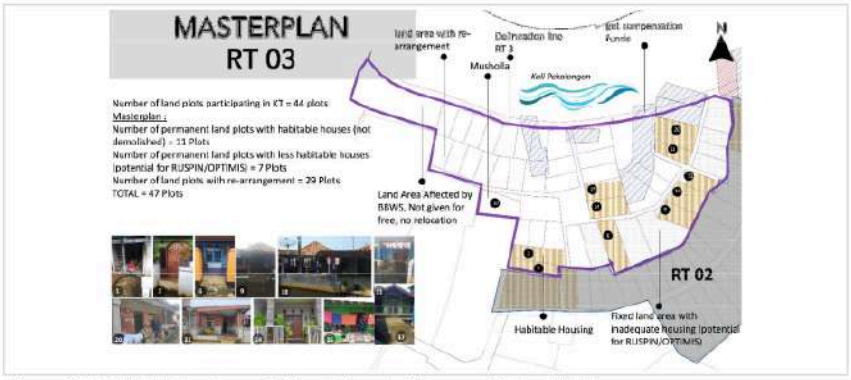


Figure 8. 2023 Initial land consolidation designs for Kampung Bugisan

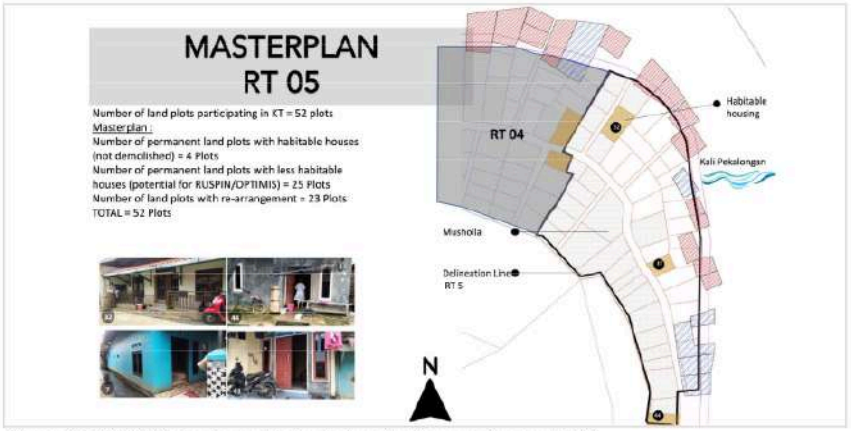


Figures 9. 2023 Initial land consolidation designs for Kampung Bugisan RT 02



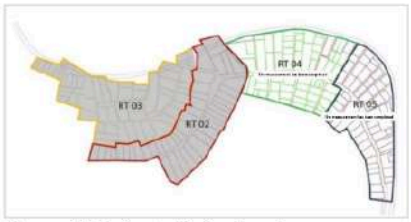
Figures 10. 2023 Initial land consolidation designs for Kampung Bugisan RT 03

Figures 11. 2023 Initial land consolidation designs for Kampung Bugisan RT 04



Figures 12. 2023 initial land consolidation designs for Kampung Bugisan RT 05

The measurement process has just been completed for 2 out of 4 RTs, specifically RT 04 and RT 05. The delineation of the masterplan design for the Land Consolidation of Kampung Bugisan has been designed in these two RTs, where the measurements have been completed, with the number of land plots being 62 in RT 04 and 51 in RT 05, for a total of 113 plots. The area of RT 04 is 5,777 m², and the area of RT 05 is 5,154 m². The total area of the land consolidation planning delineation is approximately 10,931 m². The measurements resulted in 113 land plots, consisting of 62 plots in RT 04 and 51 plots in RT 05, with two existing facilities, namely a mushola (prayer room) and a public toilet, located in RT 05. The results of the measurements for the delineation design can be seen in figures 13-14.



Figures 13. Delineated design based on measurement results

On these two RTs, the following measurement results are noted:

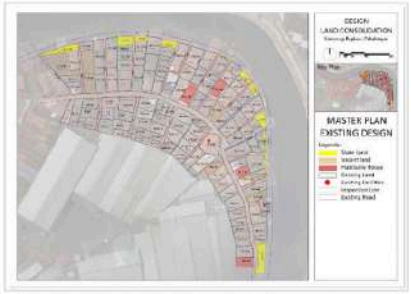


Figure 14. Measurement results for land plots and existing buildings in RT 04 and RT 05

There are 4 habitable plots scattered across the area, and 6 vacant plots, one of which is used as a community hall. In the area next to the inspection road, there are several state-owned lands that can be utilized for open space, as shown in figure 15.

Figure 15. Measurement results of existing land and houses in RT 04 and RT 05

The initial delineation of the Land Consolidation planning covers 4 RTs (neighborhood units), namely RT 02, 03, 04, and 05. Based on the measurements, only RT 04 and RT 05 have been fully measured. In the following figure, the masterplan design is illustrated in full for the two RTs where measurements have been completed, with the areas of RT 02 and RT 03 that have not been measured shown using IP4T data, as seen in figure 16.

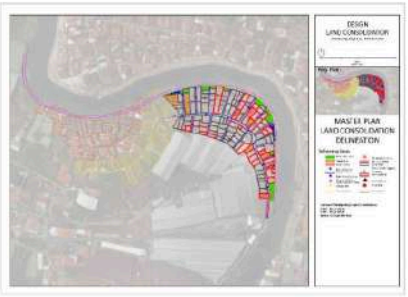


Figure 16. Final design of land consolidation in Kampung Bugisan RT 04 and RT 05, June 2023

The masterplan design for the Land Consolidation in Kampung Bugisan, Panjang Wetan subdistrict, Pekalongan city, takes into account the results of community discussions, which prioritized not relocating the land plots so that neighbors would remain the same, as depicted in figures 17–19.

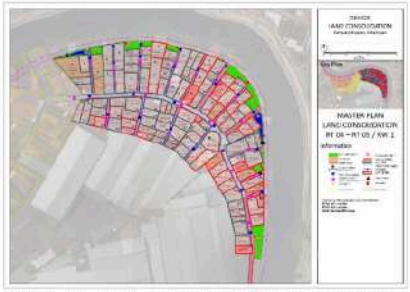


Figure 17. Land consolidation design in Kampung Bugisan RT 04 and RT 05, June 2023

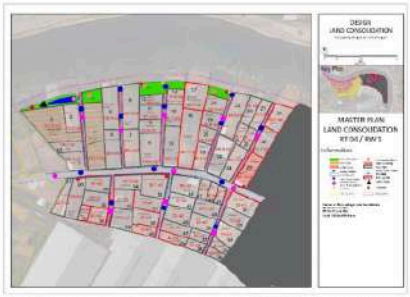


Figure 18. Land consolidation design in Kampung Bugisan RT 04, June 2023

Figure 19. Land consolidation design in Kampung Bugisan RT 05, June 2023

Infrastructure planning in Bugisan area

In addition to the design proposals for 2022 and 2023, the infrastructure in Kampung Bugisan is also planned with consideration for flood management in Pekalongan. The placement of retention ponds and pumps is considered as an effort to address the tidal flood issues in Kampung Bugisan, with the concept of land shifting to maximize space by closing non-functional drainage channels and converting them into roads. Additionally, there is a proposal for a 1.5-meter widening of the secondary road to ease motor vehicle access, and a 3-meter widening of neighborhood roads to allow access for four-wheeled vehicles, as shown in figure 20.

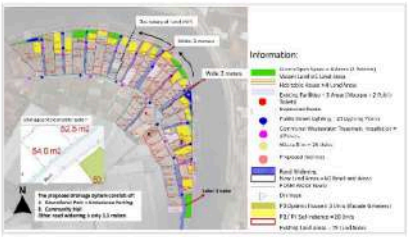


Figure 20. Concept of land shifting arrangement

The road widening concept in front of the mosque creates a grand impression in the area and also allows easy access for emergency vehicles to reach the mosque. On the other side, the widening of the road facilitates maneuvering for four-wheeled vehicles. The concept of road widening can be seen in figure 21.

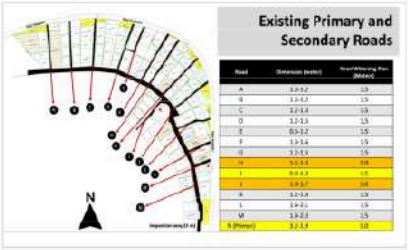


Figure 21. Comparison of existing road width and road width after design

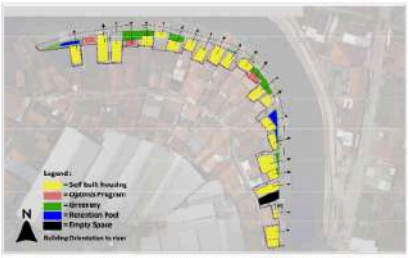


Figure 22. Concept of waterfront housing arrangement

As illustrated in figures 21-24, the housing located beside the river inspection road applies the waterfront concept using Optimistic Houses, which are Simple Ownership Panel Houses, 6 meters long and 3 meters wide with 2 floors, and a building area of 32 m². These modular houses are planned with the first floor for residential use and the second floor for commercial purposes, thus contributing to the local economy. The waterfront concept considers the economy while also focusing on the facade's view toward the Loji River.

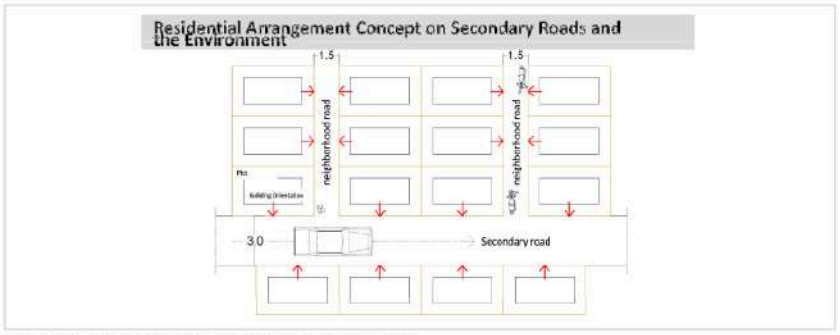


Figure 23. Orientation concept for housing arrangement

The land arrangement optimizes the orientation of the houses so that no plots are sandwiched between two roads, thus minimizing slum conditions with back-to-back houses. Every house faces the road.

The neighborhood road width of 3 meters is planned to minimize the land loss for residents. Existing drainage is planned to be covered with concrete pipes, making the road width more efficient, as shown in figure 24.

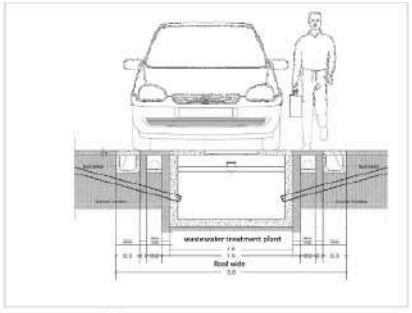


Figure 24. Utility concept

Percentage of land area in land consolidation

The existing land area compared to the designed land area for the Land Consolidation has undergone changes, which can be seen in tables 2 and 3.

Table 2. Percentage of area change in RT 04

No	Land Name	RT	Status	Existing Land Area (m2)	Area After Design (m2)	Area of the Cut Plane (m2)	Land Cut Percentage (%)
1	Land to 1	4	Owned	81.2	80.4	0.8	1.31%
2	Land to 2	4	Owned	211.5	210.5	0.9	0.43%
3	Land to 3	4	Owned	77.5	75.2	2.3	2.91%
4	Land to 4	4	Owned	217.5	214.1	3.4	1.58%
5	Land to 5	4	Owned	104.3	102	2.3	2.21%
6	Land to 6	4	Owned	120.4	118.4	2	1.68%
7	Land to 7	4	Owned	101.2	99.4	1.8	1.78%
8	Land to 8	4	Owned	131.2	128.9	2.3	1.77%
9	Land to 9	4	Owned	118	116.5	1.4	1.19%
10	Land to 10	4	Owned	55	54.5	0.5	0.91%
11	Land to 11	4	Owned	57.7	57.4	0.3	0.52%
12	Land to 12	4	Owned	39.9	39.8	0.1	0.25%
13	Land to 13	4	Owned	107.3	104.9	2.4	2.24%
14	Land to 14	4	Owned	45.3	44.9	0.4	1.77%
15	Land to 15	4	Owned	82.7	81.7	1	1.59%
16	Land to 16	4	Owned	180.7	180.7	0	0.00%
17	Land to 17	4	Owned	108	108	0	0.00%
18	Land to 18	4	Owned	92.5	90.3	2.2	2.52%
19	Land to 19	4	Owned	51.6	50.6	1	1.94%
20	Land to 20	4	Owned	45.9	44.6	1.3	2.87%
21	Land to 21	4	Owned	90.1	88	2.1	2.51%
22	Land to 22	4	Owned	110	108.9	1.1	1.00%
23	Land to 23	4	Owned	118	118.6	-0.6	-0.78%
24	Land to 24	4	Owned	110	108.9	1.1	1.00%
25	Land to 25	4	Owned	37.3	35.7	1.6	4.29%
26	Land to 26	4	Owned	37.3	36.1	1.2	3.22%
27	Land to 27	4	Owned	57.1	54.8	2.3	4.03%
28	Land to 28	4	Owned	57.1	54.8	2.3	4.03%
29	Land to 29	4	Owned	94.7	94.7	0	0.00%
30	Land to 30	4	Owned	73.1	73.1	0	0.00%
31	Land to 31	4	Owned	78.2	78.2	0	0.00%
32	Land to 32	4	Owned	83.6	83	0.6	0.69%
33	Land to 33	4	Owned	72.8	72	0.8	1.10%
34	Land to 34	4	Owned	76.3	74	2.3	3.01%
35	Land to 35	4	Owned	32.2	30	2.2	6.83%
36	Land to 36	4	Owned	28.9	27	1.9	6.57%
37	Land to 37	4	Owned	57.2	56	1.2	2.27%
38	Land to 38	4	Owned	93.3	92	1.3	1.99%
39	Land to 39	4	Owned	63.6	63	0.6	0.94%
40	Land to 40	4	Owned	65.8	66	-0.2	-0.39%
41	Land to 41	4	Owned	34.2	34	0.2	0.58%
42	Land to 42	4	Owned	26.5	26	0.5	1.69%
43	Land to 43	4	Owned	23.5	22	1.5	1.99%
44	Land to 44	4	Owned	91.5	90	1.5	1.64%
45	Land to 45	4	Owned	57.6	57	0.6	1.04%
46	Land to 46	4	Owned	72.6	72	0.6	0.83%
47	Land to 47	4	Owned	57.6	57	0.6	1.04%
48	Land to 48	4	Owned	69	64	5	7.23%
49	Land to 49	4	Owned	35	35	0	0.00%
50	Land to 50	4	Owned	65	65	0	0.00%
51	Land to 51	4	Owned	74	74	0	0.00%
52	Land to 52	4	Owned	102.6	98	4.6	4.67%
53	Land to 53	4	Owned	67	67	0	0.00%
54	Land to 54	4	Owned	71	71	0	0.00%
55	Land to 55	4	Owned	78	75	3	3.85%
56	Land to 56	4	Owned	51	51	0	0.00%
57	Land to 57	4	Owned	36	36	0	0.00%
58	Land to 58	4	Owned	68	68	0	0.00%
59	Land to 59	4	Owned	44.4	44	0.4	0.90%
60	Land to 60	4	Owned	99	98	1	1.01%
61	Land to 61	4	Owned	62	62.1	-0.1	-0.16%
62	Land to 62	4	State Land	95.1	94.7	0.4	1.26%
					Average percentage of land cutting		1.84%

The percentage change in land area in RT 04 for 62 plots is 1.64%.

Table 3. Percentage of area change in RT 05

No.	Land Name	RT	Status	Existing Land Area (m2)	Area After Design (m2)	Area of the Cut Plane (m2)	Land Cut Percentage (%)
1	Land to 1	5	Owned	67.4	80.9	6.5	9.64%
2	Land to 2	5	Owned	71	93.2	5.8	8.17%
3	Land to 3	5	Owned	90.2	17.3	2.7	6.72%
4	Land to 4	5	Owned	71.4	67.2	4.2	5.88%
5	Land to 5	5	Owned	76.9	76.2	0.7	0.91%
6	Land to 6	5	Owned	90.5	90.5	0	0.00%
7	Land to 7	5	Owned	56.4	56.4	0	0.00%
8	Land to 8	5	Owned	73	71.1	1.9	2.60%
9	Land to 9	5	Owned	91	86.9	4.1	4.51%
10	Land to 10	5	Owned	46.8	45	1.8	3.85%
11	Land to 11	5	Owned	26.5	26.7	0.6	2.71%
12	Land to 12	5	Owned	58.2	58.2	0	0.00%
13	Land to 13	5	Owned	46.6	46.6	0	0.00%
14	Land to 14	5	Owned	64.1	64.1	0	0.00%
15	Land to 15	5	Owned	80.5	68.5	12	14.91%
16	Land to 16	5	Owned	57.6	54	3.6	6.25%
17	Land to 17	5	Owned	53.7	52.5	1.2	2.23%
18	Land to 18	5	Owned	65.5	63.6	1.9	2.90%
19	Land to 19	5	Owned	60.3	60.3	0	0.00%
20	Land to 20	5	Owned	19.2	19.2	0	0.00%
21	Land to 21	5	Owned	37.4	36.7	0.7	1.87%
22	Land to 22	5	Owned	63.3	61	2.3	3.63%
23	Land to 23	5	Owned	61.8	61.1	0.7	1.13%
24	Land to 24	5	Owned	61.6	59.8	1.8	2.92%
25	Land to 25	5	Owned	66.2	66	2.2	3.23%
26	Land to 26	5	Owned	85.4	82.5	2.9	3.40%
27	Land to 27	5	Owned	125.1	125.1	0	0.00%
28	Land to 28	5	Owned	120.3	117.5	3.7	3.24%
29	Land to 29	5	Owned	54.4	53.7	0.7	1.20%
30	Land to 30	5	Owned	55.2	53.7	1.5	2.73%
31	Land to 31	5	Owned	114.7	113	1.7	1.46%
32	Land to 32	5	Owned	79.1	79.1	0	0.00%
33	Land to 33	5	Owned	79.2	79.2	0	0.00%
34	Land to 34	5	Owned	74.6	74.6	0	0.00%
35	Land to 35	5	Owned	57.1	57.1	0	0.00%
36	Land to 36	5	Owned	71.3	71.3	0	0.00%
37	Land to 37	5	Owned	84.2	84.2	0	0.00%
38	Land to 38	5	Owned	94.6	94.6	0	0.00%
39	Land to 39	5	Owned	62.3	62	0.3	0.48%
40	Land to 40	5	Owned	90.8	90.8	0	0.00%
41	Land to 41	5	Owned	96.4	96.4	0	0.00%
42	Land to 42	5	Owned	47.6	46.2	1.4	2.94%
43	Land to 43	5	Owned	40.6	39.3	1.3	3.19%
44	Land to 44	5	Owned	89.1	86.5	2.6	2.92%
45	Land to 45	5	Owned	89.1	89.1	0	0.00%
46	Land to 46	5	Owned	73.3	73.2	0.1	0.14%
47	Land to 47	5	Owned	90.3	90.3	0	0.00%
48	Land to 48	5	State Land	90.9	90.9	0	0.00%
49	Land to 49	5	State Land	37.9	37.9	0.3	0.79%
50	Land to 50	5	State Land	27.8	27.8	0	0.00%
51	Land to 51	5	State Land	8.6	8.6	0	0.00%
					Average percentage of land cutting		2.07%

The percentage change in land area in RT 05 RW 01 for 51 plots is a 2.07% reduction in land. Thus, the land reduction in the design is about 2% of the existing land area. The blowup of the existing and designed land areas for the Land Consolidation can be seen in figure 25.

Figure 25. Example of land area change

Conclusions

This program has successfully implemented a comprehensive Land Consolidation concept with a sustainable approach in a slum urban area. Through collaboration between the central government, local government, community, and private sectors, the program has improved the environmental quality of the slum area and enhanced the urban spatial planning. Additionally, the participatory approach and the use of modern technology in architectural design and urban planning have contributed to achieving long-term sustainable solutions.

This research also provides an overview of the design proposal process that adjusts to the existing conditions, data, and directions from various stakeholders, including community participation. The design changes have been communicated to all parties and used as a basis for engaging the community to reach a consensus.

3. The results of this study will also serve as one of the foundations for the implementation of the Land Consolidation process and housing arrangement based on the interests of the community, while still adhering to various regulations, laws, and decisions. With the various directions and design constraints, it is hoped that a healthy, good, safe, and sustainable environment can be produced.

Furthermore, the proposed design is expected to be used for the implementation of construction, which will be clearer and more measurable. Community involvement in decision-making for its implementation remains a priority in the subsequent Land Consolidation process, which also involves related stakeholders. Therefore, feedback and suggestions from all parties involved in the development and arrangement of housing in Kampung Bugisan, Pekalongan, Central Java, are still needed to ensure the success of the planned Land Consolidation program.

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Author(s) contribution

I Gede Oka Sindhu Pribadi contributed to the research concepts preparation, methodologies, investigations, data analysis, visualization, articles drafting and revisions.

Nida Fadhilah contributed to the research concepts preparation and literature reviews, data analysis, of article drafts preparation and validation.

Astrid Novika Pramita contribute to methodology, supervision, and validation.

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2. 06 Okt. 2024 : Submission awal artikel sesuai template ARTEKS
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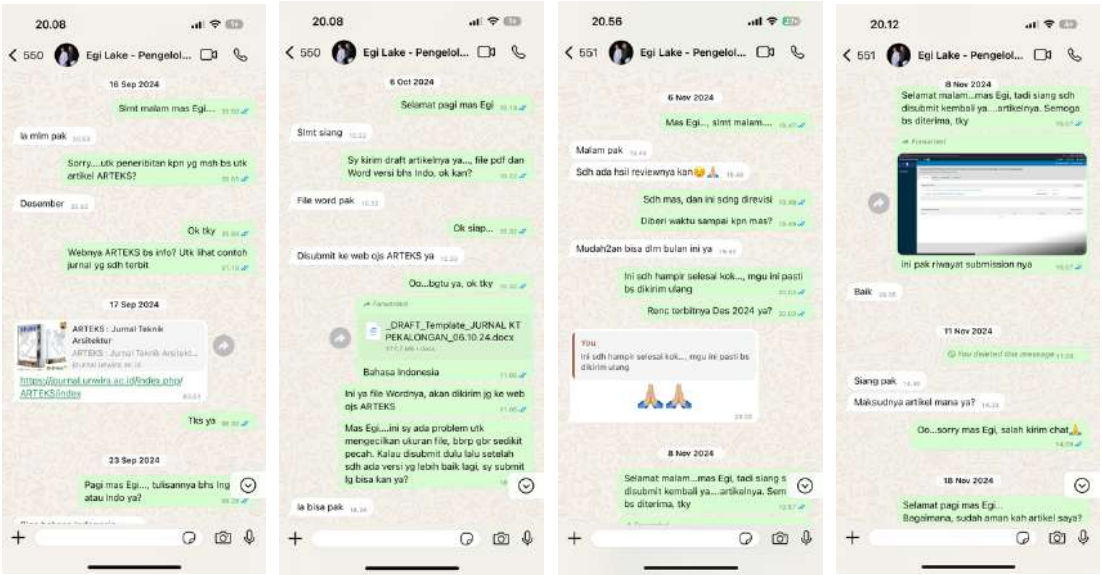

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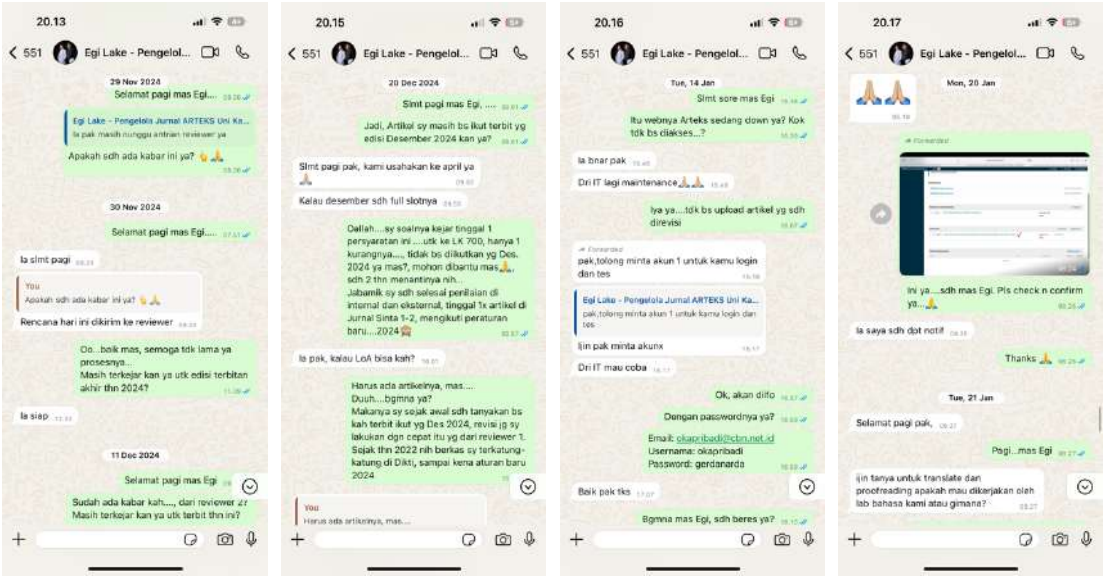

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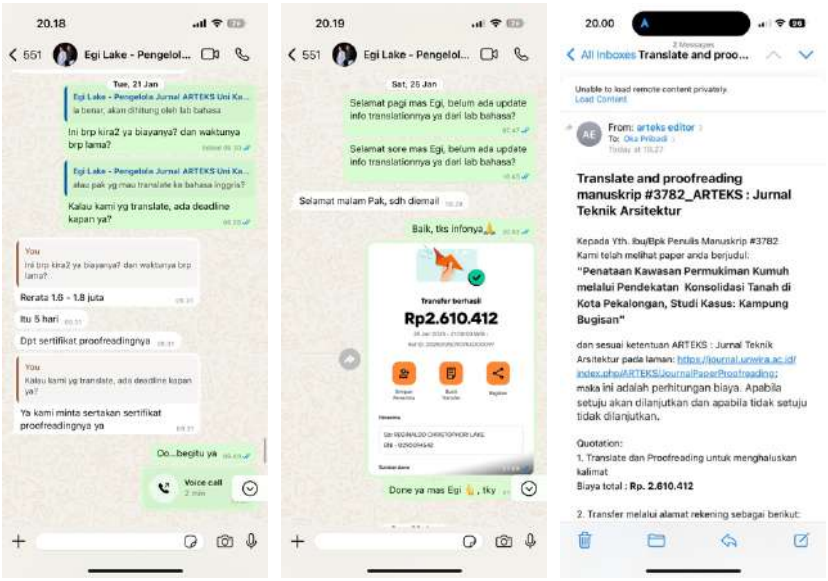

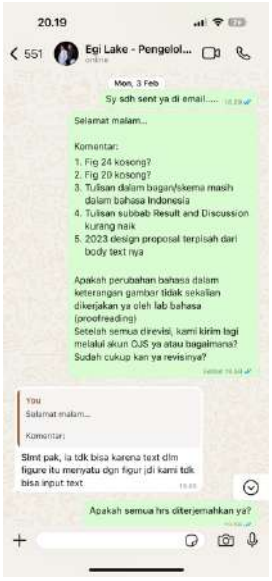

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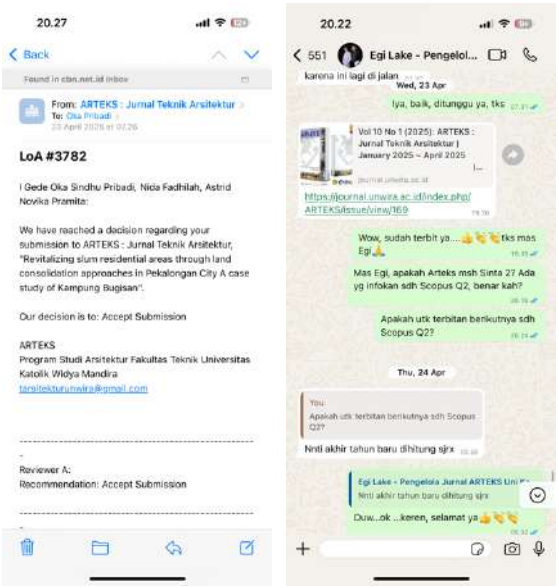

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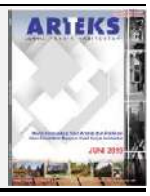

LEMBAR PENILAIAN ARTIKEL

Judul: Penataan kawasan permukiman kumuh melalui pendekatan konsolidasi tanah di Kota Pekalongan, Studi kasus: Kampung Bugisan

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1.	**Topik** sesuai dengan lingkup ARTEKS : Jurnal Teknik Arsitektur	**X**		
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6.	**Kata kunci** [Bahasa Indonesia dan Bahasa Inggris]	**X**		
7.	**Pendahuluan:** a) Mencakup latar belakang, rumusan masalah, tujuan dan manfaat penelitian, rancangan penelitian kajian pustaka dan hipotesa bila ada;	**X**		Tulisan pada gambar dan tabel, tidak terbaca kalau dicetak ukuran A4
	b) *Hypothetical stand* (Sumber dugaan) yang dijadikan pertanyaan penelitian;	**X**		
	c) Pendahuluan adalah *extended* dari abstrak,	**X**		

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No.	Parameter Penilaian	Ya	Tidak	Keterangan
	tidak menyertakan sub-sub bab;			
	d) Pernyataan kebaruan temuan (*novelty*) dan/atau kemutakhiran (*state of the art*).		**X**	Kebaruan tidak terlihat secara spesifik dalam tulisan
8.	**Metode Penelitian:** a) Data yang digunakan cukup mutakhir; atau pemilihan sampel yang diambil mewakili isu dan obyek penelitian;	**X**		
	b) Metode yang digunakan kuat dan relevan (*roburst and vigorous*).	**X**		
9.	**Hasil dan Pembahasan:** a) Bahasan hasil analisis dapat menjawab pertanyaan penelitian dan dimaknai dengan benar;		**X**	1. Pembahasan tentang SDGs tidak terlihat, sebaiknya dihilangkan dari pendahuluan 2. Tulisan pada gambar dan tabel, tidak terbaca kalau dicetak ukuran A4 3. Dari metode penelitian penyelenggaraan Konsolidasi Tanah meliputi: • Perencanaan • Sosialisasi dan musyawarah • Pengukuran dan penilaian • Dst Namun pada hasil dan diskusi dibagi dalam: • Usulan Desain 2022 • Usulan Desain 2023 • Penataan Infrastruktur Kawasan Bugisan • Dst Sehingga tidak sesuai dengan metode yang dipergunakan (Sistematika penulisan).
	b) Penyajian ditampilkan dalam bentuk tabel, diagram atau gambar [setiap tabel, diagram atau gambar harus diacu pada teks];		**X**	
	c) Hasil dan temuan penelitian memberi kontribusi terhadap aplikasi dan/atau pengembangan ilmu.	**X**		

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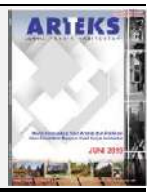

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10.	**Kesimpulan:** Didasarkan atas hasil analisi dan pembahasan [konsistensi yang perlu dipenuhi adalah masalah-tujuan-kesimpulan].	**X**		
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	b) Referensi/rujukan harus berisi acuan primer [jurnal, prosiding, skripsi, tesis dan disertasi] sekurang-kurangnya 80% dari seluruh referensi/rujukan;	**X**		
	c) Referensi/rujukan yang mutakhir [5 tahun terakhir] sekurang-kurangnya 80% dari seluruh referensi/rujukan. *Buku, Data BPS, UU dan Laporan akhir tidak termasuk dalam acuan primer.		**X**	
12.	Pendahuluan dan metode penelitian jumlahnya 40% dari panjang artikel; Hasil, temuan dan kesimpulan jumlahnya 60% dari panjang artikel.	**X**		

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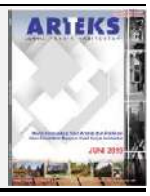

REKOMENDASI

Judul: Penataan kawasan permukiman kumuh melalui pendekatan konsolidasi tanah di Kota Pekalongan, Studi kasus: Kampung Bugisan

Mohon diberi tanda cek di depan pilihan yang dipilih:

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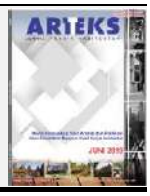

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6.	**Kata kunci** [Bahasa Indonesia dan Bahasa Inggris]	**X**		
7.	**Pendahuluan:** a) Mencakup latar belakang, rumusan masalah, tujuan dan manfaat penelitian, rancangan penelitian kajian pustaka dan hipotesa bila ada;	**X**		1. Sebaiknya dimulai dengan isu dan fenomena tentang Kawasan kumuh diperkotaan, kemudian teori tentang konsolidasi tanah (seperti tertulis dalam abstrak). 2. Masukan nomor tabel dan gambar pada body teks, sehingga jelas posisinya dalam narasi tulisan. 3. Perlu disebutkan secara spesifik: mewujudkan perkotaan dan kawasan permukiman yang inklusif, aman, berketahanan, dan berkelanjutan, termasuk dalam item SDGs keberapa.

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	b) *Hypothetical stand* (Sumber dugaan) yang dijadikan pertanyaan penelitian;	**X**		Tidak dinyatakan secara spesifik pertanyaan penelitiannya
	c) Pendahuluan adalah *extended* dari abstrak, tidak menyertakan sub-sub bab;	**X**		
	d) Pernyataan kebaruan temuan (*novelty*) dan/atau kemutakhiran (*state of the art*).		**X**	Tidak ditunjukan secara spesifik dalam tulisan (tidak ada SOTA)
8.	**Metode Penelitian:** a) Data yang digunakan cukup mutakhir; atau pemilihan sampel yang diambil mewakili isu dan obyek penelitian;	**X**		1. Berbeda dengan di abstrak (tidak menyebutkan pendekatan kuantitatif), pada kenyataannya tidak ada metode kuantitatif ditemukan dalam penelitian ini (sebaiknya dihilangkan). 2. Tambahkan sitasi dan referensi yang mendukung metode penelitian yang dipilih
	b) Metode yang digunakan kuat dan relevan (*roburst and vigorous*).	**X**		
9.	**Hasil dan Pembahasan:** a) Bahasan hasil analisis dapat menjawab pertanyaan penelitian dan dimaknai dengan benar;		**X**	1. Kata Bahasa asing ditulis dalam format *italic*, contoh: Masterplan, stakeholder; perhatikan pemakaian kata Tabel dengan Table 2. Dari metode penelitian penyelenggaraan Konsolidasi Tanah meliputi: • Perencanaan • Sosialisasi dan musyawarah • Pengukuran dan penilaian • Dst Namun pada hasil dan diskusi dibagi dalam: • Usulan Desain 2022 • Usulan Desain 2023 • Usulan Desain Februari 2023 Sehingga tidak sesuai dengan metode yang dipergunakan (Sistematika penulisan).

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Tgl. naskah masuk: 2.10.2024; review 1: 28.10.2024

No.	Parameter Penilaian	Ya	Tidak	Keterangan
	b) Penyajian ditampilkan dalam bentuk tabel, diagram atau gambar [setiap tabel, diagram atau gambar harus diacu pada teks];		**X**	3. Konsep Penataan Masterplan Kota Pekalongan; Persentase Luasan Bidang Konsolidasi Tanah, seakan-akan berada diluar kajian Usulan Desain 2022 atau 2023 4. Tabel dan gambar tidak diacu pada teks
	c) Hasil dan temuan penelitian memberi kontribusi terhadap aplikasi dan/atau pengembangan ilmu.	**X**		
10.	**Kesimpulan:** Didasarkan atas hasil analisi dan pembahasan [konsistensi yang perlu dipenuhi adalah masalah-tujuan-kesimpulan].	**X**		Karena dalam kesimpulan terdapat harapan, maka sub judul kesimpulan dirubah menjadi Kesimpulan dan Saran.
11.	**Referensi/Rujukan:** a) Minimal 20 referensi/ rujukan untuk artikel penelitian [hasil penelitian], minimal 30 refensi untuk artikel tinjauan/review. Setiap referensi/rujukan diacu/disitasi ke dalam catatan tubuh [*body text citation*];		**X**	1. Referensi sebanyak 17 buah namun tidak semua disitasi pada teks (hanya 5 buah yang di sitasi) 2. Cara penulisan referensi mengikuti standar yang berlaku misalnya *APA standard*, terlihat ada ketidak konsistenan dalam penulisan referensi, contoh: Deddy Halim, P.; Sitorus, O. (antara nama depan dan belakang), dsb.
	b) Referensi/rujukan harus berisi acuan primer [jurnal, prosiding, skripsi, tesis dan disertasi] sekurang-kurangnya 80% dari seluruh referensi/rujukan;	**X**		

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No.	Parameter Penilaian	Ya	Tidak	Keterangan
	c) Referensi/rujukan yang mutakhir [5 tahun terakhir] sekurang-kurangnya 80% dari seluruh referensi/rujukan. *Buku, Data BPS, UU dan Laporan akhir tidak termasuk dalam acuan primer.		**X**	
12.	Pendahuluan dan metode penelitian jumlahnya 40% dari panjang artikel; Hasil, temuan dan kesimpulan jumlahnya 60% dari panjang artikel.	**X**		

*Mohon berikan catatan pada batang tubuh naskah

REKOMENDASI

Judul: Penataan kawasan permukiman kumuh melalui pendekatan konsolidasi tanah di Kota Pekalongan, Studi kasus: Kampung Bugisan

Mohon diberi tanda cek di depan pilihan yang dipilih:

( ) 1. Naskah dapat dimuat tanpa perubahan.

( ) 2. Naskah tidak dapat dimuat, karena:

( ) 3. Naskah dapat dimuat dengan perbaikan berikut:

(**X**) Perbaikan mayor: Lihat komentar pada tabel diatas

( ) Perbaikan minor:

Catatan: Lihat komentar pada tabel diatas

Penataan Kawasan Permukiman Kumuh melalui Pendekatan Konsolidasi Tanah di Kota Pekalongan, Studi Kasus: Kampung Bugisan

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Abstrak

Pembangunan perumahan dan kawasan permukiman berperan penting dalam menciptakan lingkungan layak huni serta mengurangi meningkatnya area kawasan kumuh di perkotaan akibat kurangnya penataan perkotaan yang baik. Penelitian ini berfokus pada penanggulangan permukiman kumuh melalui pendekatan Konsolidasi Tanah di Kampung Bugisan, Kota Pekalongan, Jawa Tengah. Metode yang digunakan adalah kualitatif melalui analisis terhadap regulasi dan pertimbangan desain serta penentuan kriteria dan konsep desain melalui partisipasi masyarakat. Hasil penelitian menunjukkan bahwa partisipasi masyarakat dan kolaborasi antar pemangku kepentingan menjadi faktor keberhasilan program Konsolidasi Tanah ini. Temuan penelitian ini diharapkan dapat memberikan wawasan serta solusi strategis yang berkelanjutan dalam meningkatkan kualitas lingkungan serta solusi terhadap permasalahan permukiman kumuh di area padat penduduk di kota-kota besar di Indonesia.

Keywords: Konsolidasi Tanah, permukiman kumuh, partisipasi masyarakat, Kampung Bugisan.

Abstract

Title: Slum Settlement Arrangement through the Land Consolidation Approach in Pekalongan City, Case Study: Bugisan Village

The development of housing and residential areas plays a crucial role in creating livable environments and mitigating the rise of slum areas in urban settings, which often result from inadequate urban planning. This study focuses on addressing slum settlements through the Land Consolidation approach in Kampung Bugisan, Pekalongan City, Central Java. The method employed is qualitative through analysis of regulations and design considerations as well as determining design criteria and concepts through community participation. The results of the study indicate that community participation and collaboration among stakeholders are key factors in the success of this Land Consolidation program. The findings of this research are expected to provide insights and sustainable strategic solutions for improving environmental quality and addressing slum settlement issues in densely populated urban areas in major cities across Indonesia.

Keywords: *Land Consolidation, slum settlements, community participation, Bugisan Village.*

Pendahuluan

Lingkungan dan permukiman kumuh memberikan dampak negatif baik pada kesehatan masyarakat maupun aspek lain yang berhubungan dengan kualitas hidup penghuninya. Menciptakan lingkungan layak huni serta mengurangi tumbuhnya area

kawasan kumuh di perkotaan dapat dilakukan melalui pembangunan permukiman yang baik. Salah satu cara penanggulangan permukiman kumuh adalah melalui penerapan Konsolidasi Tanah.

Konsolidasi Tanah merupakan salah satu upaya strategis dalam penataan ruang pada permukiman kumuh yang berfokus pada pemanfaatan efisiensi lahan (Sitorus, 2015). Manfaat program Konsolidasi Tanah dalam peremajaan permukiman kumuh, yaitu:

1. Peningkatan kualitas lingkungan hidup
Konsolidasi Tanah memungkinkan penyediaan hunian yang layak, aman, dan sehat bagi masyarakat, sehingga meningkatkan kualitas lingkungan hidup mereka (Nur dan Sarwadi, 2021).
2. Efisiensi penggunaan lahan
Dengan melakukan konsolidasi, penggunaan lahan dapat dilakukan secara lebih efisien, baik secara vertikal maupun horizontal, mengurangi dampak lingkungan yang negatif.
3. Peningkatan aksesibilitas
Konsolidasi Tanah sering kali disertai dengan pengembangan infrastruktur yang lebih baik, seperti jalan, saluran air, dan fasilitas umum, yang meningkatkan aksesibilitas bagi penduduk.
4. Partisipasi masyarakat
Proses konsolidasi melibatkan partisipasi masyarakat dalam perencanaan dan pelaksanaan, yang dapat meningkatkan rasa memiliki dan tanggung jawab terhadap lingkungan (Nurlinda, 2011).
5. Pengelolaan Sumber Daya Alam
Dengan perencanaan yang baik, Konsolidasi Tanah dapat membantu dalam pengelolaan sumber daya alam secara berkelanjutan, termasuk pemeliharaan lingkungan hidup.
6. Pengurangan risiko bencana
Dengan meremajakan kawasan kumuh, potensi risiko bencana seperti banjir yang dapat diminimalkan melalui perencanaan tata ruang yang lebih baik.

Salah satu tantangan utama dalam penyediaan hunian adalah ketersediaan lahan yang terbatas (Nur dan Sarwadi, 2021). Karakteristik lahan yang bervariasi dan daya dukung lingkungan yang berbeda-beda menjadi faktor penting dalam menentukan strategi pengembangan.

Kolaborasi berbagai bidang keahlian, diharapkan menghasilkan solusi yang komprehensif dan berkelanjutan. Pendekatan interdisipliner ini memungkinkan pemahaman lebih mendalam tentang masalah yang kompleks, juga memfasilitasi pengembangan strategi inovatif (Halim, 2005).

Di Jawa Tengah, Kota Pekalongan menjadi salah satu simpul strategis jalur Pantai Utara karena lokasinya yang berada di pertengahan jalan antara Jakarta dan Surabaya di Pulau Jawa.

Kota Pekalongan berada di wilayah dataran rendah dengan ketinggian 0 – 2 meter di atas permukaan laut. Bentuk permukaan lahan yang relatif datar dengan kemiringan lereng antara 0 – 8% ini, menunjukkan bahwa tingkat gerakan tanah di Kota Pekalongan rendah dan rentan terhadap genangan khususnya pada wilayah pesisir Pantai Utara (Direktorat Konsolidasi Tanah dan Pengembangan Pertanahan, 2023). Selain itu, di wilayah tersebut juga rentan terjadi banjir rob yang dapat terjadi setiap hari tanpa tergantung musim.

Selain sebagai kota pesisir, Kota Pekalongan juga memiliki berbagai bangunan *heritage* sejak era kolonial Belanda, yang terbanyak berlokasi di Kelurahan Pekalongan Utara, khususnya Kawasan Jetayu (Hendro dan Sari, 2018).

Dalam sejarahnya, Kampung Bugisan merupakan tempat berlabuhnya kapal-kapal Suku Bugis dari Makassar pada saat melakukan transaksi perdagangan. Hal ini didukung oleh keberadaan Kampung Bugisan yang terletak di hulu Kota Pekalongan, yang kemudian berkembang dan dinamai “Kampung Bugisan” hingga saat ini. Kampung Bugisan kini termasuk di dalam area kumuh sesuai dengan SK Walikota Pekalongan No. 430/1131 Tahun 2020 tentang penetapan lokasi perumahan kumuh, seluas 9,51 hektar, dengan kavling rumah tangga sebanyak 246 unit, 326 KK dan 1150 jiwa penduduk (Pemerintah Daerah Tingkat II Pekalongan, 2020). Mata pencaharian masyarakatnya sebesar 99% di sektor informal. Gambaran umum Kampung Bugisan terdapat di tabel 1.

Tabel 1. Gambaran umum lokasi Kampung Bugisan

Aspek	Keterangan
Batasan Area	RW 001, RT 1-5
	Luas Total: 9,51ha
Kependudukan	Jumlah kepala keluarga: 326
	Jumlah jiwa: 1150
	Kepadatan penduduk: 120 jiwa/ha
	Penduduk berdasarkan pekerjaan: Dominan pekerja sektor informal

Aspek	Keterangan
Bangunan	Bangunan di bantaran sungai: 150 unit
Lahan dan Legalitas	Surat Hak Milik (SHM)
Fasilitas Umum dan Fasilitas Sosial	Fasilitas peribadatan: 2
	Fasilitas olahraga: 1
	MCK umum: 2

Sumber: Olahan data pribadi, 2022

Area wilayah delineasi Konsolidasi Tanah terlihat di gambar 1.

Gambar 1. Lingkup kawasan penataan dan area penggunaan lahan Kampung Bugisan
Sumber: Olahan data pribadi, 2022

Permasalahan kondisi eksisting lingkungan pada area delineasi, dapat dilihat di gambar 2.

Gambar 2. Permukiman Kampung Bugisan
Sumber: Dokumentasi pribadi, 2022

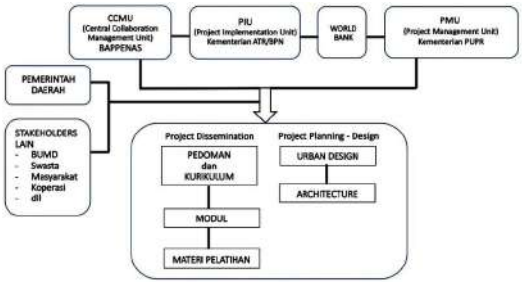
Permasalahan pada area Kampung Bugisan yaitu merupakan kawasan rawan banjir rob khususnya saat curah hujan tinggi dan air meluap dari sungai ke kawasan permukiman, prasarana lingkungan belum memadai seperti drainase, *supply* air bersih, pengelolaan sampah dan kurangnya ketersediaan toilet yang layak. Selain itu, terdapat kerusakan jalan dan pencemaran lingkungan yang mempengaruhi kesehatan.

Meskipun banjir rob adalah banjir akibat air pasang laut yang diakibatkan oleh perubahan iklim, kenaikan permukaan laut dan penurunan tanah di Kampung Bugisan menjadi faktor utama banjir rob terjadi setiap hari.

Kegiatan dan *Stakeholder*

Kementerian Agraria dan Tata Ruang Badan Pertanahan Nasional sebagai *Project Implementation Unit* (PIU) bekerja sama dengan *World Bank* menyelenggarakan Program Konsolidasi Tanah – Kota Tanpa Kumuh (KT-KOTAKU). Dalam pelaksanaannya, Kementerian ATR/BPN didukung oleh Bappenas sebagai *Central Collaboration Management Unit* (CCMU) dan Kementerian Pekerjaan Umum dan Perumahan Rakyat sebagai *Project Management Unit* (PMU) (Direktorat Konsolidasi Tanah dan Pengembangan Pertanahan, 2021).

Dalam proses perencanaan Konsolidasi Tanah, kontribusi Pemerintah Daerah dan seluruh *stakeholder* akan berkolaborasi untuk menghasilkan perencanaan terbaik (Nur dan Sarwadi, 2021). Kegiatan Program KT-KOTAKU ini, seperti Badan Usaha Milik Daerah (BUMD), swasta, masyarakat, koperasi, dll. Selain itu, dukungan dari berbagai pemangku kepentingan pengembangan kota juga memiliki kontribusi besar pada tahap implementasi strategi dalam mewujudkan Program Konsolidasi Tanah – Kota Tanpa Kumuh (KT-KOTAKU) di beberapa daerah (Direktorat Konsolidasi Tanah dan Pengembangan Pertanahan, 2023). dapat dilihat pada gambar 3.



Gambar 3. Kegiatan dan *stakeholder*
Sumber: Laporan Akhir O.S.P., Dukungan untuk KOTAKU, 2023

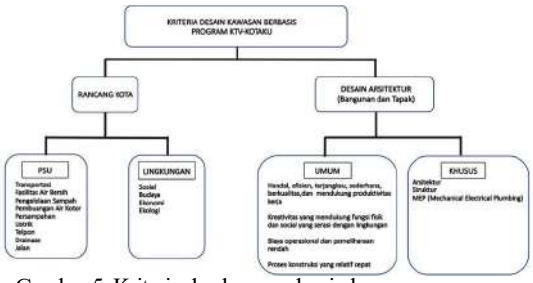
Regulasi dan pertimbangan desain

Kebijakan penanganan permukiman kumuh mengacu pada beberapa regulasi nasional dan pertimbangan dalam merencanakan kawasan. Regulasi nasional antara lain RTRW, RDTR, RTBL, UDGL yang menghasilkan regulasi spasial, struktur kota, dan morfologi kota. Pertimbangan dalam desain kawasannya berupa antara lain aturan penyelenggaraan Konsolidasi Tanah dan arah pengembangan dan penanganan hunian kumuh, seperti terlihat pada gambar 4.

Gambar 4. Regulasi dan pertimbangan desain kawasan
Sumber: Laporan Akhir O.S.P., Dukungan untuk KOTAKU, 2023

Kriteria dan Konsep Desain

Dalam penerapannya, perencanaan kota dan desain arsitektur menyesuaikan terhadap lingkungan setempat terkait dengan kondisi dan daya dukung lingkungan kawasan yang berkarakter khusus. Lingkungan kumuh kampung padat perkotaan, lingkungan kumuh padat daerah perkembangan ekonomi, dan lingkungan kumuh di area tepi air (sungai, danau, atau laut) akan memiliki perbedaan dalam solusi desainnya, seperti terlihat di gambar 5.



Gambar 5. Kriteria dan konsep desain kawasan
Sumber: Laporan Akhir O.S.P., Dukungan untuk KOTAKU, 2023

State of the Art

Kegiatan Konsolidasi Tanah merupakan kegiatan yang relatif baru dalam pelaksanaannya. Selain baru, keberhasilannya juga belum dapat dievaluasi seutuhnya di beberapa area di Indonesia, mengingat dampak Konsolidasi Tanah ini adalah jangka panjang. Situasi tersebut ditunjukkan dengan adanya beberapa panduan baru dan petunjuk teknis yang diterbitkan oleh Kementerian ATR/BPN, yang diawali dengan terbitnya Buku Profil Karakteristik Lokasi Potensi Konsilidasi Tanah Vertikal pada Tahun 2020.

Beberapa jurnal tentang Konsolidasi Tanah yang ditulis oleh Sitorus, O., Nurlinda, I., dan Wijaya, G. P. pada Tahun 2015, 2011, dan 2016 lebih merupakan ulasan teoritis secara umum tanpa studi kasus. Sementara Tahun 2021 Nur, Y., & Sarwadi, A. baru membahas tentang praktik Konsolidasi Tanah yaitu di Desa Gadingsari Kec. Sanden Kab. Bantul, DIY Yogyakarta di Jurnal Kebijakan Pertanahan.

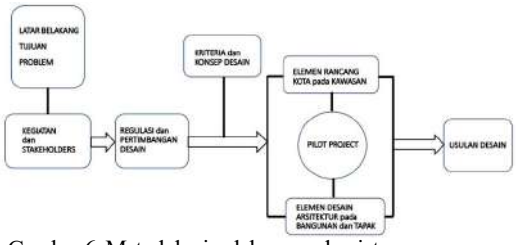
Metode Penelitian

Metode penelitian yang digunakan adalah kualitatif melalui analisis data umum dan khusus (Arnowo, H 2022), yang mencakup regulasi dan pertimbangan desain serta penentuan kriteria dan konsep desain. Fokus utama penelitian ini adalah pada Konsolidasi Tanah dan pengembangan peremajaan lingkungan permukiman kumuh di Kampung Bugisan, Kota Pekalongan.

Sesuai laporan akhir *Oversight Service Provider* Kementerian ATR/BPN Tahun 2023, Penyelenggaraan Konsolidasi Tanah mencakup serangkaian proses yang melibatkan studi kasus lapangan, analisis data sosial, ekonomi, dan fisik dari area yang terdampak (Direktorat Konsolidasi Tanah dan Pengembangan Pertanahan, 2023). Proses tersebut meliputi: Perencanaan, sosialisasi dan musyawarah, pengukuran dan penilaian, penguasaan tanah, pembangunan infrastruktur, pemanfaatan lahan, serta pemantauan dan evaluasi.

Pengumpulan data dilakukan melalui pengukuran lahan dan penilaian objek Konsolidasi Tanah, serta data yuridis terkait kepemilikan tanah. Selain itu, metode partisipatif juga diterapkan dengan melibatkan *stakeholder* utama seperti masyarakat, pemerintah daerah, dan lembaga internasional *(World Bank)*. Kajian kesesuaian tata ruang dan pengumpulan data sosial melalui survei dan wawancara juga dilakukan untuk relevansi solusi yang diajukan.

Latar belakang, tujuan, dan permasalahan melatarbelakangi adanya kegiatan dan *stakeholders* yang terlibat. Kemudian melalui analisis terhadap regulasi dan pertimbangan desain dengan menentukan kriteria dan konsep desain maka dihasilkan elemen rancang kota kawasan dan elemen desain arsitektur pada bangunan dan tapak. Elemen-elemen desain tersebut kemudian diterapkan di Kampung Bugisan Pekalongan sebagai Pilot Project untuk menghasilkan usulan desain yang menjadi bagian dari proses Konsolidasi Tanah, seperti terlihat di gambar 6.



Gambar 6. Metodologi pelaksanaan kegiatan
Sumber: Olahan data pribadi, 2022

Desain yang diusulkan lalu dikelompokkan dalam dua tahun, sebagai akibat proses perencanaan yang melibatkan kegiatan

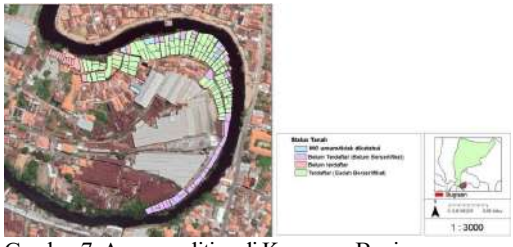
sosialisasi dan musyawarah dengan masyarakat penghuni di lokasi, yaitu:
- Usulan desain 2022
- Usulan desain 2023
Termasuk juga penataan infrastruktur Kawasan Bugisan.

Hasil dan Diskusi

Proses desain bersifat dinamis dan berkembang dari tahap awal di Tahun 2022 hingga mencapai hasil akhir yang mengalami beberapa perubahan desain di Tahun 2023. Usulan desain Tahun 2022 dan Tahun 2023 dibuat berdasarkan metode penelitian kualitatif dan proses dalam pelaksanaan Konsolidasi Tanah, yaitu perencanaan, sosialisasi dan musyawarah, pengukuran dan penilaian, penguasaan tanah, pembangunan infrastruktur, pemanfaatan lahan, pemantauan dan evaluasi.

Usulan Desain 2022

Area yang disurvei berada di RT 02, 03, 04, dan 05 di RW 01, Kelurahan Panjang Wetan, Kota Pekalongan. Lokasi ini diambil menjadi lokasi Konsolidasi Tanah karena adanya isu mengenai banjir rob yang kerap terjadi setiap hari dan berdampak langsung pada kenyamanan penduduk setempat. Area penelitian tersajikan di gambar 7.

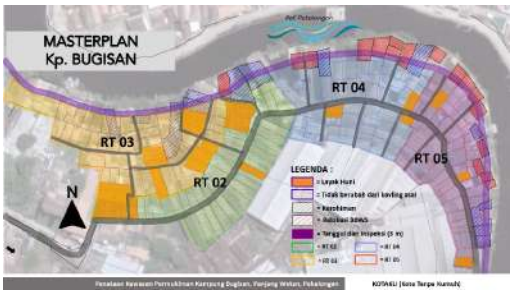


Gambar 7. Area penelitian di Kampung Bugisan
Sumber: Olahan data pribadi, 2022

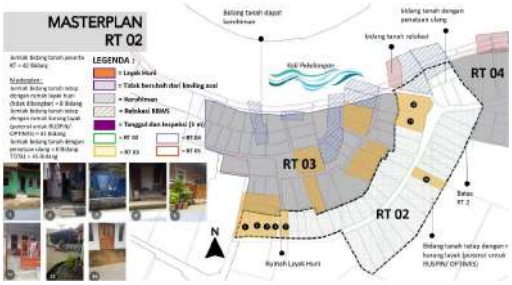
Berdasarkan survei yang telah dilakukan dan data dari Inventarisasi Penguasaan, Pemilikan, Penggunaan, dan Pemanfaatan Tanah (IP4T) yang telah dihimpun, dapat dihitung luasan tata guna lahan sebagai berikut:
a. Luas area setelah pelebaran sungai: 1,53 hektar (16% dari total luas Kampung Bugisan 9,5 hektar atau 39% dari total luas hunian Kampung Bugisan).
b. Luas area Garis Sempadan Sungai (GSS) 3 meter: 0,25 hektar. Di dalam area GSS terdapat: promenade/*inspection way* 2,5 meter, *pedestrian way*, dan Ruang Terbuka Hijau.
c. Luas area hunian: 1,53 hektar – 0,25 hektar = 1,28 hektar.
- Hunian 0,6 hektar
- *Pedestrian way* 0,15 hektar
- Ruang terbuka di dalam kavling 0,5 hektar.

Usulan Desain 2023

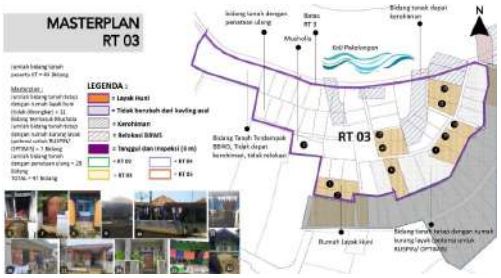
Berdasarkan kondisi eksisting, terjadi kendala pada pengukuran bidang lahan sehingga, *Masterplan* masih menggunakan data IP4T, seperti terlihat di gambar 8-12.



Gambar 8. Desain Konsolidasi Tanah awal 2023
Sumber: Olahan data pribadi, 2023

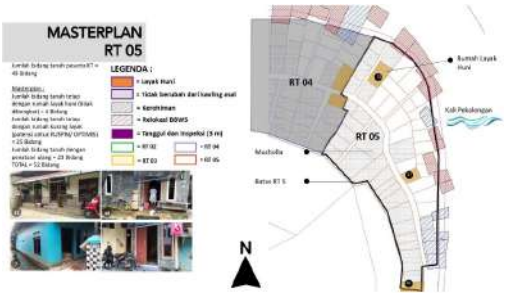


Gambar 9. Desain konsolidasi tanah RT 02 awal 2023
Sumber: Olahan data pribadi, 2023



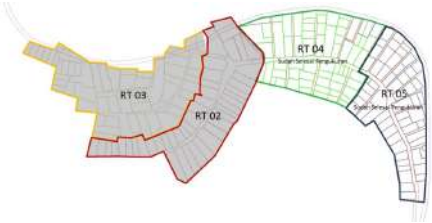
Gambar 10. Desain Konsolidasi Tanah RT 03 awal 2023
Sumber: Olahan data pribadi, 2023

Gambar 11. Desain Konsolidasi Tanah RT 04 awal 2023
Sumber: Olahan data pribadi, 2023



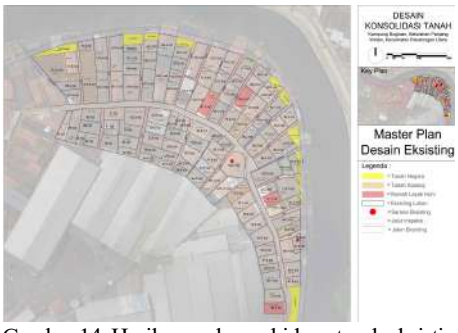
Gambar 12. Desain Konsolidasi Tanah RT 05 awal 2023
Sumber: Olahan data pribadi, 2023

Hasil pengukuran baru selesai dilakukan pada 2 RT dari 4 RT, yaitu pada RT 04 dan RT 05. Delineasi desain *masterplan* Konsolidasi Tanah Kampung Bugisan dirancang di 2 RT yang sudah selesai dilakukan pengukuran dengan jumlah bidang masing-masing adalah 62 bidang di RT 04 dan 51 bidang di RT 05 dengan jumlah total bidang 113 bidang. Luas area RT 04 adalah 5.777 m2 dan luas area RT 05 adalah 5.154 m2. Total seluruh luas delineasi perencanaan Konsolidasi Tanah adalah sekitar 10.931 m2. Hasil pengukuran menghasilkan 113 bidang lahan warga, yaitu 62 bidang pada RT 04 dan 51 bidang pada RT 05 dengan adanya 2 sarana eksisting yaitu mushola dan toilet umum terletak di RT 05. Hasil pengukuran untuk delineasi desain terlihat di gambar 13-14.



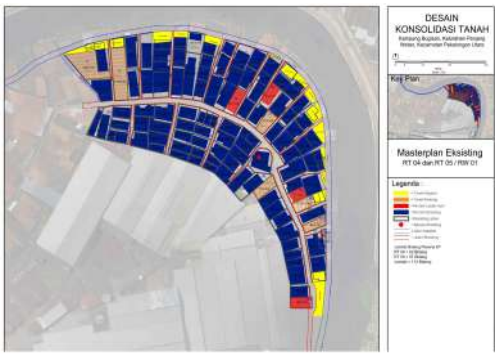
Gambar 13. Delineasi desain berdasarkan hasil pengukuran
Sumber: Olahan data pribadi, 2023

Pada 2 RT tersebut, berikut hasil pengukurannya:



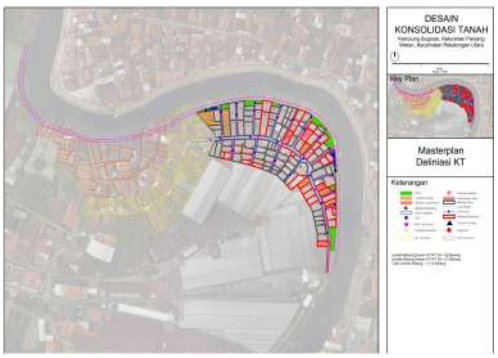
Gambar 14. Hasil pengukuran bidang tanah eksisting RT 04 dan RT 05
Sumber: Olahan data pribadi, 2023

Terdapat 4 bidang layak huni yang tersebar dan 6 bidang tanah kosong yang salah satunya adalah ditempati sebagai balai warga. Pada area disamping jalan inspeksi, terdapat beberapa lahan berstatus tanah negara yang dapat dimanfaatkan untuk kebutuhan ruang terbuka, seperti tersajikan di gambar 15.



Gambar 15. Hasil pengukuran bidang tanah dan rumah eksisting RT 04 dan RT 05
Sumber: Olahan data pribadi, 2023

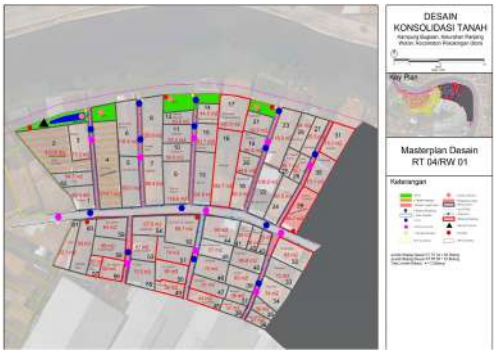
Delineasi awal perencanaan Konsolidasi Tanah adalah 4 RT yaitu RT 02, 03, 04 dan 05. Berdasarkan hasil pengukuran, hanya 2 RT yaitu RT 04 dan RT 05 yang telah selesai dilakukan pengukuran. Pada gambar berikut, *masterplan* desain tetap digambarkan secara utuh di 2 RT yang sudah dilakukan pengukuran, dengan menampilkan area RT yang belum selesai pengukuran, dengan menggunakan data IP4T pada RT 02 dan RT 03 seperti di gambar 16.



Gambar 16. Desain final Konsolidasi Tanah Kampung Bugisan RT 04 dan RT 05 Juni 2023
Sumber: Olahan data pribadi, 2023

Desain *masterplan* Konsolidasi Tanah di Kampung Bugisan, kelurahan Panjang Wetan, Kota Pekalongan ini mempertimbangkan hasil rembug warga yaitu tidak memindahkan bidang lahannya agar tetangga antar rumah tetap sama, seperti terlihat di gambar 17-19.

Gambar 17. Desain Konsolidasi Tanah Kampung Bugisan RT 04 dan RT 05 Juni 2023
Sumber: Olahan data pribadi, 2023

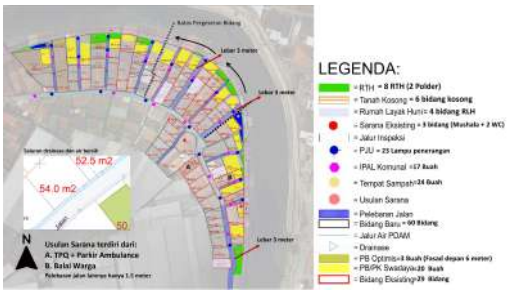


Gambar 18. Desain Konsolidasi Tanah Kampung Bugisan RT 04 Juni 2023
Sumber: Olahan data pribadi, 2023

Gambar 19. Desain Konsolidasi Tanah Kampung Bugisan RT 05 Juni 2023
Sumber: Olahan data pribadi, 2023

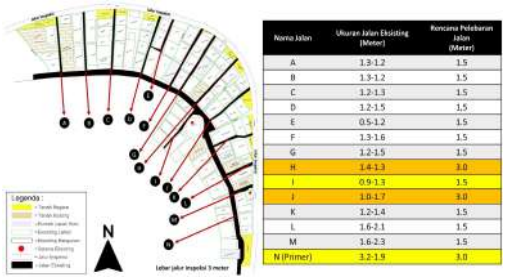
Penataan Infrastruktur Kawasan Bugisan

Selain usulan desain Tahun 2022 dan 2023, infrastruktur di Kampung Bugisan juga direncanakan dengan berorientasi kepada penanganan area banjir rob di Pekalongan. Perencanaan perletakan kolam retensi dan pompa menjadi pertimbangan sebagai upaya penanganan permasalahan banjir rob di Kampung Bugisan, dengan konsep pergeseran lahan, sehingga memaksimalkan ruang dengan menutup saluran yang sudah tidak berfungsi dan menjadikannya sebagai jalan. Selanjutnya, adanya perencanaan pelebaran jalan pada jalan sekunder yaitu 1.5 meter untuk memudahkan akses kendaraan bermotor, dan jalan lingkungan 3 meter yang diharapkan dapat diakses oleh kendaraan roda empat, seperti pada gambar 20.



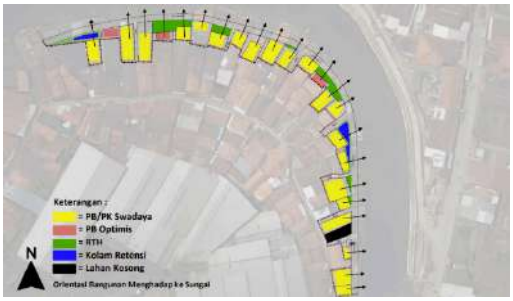
Gambar 20. Konsep penataan pergeseran bidang
Sumber: Olahan data pribadi, 2023

Konsep pelebaran jalan pada jalan di depan Masjid, membuat kesan *grand* pada lingkungan tersebut, juga dapat mudah dijangkau oleh kendaraan darurat menuju akses ke masjid. Pelebaran jalan di sisi yang lain, untuk mempermudah akses kendaraan melakukan manuver kendaraan roda empat. Konsep pelebaran jalan dapat dilihat pada gambar 21.



Nama Jalan	Ukuran Jalan Eksisting (Meter)	Rencana Pelebaran Jalan (Meter)
A	1.3-1.2	1.5
B	1.3-1.2	1.5
C	1.2-1.3	1.5
D	1.2-1.5	1.5
E	0.5-1.2	1.5
F	1.3-1.6	1.5
G	1.2-1.5	1.5
H	1.4-1.3	3.0
I	0.9-1.3	1.5
J	1.0-1.7	3.0
K	1.2-1.4	1.5
L	1.6-2.1	1.5
M	1.6-2.3	1.5
N (Primer)	3.2-1.9	3.0

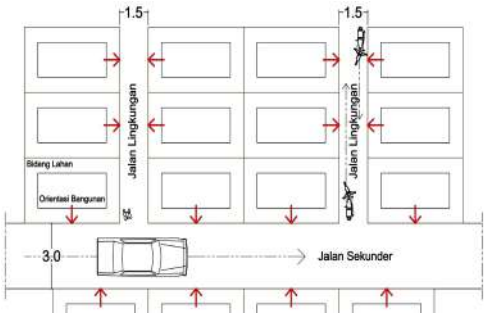
Gambar 21. Perbandingan lebar jalan eksisting dan lebar jalan hasil desain
Sumber: Olahan data pribadi, 2023



Gambar 22. Konsep penataan hunian *waterfront*
Sumber: Olahan data pribadi, 2023

Seperti terlihat di gambar 21-24, hunian yang terletak di samping jalan inspeksi sungai, menerapkan konsep *waterfront* menggunakan Rumah Optimis, yaitu Omah Panel Tingkat Milik Sederhana yang berukuran panjang 6 meter dan lebar 3 meter dengan 2 lantai, luas

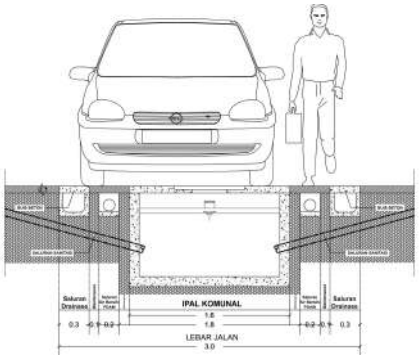
bangunan 32 m2. Hunian modular ini direncanakan lantai 1 adalah hunian dan lantai 2 adalah fungsi komersial sehingga, dapat meningkatkan perekonomian sekitar. Konsep *waterfront* mempertimbangkan perekonomian, juga memperhatikan *view* pada fasad bangunan dengan menghadap ke Sungai Loji.



Gambar 23. Konsep orientasi penataan hunian
Sumber: Olahan data pribadi, 2023

Penataan bidang mengoptimalkan orientasi hunian dengan tidak ada lagi bidang yang terapit oleh dua jalan, sehingga meminimalisir kekumuhan dengan saling membelakangi dan setiap rumah berorientasi menghadap ke jalan.

Lebar jalan lingkungan 3 meter direncanakan agar tidak memotong lahan warga terlalu banyak. Saluran eksisting direncanakan ditutup dengan buis beton, sehingga lebar jalan menjadi lebih efisien seperti terlihat pada gambar 24.



Gambar 24. Konsep utilitas
Sumber: Olahan data pribadi, 2023

Persentase Luas Bidang Konsolidasi Tanah

Luas bidang eksisting, dibandingkan dengan luas bidang hasil desain Konsolidasi Tanah mengalami perubahan yang dapat dilihat di tabel 2 dan tabel 3.

Tabel 2. Persentase perubahan luasan bidang RT 04

No	Nama Bidang	RT	Status Hak	Luas Bidang Eksisting (m2)	Luas Bidang Setelah Desain (m2)	Luas Bidang Terpotong (m2)	Persentase Pemotongan Lahan (%)
1	Bidang ke 1	4	Milik	61.2	60.4	0.8	1.31%
2	Bidang ke 2	4	Milik	211.5	210.6	0.9	0.43%
3	Bidang ke 3	4	Milik	77.5	75.2	2.3	2.97%
4	Bidang ke 4	4	Milik	217.5	214.1	3.4	1.56%
5	Bidang ke 5	4	Milik	104.3	102	2.3	2.21%
6	Bidang ke 6	4	Milik	120.4	118.4	2	1.66%
7	Bidang ke 7	4	Milik	101.2	99.4	1.8	1.78%
8	Bidang ke 8	4	Milik	131.2	128.9	2.3	1.75%
9	Bidang ke 9	4	Milik	118	116.6	1.4	1.19%
10	Bidang ke 10	4	Milik	55	54.5	0.5	0.91%
11	Bidang ke 11	4	Milik	57.7	57.4	0.3	0.52%
12	Bidang ke 12	4	Milik	39.9	39.8	0.1	0.25%
13	Bidang ke 13	4	Milik	107.3	104.9	2.4	2.24%
14	Bidang ke 14	4	Milik	45.3	44.5	0.8	1.77%
15	Bidang ke 15	4	Milik	62.7	61.7	1	1.59%
16	Bidang ke 16	4	Milik	180.7	180.7	0	0.00%
17	Bidang ke 17	4	Milik	108	108	0	0.00%
18	Bidang ke 18	4	Milik	62.5	60.3	2.2	3.52%
19	Bidang ke 19	4	Milik	51.6	50.6	1	1.94%
20	Bidang ke 20	4	Milik	45.9	44.6	1.3	2.83%
21	Bidang ke 21	4	Milik	56.3	56	0.3	0.53%
22	Bidang ke 22	4	Milik	110	108.9	1.1	1.00%
23	Bidang ke 23	4	Milik	118	118.9	-0.9	-0.76%
24	Bidang ke 24	4	Milik	110	108.9	1.1	1.00%
25	Bidang ke 25	4	Milik	37.3	35.7	1.6	4.29%
26	Bidang ke 26	4	Milik	37.3	36.1	1.2	3.22%
27	Bidang ke 27	4	Milik	57.1	54.8	2.3	4.03%
28	Bidang ke 28	4	Milik	57.1	54.8	2.3	4.03%
29	Bidang ke 29	4	Milik	84.7	84.7	0	0.00%
30	Bidang ke 30	4	Milik	73.1	73.1	0	0.00%
31	Bidang ke 31	4	Milik	78.2	78.2	0	0.00%
32	Bidang ke 32	4	Milik	83.8	83	0.8	0.95%
33	Bidang ke 33	4	Milik	72.8	72	0.8	1.10%
34	Bidang ke 34	4	Milik	76.3	74	2.3	3.01%
35	Bidang ke 35	4	Milik	32.2	30	2.2	6.83%
36	Bidang ke 36	4	Milik	28.9	27	1.9	6.57%
37	Bidang ke 37	4	Milik	37.2	36	1.2	3.23%
38	Bidang ke 38	4	Milik	33.3	32	1.3	3.90%
39	Bidang ke 39	4	Milik	63.6	63	0.6	0.94%
40	Bidang ke 40	4	Milik	65.8	66	-0.2	-0.30%
41	Bidang ke 41	4	Milik	34.2	34	0.2	0.58%
42	Bidang ke 42	4	Milik	26.5	26	0.5	1.89%
43	Bidang ke 43	4	Milik	25.5	25	0.5	1.96%
44	Bidang ke 44	4	Milik	91.5	90	1.5	1.64%
45	Bidang ke 45	4	Milik	57.6	57	0.6	1.04%
46	Bidang ke 46	4	Milik	72.6	72	0.6	0.83%
47	Bidang ke 47	4	Milik	57.6	57	0.6	1.04%
48	Bidang ke 48	4	Milik	69	64	5	7.25%
49	Bidang ke 49	4	Milik	38	38	0	0.00%
50	Bidang ke 50	4	Milik	66	66	0	0.00%
51	Bidang ke 51	4	Milik	74	74	0	0.00%
52	Bidang ke 52	4	Milik	102.8	98	4.8	4.67%
53	Bidang ke 53	4	Milik	67	67	0	0.00%
54	Bidang ke 54	4	Milik	71	71	0	0.00%
55	Bidang ke 55	4	Milik	78	75	3	3.85%
56	Bidang ke 56	4	Milik	50	50	0	0.00%
57	Bidang ke 57	4	Milik	26	26	0	0.00%
58	Bidang ke 58	4	Milik	68	68	0	0.00%
59	Bidang ke 59	4	Milik	44.4	44	0.4	0.90%
60	Bidang ke 60	4	Milik	99	98	1	1.01%
61	Bidang ke 61	4	Milik	62	62.1	-0.1	-0.16%
62	Bidang ke 62	4	Tanah Negara	55.4	54.7	0.7	1.26%
					Rata-rata persentase pemotongan lahan		1.64%

Sumber: Olahan data pribadi, 2023

Persentase perubahan luasan bidang di RT 04 pada 62 bidang adalah 1.64%.

Tabel 3. Persentase perubahan luas bidang RT 05

No	Nama Bidang	RT	Status Hak	Luas Bidang Eksisting (m2)	Luas Bidang Setelah Desain (m2)	Luas Bidang Terpotong (m2)	Persentase Pemotongan Lahan (%)
1	Bidang ke 1	5	Milik	67.4	60.9	6.5	9.64%
2	Bidang ke 2	5	Milik	71	65.2	5.8	8.17%
3	Bidang ke 3	5	Milik	40.2	37.5	2.7	6.72%
4	Bidang ke 4	5	Milik	71.4	67.2	4.2	5.88%
5	Bidang ke 5	5	Milik	76.9	76.2	0.7	0.91%
6	Bidang ke 6	5	Milik	90.5	90.5	0	0.00%
7	Bidang ke 7	5	Milik	56.4	56.4	0	0.00%
8	Bidang ke 8	5	Milik	73	71.1	1.9	2.60%
9	Bidang ke 9	5	Milik	91	86.9	4.1	4.51%
10	Bidang ke 10	5	Milik	46.8	45	1.8	3.85%
11	Bidang ke 11	5	Milik	29.5	28.7	0.8	2.71%
12	Bidang ke 12	5	Milik	58.2	58.2	0	0.00%
13	Bidang ke 13	5	Milik	48.6	48.6	0	0.00%
14	Bidang ke 14	5	Milik	64.1	64.1	0	0.00%
15	Bidang ke 15	5	Milik	80.5	68.5	12	14.91%
16	Bidang ke 16	5	Milik	57.6	54	3.6	6.25%
17	Bidang ke 17	5	Milik	53.7	52.5	1.2	2.23%
18	Bidang ke 18	5	Milik	65.5	63.6	1.9	2.90%
19	Bidang ke 19	5	Milik	60.3	60.3	0	0.00%
20	Bidang ke 20	5	Milik	19.2	19.2	0	0.00%
21	Bidang ke 21	5	Milik	37.4	36.7	0.7	1.87%
22	Bidang ke 22	5	Milik	63.3	61	2.3	3.63%
23	Bidang ke 23	5	Milik	61.8	61.1	0.7	1.13%
24	Bidang ke 24	5	Milik	61.6	59.8	1.8	2.92%
25	Bidang ke 25	5	Milik	68.2	66	2.2	3.23%
26	Bidang ke 26	5	Milik	85.4	82.5	2.9	3.40%
27	Bidang ke 27	5	Milik	125.1	125.1	0	0.00%
28	Bidang ke 28	5	Milik	120.3	117.8	2.7	2.24%
29	Bidang ke 29	5	Milik	54.4	53.7	0.7	1.29%
30	Bidang ke 30	5	Milik	55.2	53.7	1.5	2.72%
31	Bidang ke 31	5	Milik	116.7	115	1.7	1.46%
32	Bidang ke 32	5	Milik	79.1	79.1	0	0.00%
33	Bidang ke 33	5	Milik	78.2	78.2	0	0.00%
34	Bidang ke 34	5	Milik	74.6	74.6	0	0.00%
35	Bidang ke 35	5	Milik	57.1	57.1	0	0.00%
36	Bidang ke 36	5	Milik	71.3	71.3	0	0.00%
37	Bidang ke 37	5	Milik	84.2	84.2	0	0.00%
38	Bidang ke 38	5	Milik	94.6	94.6	0	0.00%
39	Bidang ke 39	5	Milik	62.3	62	0.3	0.48%
40	Bidang ke 40	5	Milik	60.8	60.8	0	0.00%
41	Bidang ke 41	5	Milik	96.4	96.4	0	0.00%
42	Bidang ke 42	5	Milik	47.6	46.2	1.4	2.94%
43	Bidang ke 43	5	Milik	40.8	39.5	1.3	3.19%
44	Bidang ke 44	5	Milik	89.1	86.5	2.6	2.92%
45	Bidang ke 45	5	Milik	89.1	89.1	0	0.00%
46	Bidang ke 46	5	Milik	73.3	73.2	0.1	0.14%
47	Bidang ke 47	5	Milik	86.3	86.3	0	0.00%
48	Bidang ke 48	5	Tanah Negara	50.9	50.9	0	0.00%
49	Bidang ke 49	5	Tanah Negara	37.9	37.6	0.3	0.79%
50	Bidang ke 50	5	Tanah Negara	27.8	27.8	0	0.00%
51	Bidang ke 51	5	Tanah Negara	8.6	8.6	0	0.00%
					Rata-rata persentase pemotongan lahan		2.07%

Sumber: Olahan data pribadi, 2023

Persentase perubahan luasan bidang lahan di RT 05 RW 01 pada 51 bidang adalah 2.07% pemotongan lahan. Jadi, persentase pemotongan lahan pada desain adalah sekitar 2% dari luas lahan eksistingnya. Berikut *blowup* luasan bidang eksisting dan luasan bidang desain Konsolidasi Tanah, terlihat di gambar 25.

Gambar 25. Contoh perubahan luasan bidang
Sumber: Olahan data pribadi, 2023

Kesimpulan dan Saran

Program ini berhasil menerapkan konsep Konsolidasi Tanah yang komprehensif dengan pendekatan berkelanjutan di kawasan perkotaan yang kumuh. Melalui kolaborasi antara pemerintah pusat, pemerintah daerah, masyarakat, dan pihak swasta, program ini mampu meningkatkan kualitas lingkungan hidup di kawasan kumuh serta memperbaiki tata ruang kota. Selain itu, pendekatan partisipatif dan penggunaan teknologi modern dalam desain arsitektur dan tata kota juga memungkinkan tercapainya solusi jangka panjang yang berkelanjutan.

Penelitian ini sekaligus memberikan gambaran proses usulan desain yang menyesuaikan kondisi eksisting, data, serta arahan dari berbagai *stakeholder* terlibat termasuk partisipasi masyarakat. Perubahan desain yang terjadi telah dikomunikasikan kepada semua pihak dan digunakan sebagai dasar dalam pendekatan ke masyarakat untuk mendapatkan kesepakatan.

Hasil penelitian ini juga akan menjadi salah satu dasar dalam pelaksanaan proses Konsolidasi Tanah dan penataan hunian yang berbasis kepada kepentingan masyarakat yang tentunya tetap terbatasi oleh berbagai peraturan, undang-undang, dan keputusan. Dengan berbagai arahan dan batasan desain, diharapkan tetap dapat menghasilkan lingkungan yang sehat, baik, aman dan berkelanjutan.

Berikutnya, usulan desain tersebut diharapkan dapat digunakan untuk pelaksanaan pembangunan yang nantinya akan lebih jelas dan terukur. Selain itu, keterlibatan masyarakat dalam pengambilan keputusan pelaksanaannya tetap menjadi prioritas dalam proses Konsolidasi Tanah selanjutnya yang juga melibatkan *stakeholder* terkait. Untuk itu, semua masukan dan saran dari berbagai pihak terlibat dalam pengembangan dan penataan hunian di Kampung Bugisan Pekalongan di Jawa Tengah ini masih dibutuhkan, agar pelaksanaan program Konsolidasi Tanah yang telah direncanakan dapat berjalan dengan baik.

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