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ANALYSIS OF THE HABITABILITY OF PELAMBUAN RESIDENTIAL AREA, WEST BANJARMASIN

西班嘉马辛檳城住宅区的宜居性分析

Erika Zeannyta *, Aqli Mursadin

Faculty of Engineering, Lambung Mangkurat University Banjarmasin, South Borneo, Indonesia,
erika.zeannyta@gmail.com, a.mursadin@ulm.ac.id

Abstract

One of the residential areas that have a densely populated settlement is Pelambuan Village, West Banjarmasin. Pelambuan Village is a slum area with medium and low categories. Rapid population growth also affects the growth of illegal residential buildings on land that is not privately owned. From several settlement conditions formed in Pelambuan Village, it is necessary to analyze residential buildings and settlement areas formed based on three physical aspects: building, environmental, and legal aspects. This study aimed to determine the factors that affect habitability and degradation of environmental quality and perform analysis to determine a treatment plan that needs to be taken for occupancy and problematic areas occupancy can meet the requirements habitability. Analysis and distribution of questionnaires provided several factors that affect the decline in the quality of habitability of buildings and residential areas. From the building aspect, it was found that what caused the residential building to be declared quite feasible with repairs was the condition of the building, which was quite good. However, it needed repairs to several building components, and on the environmental aspect, the factors that made the Pelambuan residential area decreased in quality were the irregularity of the building and inadequate infrastructure. In legality, the problem factor is buildings that stand illegally on the company and government land. Research results are given based on aspects that include, for the building aspect is the addition, repair, and change of the appearance of the building. It is planned to repair, procure, and replace parts of roads in the environmental aspect. It is planned to tighten supervision on licensing and supervision of building construction.

Keywords: Slums, Densely Populated Settlements, Building Aspects, Environmental Aspects, Legality Aspects

摘要 西班嘉马辛的击剑村是人口稠密的居住区之一。人口的快速增长也影响了非私有土地上非法住宅建筑的增长。从百兰布安村形成的几个聚落条件，有必要从三个物理方面来分析形成的住宅建筑和聚落区：建筑、环境和法律方面。该研究时间确定影响宜居性和环境质量退化的因素，并

进行分析以确定需要采取的处理计划，以及入住问题的区域是否可以满足宜居性要求。调查问卷的分析和分发提供了影响建筑物和居民区宜居质量下降的几个因素。从建筑方面来看，之所以说这栋住宅楼可以修，是因为楼房的状况，相当不错。然而，它需要维修几个建筑部件，在环境方面，导致百兰布安住宅区质量下降的因素是建筑不规则和基础设施不足。在合法性上，问题因素是在公司和政府土地上非法竖立的建筑物。研究结果是基于包括的方面给出的，因为建筑方面是建筑物外观的增加、修复和改变。计划在环境方面修复、采购和更换部分道路。拟加强建筑施工许可监管监管。

关键词: 贫民窟、人口稠密的定居点、建筑方面、环境方面、法律方面

I. INTRODUCTION

A. Research Background

This research study is located in the Pelambuan settlement, West Banjarmasin, Banjarmasin City. Research object on This research is the condition of residential buildings and residential area environment with limitations using three physical aspects, namely aspects of building, environmental and legal aspects. At Banjarmasin Post, in 2015, 549.7 hectares of land were identified as slums, with 40 percent of them being the slum area formed in riverbanks [1]. The growth of the area formed on the banks of the river impacts the narrowing of the existing river. From the arrangement of this land area, it can be concluded that the development of buildings on the river banks is very rapid. The growth of residential buildings on the river banks is also balanced with the growth of buildings located on land. One of the residential areas experiencing development is the region Pelambuan, West Banjarmasin. In RPIJM year 2017-2021, the Pelambuan area is a priority area with the main function as an industrial area; however, it grows into a housing region. Trade and services and industry with a Local Activity Center (PKL) [2]. The original settlement from an ideal residential area turned into a densely populated settlement which tends to be unhealthy because the more increase in population living in an area with a limited area [2].

Pelambuan residential area falls into the category of residential area slums in the Mayor's Decree Banjarmasin No. 460 of 2015 About Determination of the Location of City Slums Banjarmasin with the category of medium slum and low slum category with a total of 9 RTs with Moderate slum level and 4 RT with Mild slum level with an area of 6.98 Ha [3]. The Pelambuan area, originally designated as an industrial area supported by the Trisakti port, turned into a residential area because the industry was not running properly. This is due to the industrial

area not being fully utilized by investors due to a lack of promotion and information about the potency area. Figure 1 shows the Pelambuan area with distribution locations slum settlements with Low criteria, Medium, and High.

Figure 1. Map of Pelambuan residential area, West Banjarmasin (Identification of Slums in the 2015 Mayor's Decree)

These problems are the background behind analyzing the habitability of both the building and the residential environment. This case does for know the condition of residential buildings and the environment in terms of feasibility and quality. Pelambuan residential area will be analyzed based on three physical aspects: building, environmental, and legality. Building aspects review construction used, the physical condition of the building, lighting in buildings, indoor ventilation buildings, and building health includes the spatial condition of the intended building to analyze the habitability of the building housing in settlements in the Village ambush. Build quality housing formed affects the environment surrounding settlements, where the quality bad residential buildings affect the appearance of the settlement environment formed. The view of residential buildings seen on environmental display can be seen in Figure 2.

Figure 2. Settlements in Pelambuan (Personal documentation)

Environmental aspects review network roads, pavement used, public sanitation, drainage, and waste management used. Environmental review can conclude whether the area of these settlements falls into the category of slum areas or not. Aspect legality review of building ownership and land ownership based on the letter of legal ownership and government policy based on Regional Regulations, Ministerial Regulations, and RTRW Banjarmasin City. The choice of legality aspect analysis because irregular settlement growth tends to build residential buildings in the land that is not owned or not owned by company-owned land for workers. The legal aspect will determine the building and environmental areas receiving treatment.

B. Formulation of the Problem

The problem formulation in this research is:

1. How are residential habitability buildings in the Pelambuan area in terms of building, environmental, and legality?

2. What is the management plan so that the residential area can reach habitability based on the aspects of the building, environment, and legality?

II. OVERVIEW OF STUDY

A. Overview of Building Aspects

The building aspect is an aspect that reviews building density, quality building, building floor coefficient, health, and building comfort. On review building density, an assessment will be carried out allowable density adjust with local regulatory policies and density specificity. Apart from reviewing building density, it will also be reviewed in building quality. Building quality discussion will cover the physical condition of the building, which includes the type of construction used, material, the physical condition of the building, and durability building. Review based on the aspect of the building will also determine whether it is livable or not a building. Apart from seeing from habitability, the building will also be determined can be categorized as slums or not. Determination of the

criteria for a decent residential building occupancy was also taken from several agencies and written regulations such as Kimpraswil, Permenpera Year 2008, and other institutions [4]. In the Ministry of Public Works and Public Housing, by Kempen Kimpraswil No. 403/KPTS/M/2002 and Permenpera Number 22//Permen/M/2008 [4], explain some things that can be used considerations in creating a home livable as follows:

1) *Minimum Need for Health and Convenience*

One of the criteria for a livable house is in terms of health and occupant comfort. Lighting requirements, ventilation, air temperature, humidity, and the adequacy of the minimum area of housing space are the basic things to meet the criteria for livable housing. The lighting in question is lighting naturally from the sun inside the building. Air conditioning also takes effect towards healthy housing conditions and comfort. Comfort in the house can be obtained by natural ventilation through cross ventilation. Air temperature and humidity should match the temperature normal human body. Air temperature and humidity are greatly affected by ventilation and lighting.

2) *Secure and Safety Factor*

Once the house is safe, the utility electricity network, clean water network, and other utilities become other additions as livable housing complement. Every house at least has electricity from PLN 450VA minimum. The presence of a clean water network from PDAM or pump wells to be a consideration for home equipment comfortable living. Water requirements in the category suitable for consumption are that water is not cloudy, looks clear, odorless, and tasteless. Other than that, at least one bathroom and a latrine can be equipped with a septic tank inside or outside the house.

B. Overview of Environmental Aspects

Environmental aspects review the road network, type of pavement, drainage, waste management, residential environment infrastructure, and facilities other environmental supports. On review road network, an assessment of the types of the road is a network of main roads or roads secondary and examine the type of pavement used. In addition to reviewing the network road and pavement used, waste management and facilities supporting facilities such as schools, health centers, and other public facilities will also be studied. Environmental facilities support facilities that organize and develop economic, social, and social life culture. Some environmental health problems

relating to settlements and housing are as follows [5]:

1) *Provision of Facilities and Quality Control Clean Water*

There is still no clean water available in environmental and water quality that does not meet conditions for housing. Water quality enters the residential environment with Water quality of Questionable Safety. For settlements on the banks of rivers, use of river water as a water source. Water rivers used for toilets (bathing, washing, and outhouses) and cooking affect the quality of existing river water. River water quality is not very good and affects the health of the resident population.

2) *Garbage and Wastewater Disposal*

Disposal of garbage in settlements is generally inadequate due to lack of transportation facilities, landfills (TPA) which is far away, lack of cost, system transportation, unhygienic disposal, and lack of public awareness. The problem is the disposal of wastewater originating from households and surrounding industries and the lack of proper disposal facilities and methods. For settlements along the river, direct disposal of wastewater river due to lack of awareness community and limited facilities. This and garbage in the river also drastically decrease river water quality more and more. Lack of awareness community in terms of protecting the environment is one factor in the decline of the quality of an environment.

C. Overview of Legality Aspects

Aspects of legality review of ownership: governmental buildings and policies are based on regional, ministerial, and RTRW Banjarmasin City. Understanding the city's RTRW can be different but always relates to a particular regional character in urban. So that with the settlement under the RTRW will be shown, the function of the area of an environment becomes clear. The legality of building ownership is one of the problems that arise side by side with the increasing number of residents both inside and outside the environment. Criteria for land ownership status will study land ownership used for occupied buildings is owned by the company, owned by the government used illegally, or vacant land with provisions other than housing. Occupancy built not on the spot with own ownership or including empty land buildings are also called wild buildings. Illegal buildings closely related to slums formed. This happens because slum settlements are formed not infrequently on illegal land.

III. RESEARCH METHODOLOGY

The building aspect examines the physical condition of residential buildings, population density in one residential building, types of construction used, large coefficient building, lighting and ventilation of residential buildings, residential accessories such as bathrooms connected to the *septic tank*. The building aspect will review whether a residential building is livable or not, whether the building is classified as rundown. The environmental aspect will assess the completeness of the infrastructure in an environment, including facilities and infrastructure environment, to support and improve the quality of a residential area. Environmental road, pavement type, condition environment (roads and housing), management waste, drainage, and facilities common in residential areas will be studied. Aspect legality will examine whether the building land occupied is their land, government-owned or corporate-owned. The building will be reviewed for ownership own, company ownership, or are rental housing. Proof of ownership as a sign of land or building ownership can be divided into three: Certificate of Ownership (SHM), Building Use Rights (HGB), or Girik. It is questionable because most immigrants are domiciled in the Pelambuan residential area, one of the three communities with environmental problems along with West Banjarmasin and Banjarmasin City.

The questionnaire will be addressed to the public settlements and some figures from the environment settlements that are expected to understand the conditions of the residential environment. Question use positive sentences with indicators *Likert* scale answer number 1 to 5. Answer given an interval of 20 based on *Likert* scale calculation with five choices answers with different value weights are shown in Table 1.

Table 1.
Interpretation criteria (Personal calculation, 2020)

Weight Rating	Score	Interpretation Criteria
1	0 % - 19,99 %	Bad
2	20 % - 39,99 %	Not Good
3	40 % - 59,99 %	Enough
4	60 % - 79,99 %	Good
5	80 % - 100 %	Very Good

In the next data analysis stage, a tabulation will be carried out of respondents' responses to the last calculation of respondents' response score to get a total score. From the results of tabulation, then the validity and reliability testing will be

done before discussing the results of the responses, observations, and interpretations. When the test results are obtained, valid results are obtained and then continued by calculating the results of the respondent's response. The respondent's response result is further processing the tabulation result to get the percentage of the score. The next step is to interpret the total score of the respondent's response into the interpretation score to determine the category of results of the questionnaire item. The data used in the interpretation calculation is the total score per instrument of the question, which is then the total score of this score interpreted into the interpretation category. From the data obtained, the result data responses and later interpretation results will be made elaborating the observation results field to strengthen and clarify both data. When the results responses, interpretation results, and observations are obtained, a comparison of the criteria of a decent residence and settlement criteria will be compared for bringing up the criteria of the results ineligible technical comparisons. From the comparative results will be obtained habitability and causative factors uninhabitability of buildings and milieu. From the uninhabitability factor, it will be reviewed to determine the plan for handling. Objective analysis data used are:

1. Get valid results from answers questionnaire instruments that are shared so that they can be further reviewed to analyze the weight of the answer that is considered to be major factors in the slums of the settlement.

2. Make it easier to analyze the habitability of buildings and the environment settlements against three physical aspects, namely aspects of buildings, environmental aspects, and Legality Aspects of residential areas Pelambuan, West Banjarmasin, Banjarmasin City.

3. From the results of the habitability analysis, data will be reviewed the handling plan to achieve feasibility and quality improvement of the milieu.

All research activities will be described in Figure 3, which is a flow chart research.
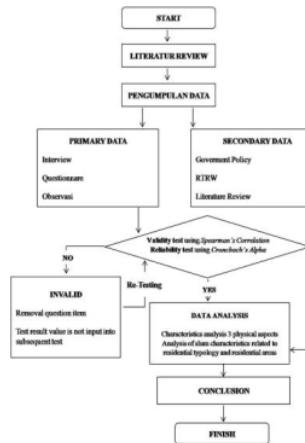

Figure 3. Flowchart research (Personal analysis, 2020)

IV. RESULT AND DISCUSSION

A. Calculation of the Number of Respondents Using Slovin's Formula

Determination of the number of respondents will be calculated using Slovin's formula according to the number of people living in Pelambuan Village.

$$n = \frac{N}{1 + Ne^2}$$

$$n = \frac{43.200}{1 + 43.200\,(10\%)^2}$$

$$n = \frac{43.200}{433}$$

$$n = 99.76 = 100\ \text{Responden}$$

Selection of respondents is carried out by length domicile and land such as communities domiciled in Pelambuan Village located within the 6.98 ha slum coupled with the community domiciled in close to rubber factory with long domicile approximately five years until the annual intended to get a response from all aspects of legality.

B. Validity Test

1) The Validity Test of Cronbach's Alpha on Question Instruments From Building Aspects

From the calculation of the validity of the question instruments about the aspects of the building seen in Table 2, compressed result *r Count* greater than *r Table* so that the question instrument from the aspect of the building is declared Valid.

Table 2.
Results of calculation of validity on question instruments from building aspects in SPSS application (Personal analysis, 2020)

Question	r Count	r Table [1]	Validity
1	0.777	0.197	Valid
2	0.691	0.197	Valid
3	0.719	0.197	Valid
4	0.419	0.197	Valid
5	0.358	0.197	Valid
6	0.308	0.197	Valid
7	0.266	0.197	Valid
8	0.364	0.197	Valid
9	0.437	0.197	Valid
10	0.292	0.197	Valid
11	0.223	0.197	Valid

2) The Validity Test of Cronbach's Alpha on Question Instruments From Environmental Aspects

As seen in Table 3, a calculated r (*r Count*) result was obtained greater than the *r Table* so that the question instruments from the aspect of the environment is declared Valid, and there are question 1 instruments that get value invalid, i.e., questions regarding the treatment of milieu.

Table 3.
Results of calculation of validity on question instruments from environmental aspects on SPSS application (Personal analysis, 2020)

Question	r Count	r Table [1]	Validity
1	0.266	0.197	Valid
2	0.227	0.197	Valid
3	0.708	0.197	Valid
4	0.708	0.197	Valid
5	0.676	0.197	Valid
6	0.701	0.197	Valid
7	0.296	0.197	Valid
8	0.415	0.197	Valid
9	0.425	0.197	Valid
10	0.126	0.197	Invalid
11	0.255	0.197	Valid
12	0.367	0.197	Valid
13	0.392	0.197	Valid
14	0.390	0.197	Valid
15	0.375	0.197	Valid

From the validity test results on the question instrument that is declared invalid can be one the removal of the instrument's value in the next test is a reliability test. However, before the reliability test, a retest of validity test will be conducted to ensure the validity of the instrument of environmental aspect question with invalid question instrument removed. The results of the validity test return from the environmental aspect can be seen in Table 4.

Table 4.
Results of recalculation of validity on question instruments from environmental aspects in SPSS application (Personal analysis, 2020)

Question	r Count	r Table [1]	Validity
1	0.266	0.197	Valid
2	0.227	0.197	Valid
3	0.708	0.197	Valid
4	0.708	0.197	Valid
5	0.676	0.197	Valid
6	0.701	0.197	Valid
7	0.296	0.197	Valid
8	0.415	0.197	Valid
9	0.425	0.197	Valid
10	-	-	-
11	0.255	0.197	Valid
12	0.367	0.197	Valid
13	0.392	0.197	Valid
14	0.390	0.197	Valid
15	0.375	0.197	Valid

From the results of the retest, all question instruments get a valid score. The decision is taken on the validity test results on the question instrument that is declared invalid can be a removal of the instrument's value in the next test, namely reliability test. So in the reliability test, the number of question instruments was tested from the initial number of 15 instruments to 14 question instruments, eliminating the value of the question instrument number 10.

C. Reliability Test

1) The Reliability Test of Cronbach's Alpha on Question Instruments from Building Aspects

The reliability test of Cronbach's alpha calculation on question instruments from building aspects is conducted using SPSS software, obtained an average value of 0.730, with the smallest value being 0.670 and the largest value being 0.738. From the results of the instrument reliability test, the question of building aspects is declared reliable. The results of the reliability calculation on the question instrument from the building aspect can be seen in table 5.

Table 5.
Results of calculation of reliability on question instruments from building aspects in SPSS application (Personal analysis, 2020)

Question	Average Scale Questions If Questions in	Variance Scale If Question in Remove	Cronbach's Alpha Value If Question is

	Remove		Removed
1	27.59	7.739	0.670
2	27.88	8.410	0.687
3	27.80	7.879	0.673
4	27.83	8.567	0.699
5	27.88	8.935	0.712
6	27.88	9.763	0.734
7	27.89	9.796	0.738
8	27.92	9.448	0.730
9	27.33	9.072	0.715
10	27.97	9.060	0.721
11	27.83	9.254	0.725

Cronbach's Alpha	n Amount
0.730	11

From the question instrument data on the building aspect questionnaire instrument above, the question instrument is reliable because the value of Cronbach's Alpha is > 0.60.

2) *The Reliability Test of Cronbach's Alpha on Question Instruments from Environmental Aspects*

In the reliability test of the instrument environmental aspect question, removing the value of the question instrument that obtained an invalid value is a question about environmental care in question number 10.

Table 6.
Results of calculation of reliability on question instruments from environmental aspects in SPSS application (Personal analysis, 2020)

Question	Average Scale Questions If Questions in Remove	Variance Scale If Question in Remove	Cronbach's Alpha Value If Question Is Removed
1	43.38	11.632	0.691
2	43.40	11.737	0.693
3	44.16	9.611	0.616
4	44.16	9.611	0.616
5	44.09	10.164	0.628
6	44.08	10.216	0.630
7	43.23	11.674	0.693
8	43.29	11.238	0.680
9	43.34	11.176	0.679
10	-	-	-
11	43.37	11.730	0.688
12	43.33	11.334	0.673
13	43.33	11.233	0.669
14	44.17	10.446	0.710
15	43.39	11.412	0.676

Cronbach's Alpha	n Amount
0.685	14

From the question instrument data on the environmental aspect questionnaire instrument above, the question instrument is reliable because of the value of Cronbach's Alpha > 0.60.

D. Building Aspect Data Analysis

1) Building Aspect Questionnaire Results

Based on tabulation results and calculation of responses from 100 respondents that can be seen in Table 7, on the questionnaire instruments on the condition of residential buildings, 54% of respondents gave responses to their residential buildings poor condition, and 23% gave poor assessments. The condition of residential buildings will be further reviewed on the observation results to clarify the condition of residential buildings in the field. For the adequacy of space and area of occupancy, get the most score on sufficient assessment and bad rating of more than 30%. The adequacy of the room is carried out further analysis on field observations find out the type of space in residential buildings. Ventilation, lighting, bathroom condition, and bathroom connection with a septic tank in residential buildings, the distance between buildings and terrace height from street surface get two ratings that are quite bad. For clarity on poor judgment, further observations were made on field observations. Observations are made to look for the interrelationship of influence with each other and observe directly to strengthen the analysis results.

Table 7.
Tabulation results of respondents' responses to questions with building aspects studies (Personal data, 2020)

Question	Score					Total
	1	2	3	4	5	
1. What is the condition of residential buildings?	0	23 %	54 %	23 %	0	100 %
2. How complete is the amount of space?	0	35 %	60 %	5 %	0	100 %
3. How does the area of the dwelling accommodate all the living family members?	0	34 %	53 %	13 %	0	100 %
4. How is the lighting in the house?	0	32 %	59 %	9 %	0	100 %

5. How is the ventilation in the dwelling?	0	35 %	60 %	5 %	0	100 %
6. How is the condition of the bathroom in residential buildings?	0	29 %	71 %	0	0	100 %
7. What is the condition of the connection between the bathroom and the septic tank?	0	31 %	68 %	1 %	0	100 %
8. How is the condition of the septic tank?	0	37 %	60 %	3 %	0	100 %
9. How is the connection condition with PDAM?	0	0	80 %	15 %	5 %	100 %
10. How is the distance between buildings?	0	43 %	51 %	6 %	0	100 %
11. How high is the terrace from street level?	0	30 %	63 %	7 %	0	100 %

2) Calculation Results of Percentage of Total Score Scores and Interpretation Results of Environmental Aspects

The result of calculating the percentage of total score value and the result of interpretation of building aspects, the results of the calculation of the total response score of respondents per-instrument question on the aspect of the building will be included in the category of interpretation, as seen in Table 8.

Table 8.
Calculation results percentage of total scores and interpretation results (Personal analysis, 2020)

Question	Total	Percentage	Category
1	300	60 %	Good
2	270	54 %	Enough
3	279	55.8 %	Enough
4	277	55.4 %	Enough
5	270	54 %	Enough
6	271	54.2 %	Enough
7	270	54 %	Enough
8	266	53.2 %	Enough
9	325	65 %	Good
10	263	52.6 %	Enough
11	277	55.4 %	Enough

After the interpretation of the assessment category, the average question has the results of interpretation with a sufficient and good category. If the result of the interpretation of the category is sufficient, it is necessary to make improvements and improvements to achieve habitability in the building. In the results of interpretation with good categories in the condition of the building and the condition of PDAM connections, renovations, and periodic maintenance can be carried out to maintain the good condition.

3) Observation Result of Buildings Aspects

Field observations are carried out to clarify the condition of the building and clarify some components of the building that the scale of value can not measure. Observation in the field can be strengthening the results of responses and results of interpretation and comparison of response results and interpretation results. In the questionnaire instruments, more explain on the conditions with the assessment system and field observations better explain the current state and conditions in the current environment. Observation results can be seen in Table 9.

Table 9.
Observation results on the study of building aspects (Personal data, 2020)

Question	Answer			
Type Construction used in residential buildings	Wood	95	Concrete	5
Occupancy has a bathroom	There Are	100	Not	0
Bathrooms already connected with septic tank	There Are	82	Not	18
Types of septic tanks used in residential buildings	Individual	82	Communal	0
Dwellings already connected with PDAM	There Are	100	Not	0

The results of the observation data are filled in by writing under the existing conditions in the residential building. From the observations made at a location of 6.98 ha, a sample of 100 residential units was taken from the entire area. Of the 100 residential units observed, 95 residential units used wood for building construction, and five used concrete. Of the 100 residential units, 82 dwellings have *septic tanks,* and the other 18 units become rivers as waste disposal. The results of further observations are as follows:

a) Condition of Residential Buildings

Based on observations from 100 residential units, it was found that most of the residential units built in the Pelambuan area are semi-permanent buildings with a total of 95% wood. However, it is not uncommon for these buildings to rot due to the long age of the buildings and the residential areas, which are quite humid and dense, so that the condition of the buildings is not in good condition.

b) Ventilation, Lighting, and Room Equipment

Conditions in the Pelambuan area show that in several buildings, most of the building equipment in the form of windows is artificial (dead windows), and with the current building density, the existing windows in residential buildings do not function optimally. So for indoor air conditioning, they rely on ventilation. However, the lighting in the room is still quite sufficient. Completeness of space in residential buildings has a limited amount of space, so that many residential buildings have rooms with one to three functions, such as living room-bedroom-family rooms used in one function space.

c) Condition of Bathroom

For the bathroom condition in the dwelling, the average condition of the bathroom in the residential building is adequate and not good because the available bathrooms tend to be quite small with poor hygiene. For bathrooms, most dwellings already have individual septic tanks. Several residences have a bathroom but do not have a *septic tank*, making the river waste disposal.

d) Terrace Height

For the height of the residential floor, the height of the terrace in residence varies. The average terrace height is 10cm-20cm from the road, and some terraces have the same height.

4) Comparison of Interpretation Results and Field Observations of Building Aspects Against Criteria for Decent Living House

Of the three criteria for livable housing based on the Ministry of Public Works and Public Housing under the Ministerial Decree of Kimpraswil No.403/KPTS/M/2002 and Permenpera Number 22//Permen/M/2008 [4], one criterion does not meet the criteria. Two others are bad condition feasible with some notes of improvement so that it can be concluded that the condition of the residential building is declared quite decent but with a note of repairs on some of the necessary building components. The criteria that do not meet the criteria for a livable house are the minimum needs for health and comfort, which consist of lighting, air conditioning, humidity, and adequacy of space. The thing that affects is the distance of the building, which is quite tight and the type of opening. The criteria that are considered to meet the criteria with a note of improvement are the security and safety of residential buildings and building utilities.

E. Environmental Aspect Data Analysis

1) Environmental Aspect Questionnaire Results

Judging from the respondents' responses to the questionnaire regarding environmental aspects on environmental road widths, more than 60% of respondents stated that the existing road widths were of sufficient value with fairly good conditions. The results of respondents' responses to the questionnaire regarding environmental aspects can be seen in Table 10. This illustrates the public's perception of the width of the environmental road and the condition of the environmental road that is considered quite good and comfortable. On questions related to drainage, respondents gave a good score of 61% in their responses, but there were also responses with poor and very bad scores, so that further observations were made on field observations to see the conditions directly. For the responses to the conditions and waste management systems in residential areas, further observations were also made on field observations to clarify the waste management system used.

Table 10.
Tabulation results of respondents' responses to questions with environmental aspects studies (Personal data, 2020)

Question	Score					Total
	1	2	3	4	5	
1. How wide is the road in residential areas?	0	2 %	62 %	36 %	0	100 %
2. How are the environmental road conditions?	0	1 %	66 %	33 %	0	100 %
3. How is the drainage condition?	5%	34 %	61%	0	0	100 %
4. How is the routine maintenance of drainage?	5%	34 %	61 %	0	0	100 %
5. What is the waste management system in residential areas?	0	37 %	63 %	0	0	100 %
6. What is the condition of the TPS around the residential area?	0	36 %	64 %	0	0	100 %

7. What is the environmental condition in terms of security?	0	1 %	51 %	46 %	2 %	100 %
8. How are the environmental conditions in terms of comfort?	0	0	58 %	41 %	1 %	100 %
9. What is the condition of the supporting facilities in the environment? (street lights, bus stop)	0	0	62 %	38 %	0	100 %
10. What is the condition of the puskesmas in the residential area?	0	0	65 %	35 %	0	100 %
11. What is the condition of the school in the residential area?	0	0	61 %	39 %	0	100 %
12. What is the condition of the prayer room in the residential area?	0	0	61 %	39 %	0	100 %
13. What is the condition of Green Open Space in residential areas?	15 %	32 %	36 %	17 %	0	100 %
14. How is the facility maintenance system used?	0	0	67 %	33 %	0	100 %

2) Calculation Results of Percentage of Total Score Scores and Interpretation Results of Environmental Aspects

Calculating the total score of respondents per instrument questions regarding aspects of the building will be included in the interpretation category. The results of the interpretation of environmental aspects can be seen in Table 11.

Table 11.
Calculation results percentage of total scores and interpretation results (Personal analysis, 2020)

Question	Total	Percentage	Category
1	334	66.8 %	Good
2	332	66.4 %	Good
3	256	51.2%	Enough
4	256	51.2 %	Enough
5	263	52.6 %	Enough
6	264	52.8 %	Enough
7	349	69.8 %	Good
8	343	68.6 %	Good
9	338	67.6 %	Good
10	335	67 %	Good
11	339	67.8 %	Good
12	339	67.8 %	Good
13	255	51 %	Enough
14	333	66.6 %	Good

From the results of the interpretation of the good category, referring to drainage and waste disposal sites and their maintenance, and the condition of green open spaces, it is necessary to make parks or green open spaces, improve drainage and waste disposal sites, and routine maintenance and cleaning to improve the quality of livability of settlements.

3) Environmental Result of Buildings Aspects

The observations examined the questionnaire instruments related to parts of the environment and existing facilities in the environment. The results of the observations are used as supporting data, and comparative data from the interpretation results to then be compared to the housing and slum settlement criteria listed in PP14/2016 Article 108 [6] to determine environmental quality. The results of observations on environmental aspects can be seen in Table 12 and are explained as follows:

Table 12.
Observation results on environmental aspect studies (Personal data, 2020)

Question	Answer			
The road in the neighborhood has been paved	Already	100	Not	0
There is drainage on the neighborhood road	There is	92	Not	8
There are workers in charge of transporting garbage in residential areas	There is	87	Not	13
Facilities used to transport waste	Cart	100		
There are public facilities close to the neighborhood	There is	100	Not	
There is Green Open Space in the neighborhood	There is	46	Not	54

a) Environmental Road

Observational data will be added with data from the RPLP [7] to clarify the length of the existing road on the environmental road. RPLP is a plan for structuring the residential environment of Pelambuan Village. As obtained from the RPLP data, the ideal length of the existing road in the Pelambuan area is 5,299 m, with the new road requirement of 445 m. The width of the neighborhood road is quite narrow, with a width of 1.50-2 m, and only two motorbikes can pass. The narrow width of the road and the muddy road when it rains make this alley not good enough to walk. For road pavement using a variety of pavement materials. On the main road using asphalt and on the alley using brick, cast, and wooden footbridges.

b) Environmental Drainage

For drainage in the environment, not all neighborhoods have environmental drainage in the alleys in the Pelambuan village. Obtained from RPLP data from 6.98ha of settlements that are declared slums, the existing drainage is 225m, while

as much as 5,627m in the area of environmental roads that have not been equipped with drainage. This is because the condition of the alley is quite narrow, so that it is not possible to make drainage in the alley.

c) *Waste Management*

The transportation of waste to the environment is carried out by officers using carts for the cost of transporting the waste, a weekly payment of Rp. 10,000/house is made, but not all houses in the neighborhood use the services of a garbage collector.

d) *Public Facilities*

In the Pelambuan Village environment, routine community service is carried out in turns together. Community service is assisted by the assistance of the task force every Friday. However, this community service work is routinely carried out per RT so that the waiting time for the routine cleaning shift is quite long. In one RT to get a service shift, you can wait for one year, so it can be said to be less effective. In some alleys, the RT in question carried out self-help work carried out by residents; this was done to keep the alleys looking clean.

e) *Educational Facilities*

The educational facilities' condition can be said to be in fairly good condition, even though the school's location is a little deep. The condition of the special school is also in good condition with the location close to the market area.

f) *Health Facilities*

In Pelambuan Village, there are not only educational facilities, but there are also health facilities. The health facilities in Pelambuan Village are: one hospital, one Puskesmas, one sub-health center, one Poskesdes, and 10 Posyandu. Health facilities appear to be in good condition.

g) *Market*

The market along the riverbanks and in Jl. Barito Hulu frequently uses the road as a place to sell. This makes the road narrow, and this traditional market looks shabby due to the irregular market, coupled with the location of the market, which is adjacent to the rubber factory, causing an unpleasant odor. Markets located on the banks of the river are mostly residential buildings that are used as shops and containers for selling at the front of the building.

h) *River*

The river in Pelambuan Village is narrowing and silting due to residential buildings built along the riverbank. The residential buildings built along the river banks are formed irregularly due to the lack of clear urban spatial orientation and the limited available land. Residential buildings that are built protrude towards the river to take up the body of the river. Residential buildings on the river banks also use the river for activities such as bathing, washing, and latrines. Not infrequently, the river becomes a dumping ground for garbage so that the river becomes polluted and makes the quality of the river decrease.

i) *Open Space*

In Pelambuan Village, there is no green open space in the form of parks or playgrounds. The available open space is an empty yard in the afternoon and the harbor. An empty yard that is used as a parking lot in the morning is used by small children to play soccer with a makeshift jail in the afternoon. Anglers use the harbor for fishing all afternoon. Another area that is considered as another open space is the pedestrian, which is located on Jl. Mayjend Gutoyo S, located right across from Dr. TPT Hospital. R. Soeharsono.

3) *Comparison of the Result of Interpretation and Field Observation of Environmental Aspects Against Criteria for Slum Settlements*

The interpretation results are compared with the criteria for slum settlements of the Minister of PUPR Regulation Number 14/PRT/M/2018 concerning Prevention and Quality Improvement of Slum Housing and Slum Settlements related to environmental roads [8]. Of the seven criteria for slum settlements, four criteria do not meet the requirements, so that the settlements fall into the category of slums. The four criteria are environmental roads, drainage, wastewater management, and fire protection. Added to this is the absence of green open space, which also causes a decline in the quality of residential areas.

F. Legality Aspect Data Analysis

In calculating the response to the question of the legal aspect, it is divided into three essay questions regarding building ownership, land ownership, and ownership permits. Questionnaires were distributed, and observations were made on the legal aspect. The results of the

tabulation of respondents' responses to the question instrument for legal aspects are shown in Table 13. From the data collection results related to the legality of the building and land used, it can be seen that the ownership of buildings that are private ownership is 48 units, residential buildings built without an ownership permit are 33 units, and are rental buildings of 19 units. For land ownership built from 100 units built, in 19 units of rental housing, land ownership is owned by the building owner (contract owner). The 81 units of private residential houses are divided into three land ownerships, namely 48 housing units, which are residential buildings that stand on land with private ownership, 14 housing units built on company-owned land, and 19 housing units built on government-owned land. Obtained from the RPLP [7], the number of residential buildings that have IMB is 239 units and the number of residential buildings that do not have IMB 364 units, then also obtained the number of building land that has legality certificates in the form of Ownership Certificates, Building Use Rights, or letters that are recognized Other government units amounted to 397 units and 206 units of land that did not have a legality certificate. From these data, it can be concluded that many residential buildings are built on land owned by companies, and the government does not have ownership permits for buildings.

Table 13.
The results of the tabulation of respondents' responses to the question instrument of legality aspects (Personal data, 2020)

No	Question	Answer		
		Private Property	**Without Permission**	**Rent**
1	Is this residence owned or rented?	48	33	19

No	Question	Answer			
		Private property	**Contract Owner**	**Company**	**Government**
2	Is the land occupied by private or company ownership or contract ownership (if contract/lease)	48	19	14	19

No	Question	Answer			
		SHE	**HGB**	**Girik**	**No Permission**
3	What type of ownership certificate do you have? (SHM, HGB, or Girik)	67	0	0	33

G. Handling Plan

In the research, the resulting treatment plan focuses on improving the environment and inner-city areas to attract tourists' attention. Make improvements to several areas to maximize the potential that exists in the Pelambuan Village environment.

1) *Management Plan for Building Aspects*
   a) *Irregularity of Building*

   The irregularity of the building is divided into two types, namely the location of the building and the shape of the building. Building management can be done by building rehabilitation. Limited land and dense buildings do not allow to change the placement and position of the building, so that what can be done is to improve the appearance. As in residential buildings located on alleyways, the rehabilitation of buildings carried out on the walls and floors can also be directed to changing the shape of residential buildings. For parts of residential buildings in good condition but look irregular, you can give plants with pots. This is done in addition to beautifying the environment and overcoming the irregular appearance of the building.

   b) *Building Density*

   In the density of buildings, it cannot be changed too much considering the limited land conditions. So the thing that can be done with the density of the building is vulnerable on the sidelines between buildings filled with garbage, causing uncomfortable conditions. The first thing that can be done is to clean the sidelines between buildings from garbage and unused items. A clean area between buildings will give the impression of relief and comfort to see. Then it can be continued with installing parapets at the bottom of the sidelines between buildings to avoid littering and the accumulation of garbage back on the sidelines of the building.

   c) *Ventilation and Lighting of Residential Buildings*

   For the plan to deal with building ventilation and lighting, the building's

artificial windows are replaced with windows that can be opened to maximize ventilation in the building. Changes in the type of opening can also reduce the air temperature inside the building. Plants added to residential areas and between buildings can filter the incoming air to become healthier.

d) *Condition of Residential Buildings*

Conditions in some building parts require rehabilitation, replacing components such as leaking roofs and rotting wood. In replacing the corroded roof, it can be replaced with new zinc to overcome the problem of leakage. In parts of the building that are experiencing weathering, it needs to be replaced gradually.

e) *Bathroom*

Bathrooms poorly maintained in residential areas are repaired and cleaned together, and homes with a bathroom but are not connected to a septic tank can be provided with toilets and communal sanitation. Alternatively, a communal septic tank can be added in residential bathrooms that are not connected to a septic tank. This is done to meet technical requirements related to building utilities.

2) *Plan Handling Towards Environmental Aspects*

a) *Environmental Road*

On the environmental road factor, the condition is that the environmental road condition is not good, so it requires repair. Some of the neighborhood roads have cracks and potholes. On a neighborhood road that uses a wooden walkway, the wooden walkway requires repairs such as replacing the construction of the footbridge into a concrete footbridge.

b) *Drainage*

The drainage cover was repaired to tidy up the drainage on the main road to make it look neat and in good condition. Cleaning the drainage flow can be done by working together in maintenance environmental drainage; this is intended to improve the drainage function as a flow rainwater runoff. In addition of drainage on environmental roads can be done along with replacement road pavement. On the road finished environment, given drainage size 30 cm and covered with a drain grill.

c) *Wastewater Management*

Management water waste has a relationship with communal sanitation, communal septic tanks in shared toilets and bathrooms that do not have a septic tank on the building aspect. The type of septic tank planned to use a biophilic septic tank.

d) *Fire Protector*

Not available protection fire on environment settlement, so that require fire protection. It is required residential environment considering the conditions of the settlements are quite dense. Selection of the procurement of hydrants on the main road as a means of fire protection. In the area settlement, could done procurement of fire extinguishers and making water storage as water reservoirs on the environment can be in the form of reservoirs or wells in the environment.

e) *Open Space*

In the Pelambuan residential area, there is no room open enough green in plan handling regarding room open green can be replaced with the use of plants using pots or hydroponic plants. Until the condition of the residential environment still looks good and neat. The need regarding this open space requires a larger area of land in the area so that a management plan that can be carried out is planting in residential areas. From the plan handling above, the things to be achieved besides improving the quality of the habitability of the building and the quality of the environment is to revive the Pelambuan residential area, which has potential that can be developed such as a small dock for river tourism and the fish auction market. As in the small dock area, previously, there was a klotok ship which was tourism transportation to flower island. In the fish auction market section, regulations and parking spaces will be provided. This is done to reduce congestion and narrow the road used by parked cars and motorbikes so that they can be used maximum.

3) *Plan Handling Regarding Legal Aspects*

Regarding Legal Aspects, the problem is the permit building ownership and land ownership permits. Based on local service regulations, the handling limit will be seen from the legal aspect that dwellings that stand on company-owned land cannot receive treatment because they can violate ownership rights. This problem is the establishment of illegal buildings on land with other owners. In this management plan, it is necessary to tighten supervision of permits and supervision of building construction. If the

building is standing without a permit, such as an IMB (Building Permit), then direct supervision is needed on the environment's development. This will have a relationship with environmental aspects regarding the distance between buildings and the density of buildings to make residential buildings that are built more organized.

V. CONCLUSION

Based on the results of data analysis from questionnaires and field observations which were compared with the criteria, the following results were obtained:

1. On the Building Aspect, the three criteria for livable housing are based on KemenPUPR under Kempen Kimpraswil No. 403/KPTS/M/2002 and Permenpera Number 22//Permen/M/2008, 1 criterion does not meet the criteria, and two others are in fairly decent condition with some notes of improvement. The criteria that do not meet a livable house are the minimum needs for health and comfort consisting of lighting, air conditioning, humidity, and adequate space.

On the environmental aspect, of the seven criteria for slum settlements, four criteria do not meet the requirements, so settlements are included in the category of slums. Minister of PUPR Regulation Number 14/PRT/M/2018 concerning Prevention and Quality Improvement of Slum Housing and Slum Settlements related to environmental roads. Of the seven criteria for slum settlements, four criteria do not meet the requirements, so that the settlements fall into the category of slums. The four criteria are environmental roads, drainage, wastewater management, and fire protection. Added to this is the absence of green open space, which also causes a decline in the quality of residential areas.

In the aspect of legality, some dwellings have been built without having a Building Permit that stands on company land so that at the handling stage, they cannot receive direct handling due to problems with ownership permits.

Obtained from the RPLP, the number of residential buildings that have an IMB is 239 units, and the number of residential buildings that do not have an IMB is 364 units, then the number of building lands that have legality certificates in the form of Ownership Certificates, Building Use Rights, or other Government-recognized letters are also obtained. 397 units and 206 units of land that do not have a legality certificate.

2. Regarding the legal aspect, the company cannot accept the handling of buildings that stand on land because it can violate ownership rights.

In the aspect of the building, to improve the quality of housing, it will be planned to add plants to the environment, septic tank and changes view of the building, repair, and replace components buildings that experience damage decreased function and can not be used.

On the environmental aspect, a replacement will be planned. Procurement and repair to improve the quality settlement. Replacement carried out on sections of roads and environmental roads that use wooden footbridges. Actions are directed to the procurement of drainage, septic tanks in bathrooms that have not been connected, and procurement of fire protection equipment. Repairs are carried out on the damaged drainage section and damaged environmental roads. Improvements to the dock and landmarks to add to the appeal of visitors and tourists in the tourism area.

It will be planned to tighten supervision on licensing and supervision to building construction on the legal aspect. If the building is standing without a permit, such as an IMB (Building Permit), then direct supervision is needed on the environment's building development.

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