



The Challenge of Slum Upgrading Plan in Urban Area: A Case Study of Dirgahayu Village, Kotabaru, Indonesia

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Abstract. Dirgahayu village is acknowledged as a slum coastal neighborhood and considered visually damaged the urban area of Kotabaru. This urban village is included in the current local planning priority through stack house program. On the other hand, there are some resistances from the locals regarding this program. This study aims to focus on the challenge of slum settlement upgrading in urban area, and attempts in arranging basic strategy for upgrading plan. Slum settlement in Dirgahayu village were assessed through series of field survey, observations and interviews. Strategies for upgrading plan were drawn based on the findings with SWOT analysis. Challenges in upgrading slum settlements mainly come from sociocultural aspects. Around 24% of the local rejected the idea of stack house for physical upgrading plan, while 76% accepted the program. Community involvement is a crucial preliminary program. Row house shall be considered as another scenario, aside from stack house. Socialization and education about livable neighborhood should be the first strategy priority in slum upgrading plan through community approach, especially in Kotabaru.

Keywords: Slum Settlement Upgrading, Sociocultural Aspects, Community Involvement

1 Introduction

Slum area has been a significant problem in any city in the world as a result of urbanization. In developing countries, urban poor communities generally often choose to live in the outskirts of urban area or around urban perimeter. This condition has made urban area continuously interfered with large portion of poverty, high density of informal settlements, deterioration of urban environment [1]–[3]. Besides that, other social-economic problems often arise, as well as number of unemployment and crimes. This situation will lead to huge number of housing backlogs [3], [4].

Even though all slum areas may never be the same, however there are some specific similarities to its homogenous character. Many poor families have to live in a very small living space in informal settlements which is extremely overcrowded. These kind of settlements have no access to clean water and sanitation, in addition to limited access to other important infrastructures like roads and other facilities like hospital, school or other public spaces. Therefore, slum area always been a great challenge for any city in

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the world, especially developing countries [5], [6] like Indonesia. According to report of World Bank, the “squatter and slum upgrade” approach for enhancing the living conditions in existing slums [7] can be done by providing public amenities and improving public spaces, streets and infrastructures.

Limited studies have proposed concrete suggestions and evaluation, approach or concepts in handling slum area without providing sufficient standards for solving the slum problem. Most of the studies discuss about the challenge in social approach [1], [5], [8], [9] in terms of implementing slum upgrading program. Some studies argues about the importance of physical upgrading plan in slum area due to the lack of significant improvement in poverty aspects [8]. Long term and indirect impact seems to be the most significant outcomes from physical slum upgrading plan on health [10], [11], improvement in economic and socio-cultural aspects and creating a more liveable built environment.

South Kalimantan still has slum areas. Kotabaru regency is one of the area in South Kalimantan which has a large amount of slum areas. The Decree of Kobabaru Regent No. 188.45/550/KUM/2020 regarding the priority of handling squatter areas and traditional settlements stipulates that Dirgahayu District is one of seven villages, which is a coastal area in Pulau Laut Utara District [12]. The local Government of Kotabaru focused that resettlement is considered as the fastest way to handle slum area. Hence, the current Kotabaru Regency planning priority upgrading program enlisted stack house program for resettlement plan [13], [14]. However, according to some research there are some domino effect caused by resettlement, such as the lack of compensation fee and no assistance from the local government. Other side effect is the loss of liveability in community, as well as economic problems. Therefore, this study aims to focus on identifying the challenge of slum settlement upgrading plan in urban area of Kotabaru, and attempts in arranging basic strategy for upgrading plan for Dirgahayu village.

2 Methodology

This research was conducted in Dirgahayu village, Pulau Laut Utara districts, Kotabaru Regency. To identify existing condition of slum areas in Dirgahayu village, this research conducted some investigation for data collection through series of field survey, observations and interviews. These activities were done between June-August 2022 and divided into two stages. First stage of data collection consists of general identification of slum neighborhood. Figure 1 shows that the study area was limited to three neighborhoods, which are RT.17 (3,4 Acre), RT.21 (1,87 Acre), and RT.22 (2,06 Acre). These neighborhoods has been the main prioritize of Kotabaru Housing and Regional Settlement Office through principal program of resettlement. Field survey and observations were done to understand the basic characteristics of the inhabitants and their physical living conditions, including daily activities and interaction between neighbors.

At the same time, secondary data were collected from Kotabaru’s Local Government, Housing and Human Settlement Office, Government Tourism Office, Public Works and Spatial Planning Office, and other related government offices. Second stage of data collection was through questionnaire’s survey combined with in dept interview

based on 7 slum indicators, which are: building density; street; drinking water facility; drainage; utility facility; waste facility; and neighbourhood's fire protection. 648 head of households were taken as respondents. All of the respondents were the local people with various occupation, dominated by fishermen and those who work as labour, local sellers or other informal sectors. The three local chiefs together with several were asked for in-depth interview to frame the most significant situation in the village.

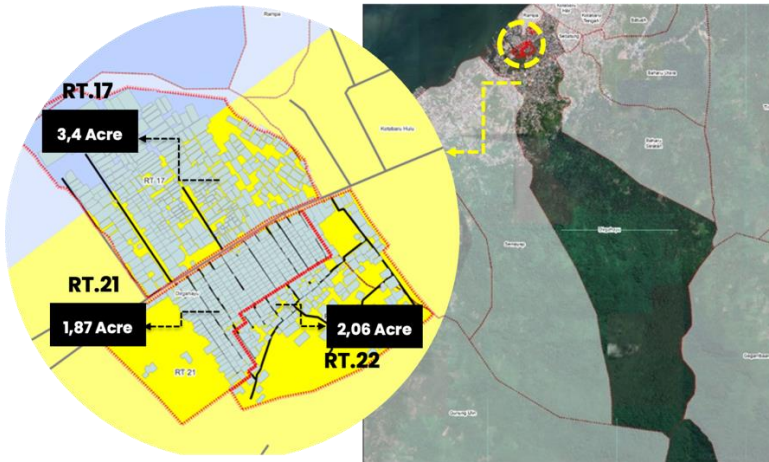


Fig. 1. Location of Research, Dirgahayu Village

The collaboration of data was done in August 2022 which then analyse from September to October 2022 to get total backlog, total residual income affordability, physical condition of slum areas using SWOT analysis. Finally in November 2022, conclusions and upgrading strategic plan were designed based on the findings.

3 Results

3.1 Slums in Dirgahayu Village

Dirgahayu village is located in Pulau Laut Utara District, Kotabaru Regency, South Kalimantan Indonesia. Around 53% or 62,45 Acre of total slum area in Kotabaru is located in Pulau Laut Utara district. There are seven slum areas in Pulau Laut Utara District, namely Rampa village, Dirgahayu village, Semayap village, Kotabaru Hulu village, Stagen village, Gunung Ulin village, and Sungai Taib village. Dirgahayu village was picked as a pilot project in 2020 by Kotabaru Government, under the supervision of Housing and Human Settlement Office. According to Kotabaru Regency's Spatial Plan, this district is located among Central Business District area as part of urban settlements zone.

The three neighborhoods in this research, RT.17, 21, and 22 in Dirgahayu village, are dominated by low-income local community (fishermen, peddler, local labour, small

trader, etc). These neighborhoods also well-known as barrack or shelter for the 1993's fire victim and has been continuedly transformed into an overcrowded slum area since early 2000s. Visually, the neighborhoods are not representing the image of urban area and the image of Kotabaru as a waterfront regency.

Fishery has been the main sector of Kotabaru's trading activity. Small wooden piers or harbour can be found everywhere as the place where the fishermen's boats dock and unload their catch. RT.17, 21 and 22 are located next to coastal area and surrounded by these small wooden piers. 70% of the residents work as fishermen. After big catch, they will turn the fresh fish into salted fish, a very popular food in Indonesia. These activities need large space, where the fish put together with salt, spread into rows and dried under the hot sun. Salted fish provides better income for the fishermen, because it has higher price than the fresh one.

Figure.2 (a, b and c) shows the informal settlements condition in Dirgahayu village. Built from wooden pile (non-permanent structure), the informal settlements were divided into several blocks and only left 60-80cm for circulation. Floor area ratio mostly are 100% and every house only has space around 40m² for one to three households which resulted an overcrowded living environment. With no drainage system and limited utility facility, the village is vulnerable to hazards like fire, flood, and earthquakes. No hydrant or other fire protection surrounds the neighbourhoods. Waste is collected manually, because the neighbourhood's temporary shelter are covered with garbage and has not been functioned normally for so many years. From seven slum indicators evaluated in the neighbourhood, result shows that RT.17, 21, and 22 are medium slum area, with the typology built above the sea and part of urban area.

In order to overcome this problem, the local Government of Kotabaru already built 1 unit of stack house consist of 42 households in 2020 (Figure 2 (d)). Nevertheless, this stack house was built far from the shore and cannot accommodate the whole population of the poor households in RT.17, 21 and 22. The locals who want to live in the stack house has to buy or pay for the unit's monthly rent. The cost of the stack house is too high and not affordable for the locals. Stack house also seems to be the most suitable plan for limited land, in this way the local also can have more green space as part of their living environment.

At the same time, this pilot project already faced other problems such as clean water and sanitation problem due to the city's limited clean water and sanitation network. The area has no drainage system which makes the first floor tenants always has to face frequent tidal flood. As a matter of fact, the limited available land for green space always come to a common problem for local settlements near the riverside [15], [16] or waterfront area which made the area to be more vulnerable to flood [17]and high tides. This condition already affecting the local perception towards effectiveness of stack house program.

Regarding this issue, due to the limited available land and budget, the local government of Kotabaru still feel the urgency to build more stack houses as resettlement plan to overcome slum problems in this area.



Fig. 2. Existing Condition in 2022 (a) RT.17 (b) RT.21 (c) RT.22 (d) Existing stack house in Dirgahayu village

3.2 Backlog and Local Perception Analysis Towards Stack House Plan

From the interviews and observation, it was concluded that all the informal settlements in Dirgahayu village have no legal housing certificate. The whole land where the informal settlements stand at the moment, are owned by South Kalimantan Provincial Government. Table 1 and Table 2 display backlog analysis and residual income affordability analysis. It can be seen that from total 648 head of households in Dirgahayu village have no standard formal settlements. The analysis shows a total of 100% house backlog and 648 non residual income affordability. This means that all of the local who lives in the research area are presumably will not be able to pay for the stack house unit's monthly rent. Their income and outcome averagely have same number. Some of the locals even have higher outcome number than their monthly income.

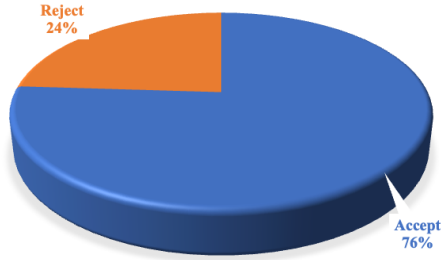


Fig. 3. Percentage of the Local's Reaction to the Stack House Program

The recap of the questionnaires and interviews shows the local perception towards the stack house plan. Fig. 3 shows the total percentage of the local's reaction. Around 76% of local people accept and 24% are reluctant to accept the stack house program. The locals who already resistant against the resettlement plan, even more surprised when they were asked about the stack house program. They think that the local Government never want to listen to their opinion and ideas. For the locals, the stack house program is merely a subjective resettlement program from Kotabaru Government.

Table 1. Backlog Analysis

		Sub-District			Total Backlog
		Dirgahayu	Dirgahayu	Dirgahayu	
Neighborhood (RT)		17	21	22	-648
Total Area (km ²)	(a)	3,4	1,87	2,06	
Population	(b)	808	883	301	
Total Households	(c)	308	248	92	
Ratio	(d)=(b)/(c)	2,62	3,56	3,27	
Density	(e)=(b)/(a)	237,65	472,19	146,12	
Settlements (unit)	(f)	0	0	0	
Backlog Analysis (Unit)	(g)=(f)-(c)	-308,00	-248,00	-92,00	

Source: Analysis, 2022

Table 2. Residual Income Affordability Analysis

Sub-District	Community Association (RT)	Number of Low-Income Households	
		Affordable	Not affordable
Dirgahayu	17	0	308
Dirgahayu	21	0	248
Dirgahayu	22	0	92
Total Residual Income Affordability			648

Source: Analysis, 2022

According to the local, the multi storey building plan always seems to be a major threat for their livelihood environment. Some of the local feels anxious to live in more than 2 storey houses because of the height. The locals who are Muslim, also reluctant to live at 3rd or 4th floor of the stack house due to the problems they might face if there is one of their communities' deceases in the future, it will be hard for them to held the funeral based on Muslim belief and procedure. The elders and families with children also reluctant to live in the stack house. Moreover, the local who are fishermen need more space for their fishery activities, such as open space for drying fresh fish to produce salted fish. They also need small pier to dock their boats regularly, considering boats as their main vehicles.

During in-depth interview, the local people of RT.17, 21, 22 shows their willingness for resettlement. Behind their anxiety towards stack house program, they also aware that the slum area can never be a liveable environment. They also dreamed of a better living space with good utilities and public facilities.

3.3 Strategy for Upgrading Plan

From the findings, it can be identified that 648 households are currently living in the slum area. The neighbourhoods are facing economic problems, not to mention other social and environmental problems. Strategies for upgrading plan were drawn based on the findings with SWOT analysis which can be seen in Table 3. The slum area has strength as it is located near Central Business District, which means there are a lot of public facilities surrounding the area. It is clear that there are a lot of weaknesses that need to be solved, such as no residual income affordability from the locals, and limited access to clean water and sanitation. Even though the local Government of Kotabaru very much aware to implement the stack house program, they also have to face high budget, caused by large number of backlogs.

Based on IFAS-EFAS analysis, Dirgahayu village belongs to quadrant 1, which needs growth-oriented strategy. Therefore, Kotabaru local government needs to acknowledge its current and future challenges in order to propose upgrading strategic plan. Stack house program can be one of the scenarios for slum problems because it is considered to be the most suitable plan for Dirgahayu village. The proposed strategic upgrading plan are:

- a. The Government need to integrate physical, economic, institutional, and sociocultural dimensions in promoting stack house or other physical upgrading program as the solution for slum area.
- b. Economic activities, fishery neighborhood should be revived in response to the local culture of the locals.
- c. The physical plan should focus on what the local needs while creating an opportunity by modernizing physical infrastructures.
- d. Kotabaru Government need to establish a strategic financial scheme and income-generating programs.

Table 3. SWOT (IFAS-EFAS) Analysis

	Items	Weight	Rat- ing	Score	Total	
IFAS- Strength	Local people of RT.17. 21. 22 are willing for resettlement	0.136	5	0.682	2.136	1.341
	Site is located in a very strategic urban neighborhood. center of the city.	0.091	4	0.364		
	Surrounded by many facilities	0.136	5	0.682		
	Land is owned by South Kalimantan Government	0.136	3	0.409		
IFAS- Weakness	Some of the locals refuse/reluctant for resettlement idea	0.091	1	0.091	0.795	
	The locals cannot afford to pay for stack house rent in the future	0.136	2	0.273		
	Site location faces flood risk. limited drainage and limited clean water access	0.091	1	0.091		
	Large Backlog number is not equal with the residual income affordability	0.136	2.5	0.341		
EFAS- Opportunity	Local Governments are committed for upgrading plan implementation	0.5	3	1.5	1.5	0.75
EFAS- Threats	Limited budgeting for upgrading plan	0.5	1.5	0.75	0.75	

Source: Analysis, 2022

4 Discussion

The challenge in upgrading informal settlements in Kotabaru comes from various causes. Overall, 76% of local people reluctant to stack house program. After doing in depth interview, the local people of RT.17, 21, 22 actually are willing for resettlement but there are some conditions regarding their will. First, they cannot afford to pay stack house rent. Therefore, if the local government are willing to make resettlement program through stack house success in the future, a specific approach will be needed. Second, the locals gave idea of row house scenario, because in their opinion, row house is far much comfortable to live. They will not be scared of the height effect, and it will provide more privacy than the stack house. The problem with this idea is from the legibility of the land and backlog analysis there are limited land ready for row house.

Row house usually designed only for one storey house and will need more space, maybe around ten times than land needed for stack house. Another possibility is row housing village, where the buildings build in two storey. This concept is effective for commercial zone where the first floor can function as commercial use, and the second floor as housing zone. Best practice of this row housing village can be found in Jakarta [18]. This concept need further assessment to be implemented in the case of Dirgahayu

village. If the local government considering this idea, it means the local Government will need to find other land possibilities for resettlement.

Therefore, if the local government still stimulate the stack house program, there are some possible physical and non-physical upgrading strategy divided by short-middle and long term plan. The non-physical upgrading plan need to be implemented before starting the physical upgrading strategy, which should include in short and middle term plan. The government needs to create an enabling environment where the cost of housing can be reduced and income generation can equally be increased, so that low-income community can conveniently afford the stack houses.. As been discussed in several previous research, The local government also need to examine the current housing policy to assess[5], [19], [20] and differentiate their prioritize. For physical upgrading program as the long term plan, the masterplan of the stack house will need to accommodate the need of local people, such as by providing harbour and open space for the fishery activities.

5 Conclusion

The challenge of slum upgrading plan in urban area mostly comes from social aspects, which need special approach to the local community. The final goal of slum upgrading plan is to create a better and liveable living environment for the local community, hence the local are the main subject who will experience the outcomes of the plan. A liveable built environment may affect the local's quality of life, as well as their economic activities and socio-cultural aspects. Upgrading infrastructures shall come together with the socialization of the upgrading plan to the local.

Future research of the slum upgrading program should be focused on the sustainable approach in providing affordable housing for the low-income community. Socialization and education about liveable neighborhood should be the first strategy priority in slum upgrading plan through community approach. This research shows that, the lack of local people knowledge about a healthy and liveable neighborhood may affect their judgement towards any slum upgrading program.

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