

## BUKTI KORESPONDENSI

### SYARAT KHUSUS ARTIKEL JURNAL BEREPUTASI

**Judul Artikel** : *Sustainable Development Guidelines for Post-Disaster Settlements In Palu City: A Spatial Planning Perspective*

**Jurnal** : *Journal of Sustainability Science and Management*  
*Volume 19 Number 9, September 2024: 132-145*

**Penulis** : Syafri, Batara Surya

No	Perihal	Tanggal
1.	Pengiriman (Submit) Naskah ke <i>Journal of Sustainability Science and Management (JSSM)</i>	03 Agustus 2023
2.	Balasan dari Tim Redaksi <i>Journal of Sustainability Science and Management</i> , telah berhasil dikirimkan secara daring dan saat ini sedang dipertimbangkan sepenuhnya untuk dilanjutkan pada tahapan tim editor.	05 Oktober 2023
3.	Menerima balasan dari <i>Editor-in-Chief Journal of Sustainability Science and Management (JSSM)</i> bahwa naskah diterima dengan revisi yang diminta oleh <i>Associate Editor</i> dan <i>Reviewer 1</i> .	23 Mei 2024
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Syafri Lano &lt;syafri@universitasbosowa.ac.id&gt;

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4 Agustus 2023 pukul 08.32

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03-Aug-2023

Dear Dr. Syafri:

Your manuscript entitled "SPATIAL PLANNING AND SUSTAINABLE CITIES: THE PERSPECTIVE OF SUSTAINABLE DEVELOPMENT OF SETTLEMENTS POST-NATURAL DISASTERS IN PALU CITY, CENTRAL SULAWESI, INDONESIA" has been successfully submitted online and is presently being given full consideration for publication in the Journal of Sustainability Science and Management.

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05-Oct-2023

Dear Dr. Syafri:

Your manuscript entitled "SPATIAL PLANNING AND SUSTAINABLE CITIES: THE PERSPECTIVE OF SUSTAINABLE DEVELOPMENT OF SETTLEMENTS POST-NATURAL DISASTERS IN PALU CITY, CENTRAL SULAWESI, INDONESIA" has been successfully submitted online and is presently being given full consideration for publication in the Journal of Sustainability Science and Management.

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ACTION	STATUS	ID	TITLE	SUBMITTED	DECISIONED
Revision option expired on 27-Jun-2024	<a href="#">Contact Journal</a> ADM: Science and Management, Journal of Sustainability ADM: Ahmad, Aziz <ul style="list-style-type: none"> <li>• Minor Revision (28-May-2024)</li> <li>• Revision option expired on 27-Jun-2024</li> </ul> <a href="#">view decision letter</a>	JSUSM-2023-0410	SPATIAL PLANNING AND SUSTAINABLE CITIES: THE PERSPECTIVE OF SUSTAINABLE DEVELOPMENT OF SETTLEMENTS POST-NATURAL DISASTERS IN PALU CITY, CENTRAL SULAWESI, INDONESIA <a href="#">View Submission</a>	03-Aug-2023	28-May-2024

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**CC:**  
**Subject:** Journal of Sustainability Science and Management - Decision on Manuscript ID JSUSM-2023-0410  
**Body:** 28-May-2024

Dear Dr. Syafri:

Manuscript ID JSUSM-2023-0410 entitled "SPATIAL PLANNING AND SUSTAINABLE CITIES: THE PERSPECTIVE OF SUSTAINABLE DEVELOPMENT OF SETTLEMENTS POST-NATURAL DISASTERS IN PALU CITY, CENTRAL SULAWESI, INDONESIA" which you submitted to the Journal of Sustainability Science and Management, has been reviewed. The comments of the reviewer(s) are included at the bottom of this letter.

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Once again, thank you for submitting your manuscript to the Journal of Sustainability Science and Management and I look forward to receiving your revision.

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nyukling@umt.edu.my  
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Associate Editor Comments to Author:

Associate Editor

Comments to the Author:

some minor comments for your further action

1. Under section Materials and Methods>Type of Research>line 2 - author suggest for survey but no sense of survey is collected in this paper.
2. Readjust your content as more than half page blank in page 15 - suggest to move some text to page 15.

Reviewer(s)' Comments to Author:

Reviewer: 1

Comments to the Author

Overall, the paper offers clear insights on what is being studied. However the author may have to work on the structure of the paper.

Please read the review in the doc file attached for specific comments.

**Date Sent:** 28-May-2024

**File 1:** - [Syafri-JSSM - Reviewed.pdf](#)

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a revision has been submitted (JSUSM-2023-0551.R1)	<a href="#">Contact Journal</a> ADM: Science and Management, Journal of Sustainability ADM: Nelson (Bioecology), Bryan <ul style="list-style-type: none"> <li>Minor Revision (23-Apr-2024)</li> <li>a revision has been submitted</li> </ul> <a href="#">view decision letter</a>	JSUSM-2023-0551	SPATIAL PLANNING AND SUSTAINABLE CITIES: THE PERSPECTIVE OF SUSTAINABLE DEVELOPMENT OF SETTLEMENTS POST-NATURAL DISASTERS IN PALU CITY, CENTRAL SULAWESI, INDONESIA <a href="#">View Submission</a>	05-Oct-2023	23-Apr-2024

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**Subject:** Journal of Sustainability Science and Management - Decision on Manuscript ID JSUSM-2023-0551  
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JSSM is Web of Science (Zoological Record) and Scopus-indexed journal

Associate Editor Comments to Author:

Associate Editor  
Comments to the Author:  
(There are no comments.)

Reviewer(s)' Comments to Author:

Reviewer: 1

Comments to the Author

1. Retitle as "Sustainable Development Guidelines for Post-Disaster Settlements in Palu City: A Spatial Planning Perspective"
2. Wrong format for the figure and table captions, follow JSSM format.
3. Rewrite the Conclusion and Recommendation

In light of our analysis of the carrying capacity and residential zone capacity in Mantikulore Sub-District, Palu City, it's evident that significant efforts are required to strengthen environmental sustainability and support residential development, particularly in the aftermath of natural disasters. While Lasoani and Poboya sub-districts exhibit commendable environmental carrying capacity and residential zone capacity, other areas necessitate considerable improvements to reach similar standards. Therefore, it is crucial to strictly adhere to carrying capacity and zone capacity considerations in future post-disaster residential development planning endeavours.

To address these challenges, several recommendations are proposed:

Firstly, efforts should be made to enhance the environmental carrying capacity of all sub-districts in Mantikulore. This can be achieved by implementing measures such as improving infrastructure, enhancing waste management systems, and increasing green spaces to mitigate environmental impacts and facilitate sustainable residential development.

Secondly, it is essential to establish comprehensive zoning guidelines for residential areas. These guidelines should categorize zones into permitted, conditionally permitted, restricted permitted, and prohibited zones based on carrying capacity assessments and environmental considerations.

Moreover, sustainable development practices should be prioritized in all post-disaster residential development initiatives. Projects should be aligned with principles of environmental sustainability, resilience, and inclusivity to ensure long-term viability and community well-being.

Community engagement and education play a vital role in promoting sustainable development. Local communities should be actively involved in the planning and implementation of post-disaster residential development projects, fostering a sense of ownership and responsibility. Additionally, educational programs on sustainable living practices and environmental conservation should be provided to promote resilience and environmental stewardship.

Lastly, mechanisms for continuous monitoring and evaluation of post-disaster residential development projects should be established. This will allow authorities to assess the effectiveness of interventions in meeting sustainability goals and identify areas for improvement. Policies and strategies should be adjusted accordingly based on evaluation findings.

By implementing these recommendations, authorities can ensure the sustainable development of post-disaster settlements in Mantikulore Sub-District, Palu City, thereby enhancing the resilience and well-being of local communities while preserving the natural environment at the local level for the global SDG 2030 agenda.

4. Additional comments in the pdf attached file.

5. Minor corrections can be accepted for publication upon a further check of the corrected manuscript by AE and EiC JSSM.

Reviewer: 2

Comments to the Author  
(There are no comments.)

**Date Sent:** 23-Apr-2024

**File 1:** [- JSUSM-2023-0551\\_Proof\\_hi\\_Retitle\\_as %22Sustainable Development Guidelines for Post-Disaster Settlements in Palu City.pdf](#)





**SPATIAL PLANNING AND SUSTAINABLE CITIES: THE  
PERSPECTIVE OF SUSTAINABLE DEVELOPMENT OF  
SETTLEMENTS POST-NATURAL DISASTERS IN PALU CITY,  
CENTRAL SULAWESI, INDONESIA**

Journal:	<i>Journal of Sustainability Science and Management</i>
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## SPATIAL PLANNING AND SUSTAINABLE CITIES: THE PERSPECTIVE OF SUSTAINABLE DEVELOPMENT OF SETTLEMENTS POST-NATURAL DISASTERS IN PALU CITY, CENTRAL SULAWESI, INDONESIA

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**Abstract:** Post-natural disaster spatial planning requires a study of spatial carrying capacity and support to promote the sustainability of settlement development. This study aims to analyze settlements' carrying capacity and spatial support and formulate development guidelines for post-natural disaster settlements in the Mantikulore Subdistrict, Palu City. The study adopts a sequential explanatory approach combining quantitative and qualitative methods. Data were obtained through observation, surveys, and documentation. The analysis of the carrying capacity and spatial support for settlement zones in the Mantikulore Subdistrict, Palu City, shows that the environmental carrying capacity and support for settlement zones could be more robust. Only the neighborhoods of Lasoani and Poboya demonstrate high environmental carrying capacity and support for settlement zones. In contrast, other neighborhoods must meet the environmental carrying capacity and support needed for settlement development. The zoning guidelines for settlements in the Mantikulore Subdistrict, Palu City, are divided into allowed zones, conditionally allowed zones, limitedly allowed zones, and prohibited zones. Consequently, the developmental direction for settlement zones in the Mantikulore Subdistrict, Palu City, prioritizes Lasoani and Poboya neighborhoods.

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**Keywords:** Settlement development, natural disasters, city zoning.

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### Introduction

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Indonesia's cities face complex social, economic, and environmental issues that impact urban life (Wandl *et al.*, 2017; Panteleeva & Borozdina, 2022; Ouedraogo *et al.*, 2023). The lack of city planning and management contributes to a decline in urban environmental quality, leading

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3 to the proliferation of slums and natural disasters (Bathrellos & Skilodimou, 2019). To achieve  
4 better city management, spatial planning is necessary, which involves designing and organizing  
5 land use, infrastructure, and the environment to attain sustainable urban development  
6 (Turkelboom *et al.*, 2018; Ouedraogo *et al.*, 2023). Effective spatial planning can help reduce  
7 disaster risks, including avoiding construction in disaster-prone areas (Hofmann, 2022). In this  
8 regard, spatial planning refers to zoning urban areas based on land-carrying capacity and  
9 environmental support, creating safe, comfortable, and sustainable spaces ( Liu *et al.*, 2018;  
10 Kalfas *et al.*, 2023). In other words, good spatial planning can aid in minimizing disaster risks,  
11 including avoiding construction in vulnerable areas like earthquake-prone and flood-prone  
12 regions (Hofmann, 2022; Huang *et al.*, 2023).

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Spatial planning in Palu City is a process of recovering and reconstructing urban areas that suffered damages from earthquake disasters. The National Disaster Management Agency (NDMA) reported a 7.7 magnitude earthquake in Palu City in 2018, resulting in thousands of casualties, extensive infrastructure damage, and significant social and economic impacts on the community. Meanwhile, according to the Central Bureau of Statistics of Palu City, in 2023, the population growth in Palu City will continue to experience an average growth rate of 1.27% in 2022, leading to increasing demand for residential land. Therefore, Palu City requires well-structured spatial planning and integration of social, economic, environmental, and infrastructure ( Teklemariam, 2022; Alipour & Dia, 2023). Directed spatial planning is crucial for sustainable urban growth (Næss, 2001; Lara *et al.*, 2021; Kalfas *et al.*, 2023). Proper zoning for residential areas and disaster-responsive zones must be the primary consideration in Palu City's planning (Akola *et al.*, 2023; Dandoulaki *et al.*, 2023). Thus, good spatial planning can help reduce disaster risks, including avoiding building settlements in disaster-prone areas (Mileu & Queirós, 2018; Rezvani *et al.*, 2023).

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3 Settlement development in Palu City is a part of the post-earthquake recovery and  
4 reconstruction process for residential areas. Selecting the locations for post-earthquake  
5 settlement development should be based on a comprehensive risk assessment to ensure the new  
6 settlements are safer, sustainable, and earthquake-resistant (Alipour & Dia, 2023). In other  
7 words, the development of settlements in Palu City is of utmost importance, considering the  
8 environmental carrying capacity and support to strike a balance between urban growth and the  
9 environment's capacity to maintain sustainability and environmental quality (Luo *et al.*, 2022;  
10 Pourebrahim *et al.*, 2023). Factors considered for settlement development in terms of  
11 environmental carrying capacity and support in Palu City include protected zones, disaster-  
12 prone zones, land cover ratio, population size, potential area size, and the coefficient of built-  
13 up area requirement (Wang, 2018; Alipour & Dia, 2023). Therefore, sustainable settlement  
14 development provides residents safety and comfort (Ibrahim *et al.*, 2020 & Harbiankova &  
15 Shcherbina, 2021).

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17 Previous studies that support this research include: (1) Lara *et al.* (2021) found that non-  
18 integrated city planning between the city center and other sub-centers leads to urban issues in  
19 terms of economic, social, and environmental aspects; (2) Atmaca *et al.* (2023) stated that the  
20 lack of resources for post-disaster temporary evacuation plans resulted in significant physical,  
21 economic, and social losses for the community; (3) Hofmann (2022), mentioned that effective  
22 governance supports faster and better post-disaster recovery and resettlement; (4) Nickuyin *et*  
23 *al.* (2020), Medeiros *et al.* (2020), and Kalfas *et al.* (2023), found that weak institutions in  
24 managing urban activities lead to social, economic, and environmental problems.

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26 These four studies collectively emphasize the need for more resources in post-disaster  
27 urban planning and management institutions. Furthermore, this study focuses on assessing the  
28 environmental carrying capacity and support as determining factors for the sustainability of  
29 post-earthquake settlement development in Palu City (Luo *et al.*, 2022). Thus, the  
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environmental carrying capacity and support contribute significantly to sound spatial planning and sustainable settlement development in Palu City (Rustiadi *et al.*, 2021).

The long-term benefits to be obtained are as follows: (1) the availability of settlement land zoning that is not prone to natural disasters; (2) the fulfillment of housing needs to support the social and economic activities of the community; (3) the establishment of sustainable spatial planning for settlements in Palu City. These three benefits will encourage the creation of a balanced settlement environment towards the effective utilization of natural resources and the restoration of the environmental quality of Palu City (Wardhani *et al.*, 2021; Wang *et al.*, 2022). Consequently, settlement development will ensure the safety and security of residents to engage in economic activities and promote the sustainability of urban development (Ayu Purnamawati *et al.*, 2023; Wei *et al.*, 2023).

The development dynamics of Palu City as the capital of Central Sulawesi Province have led to an increase in settlement development, contributing to changes in land use and a decline in environmental quality (Surya *et al.*, 2020). Furthermore, the urgency of this research is contextualized in several aspects, namely: (1) the recovery and reconstruction of residential areas after the earthquake; (2) spatial planning and settlement zoning based on an assessment of environmental carrying capacity and support; (3) the realization of settlement development that ensures human quality of life and environmental sustainability (Mumford, 2021). Thus, the research questions to be addressed in this study are: (1) What is the land carrying capacity and support for settlements in the Mantikulore Subdistrict Palu City? (2) What guidelines are for developing new settlements post-natural disasters in the Mantikulore Subdistrict Palu City?

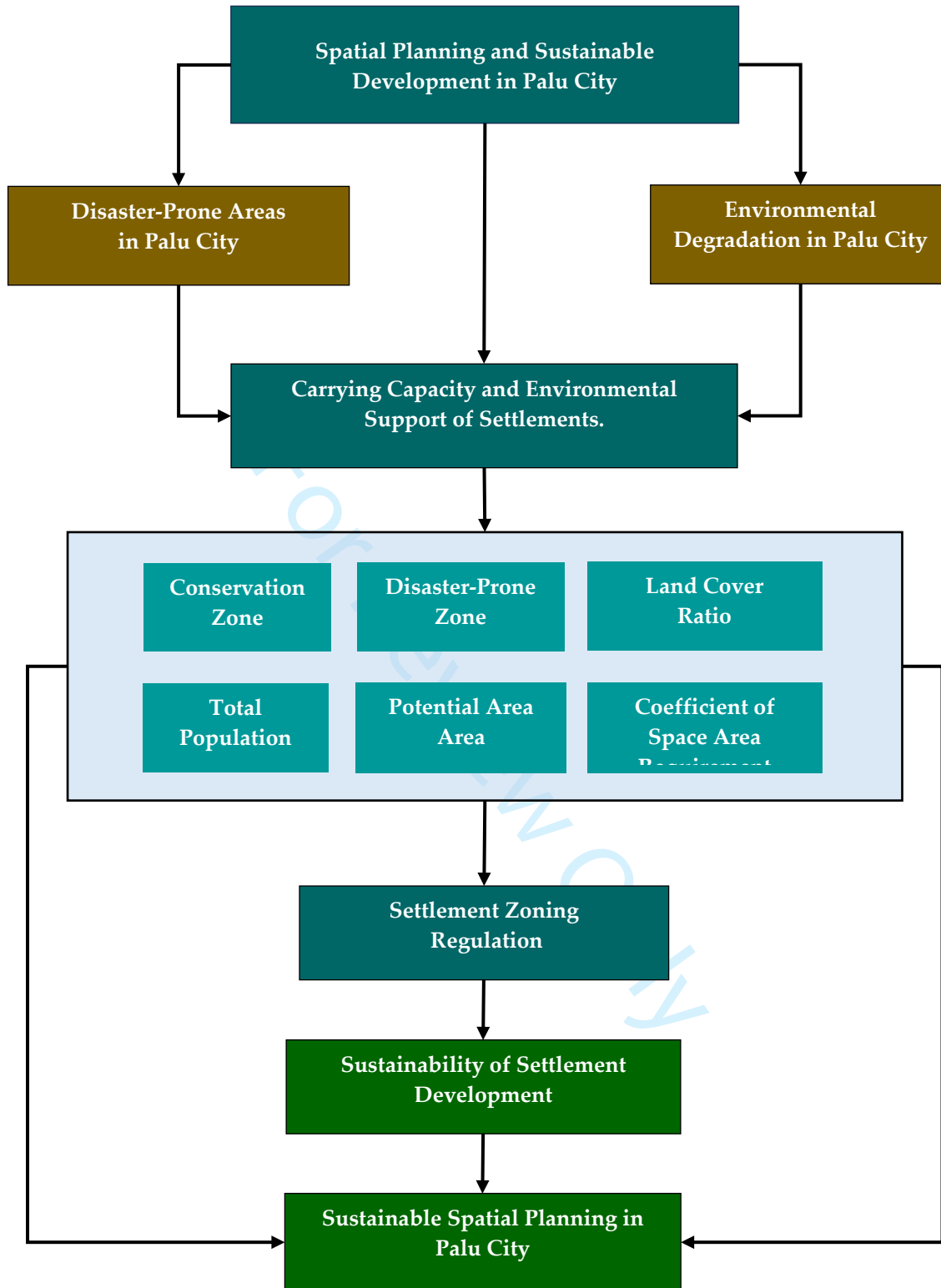


Figure 1: Conceptual Framework of Spatial Planning and Sustainable Cities: Perspective of Sustainable Development of Settlements Post-Natural Disasters in Palu City, Central Sulawesi, Indonesia.

## **Materials and Methods**

### ***Type of Research***

This study is a mixed-methods research that combines quantitative and qualitative approaches (Cresswell, 2010). Quantitative data were obtained through surveys and documentation, while qualitative data were collected through observations and in-depth interviews.

### ***Study Area***

The study was conducted in Mantikulore Subdistrict, Palu City, Central Sulawesi, with an area of 206.80 km<sup>2</sup>. The selection of the research location was based on the following considerations: (1) It is the largest subdistrict area and relatively still undeveloped in Palu City; (2) Geographically, it is relatively flat and located in hilly areas, thus avoiding the threat of Tsunami; (3) It has relatively good access and is considered a peri-urban area of Palu City, retaining urban characteristics. (4) It is a designated area for Palu City's development, and (5) It significantly contributes to the concept and direction of sustainable city planning. The location of the research is presented in Figure 2 below.

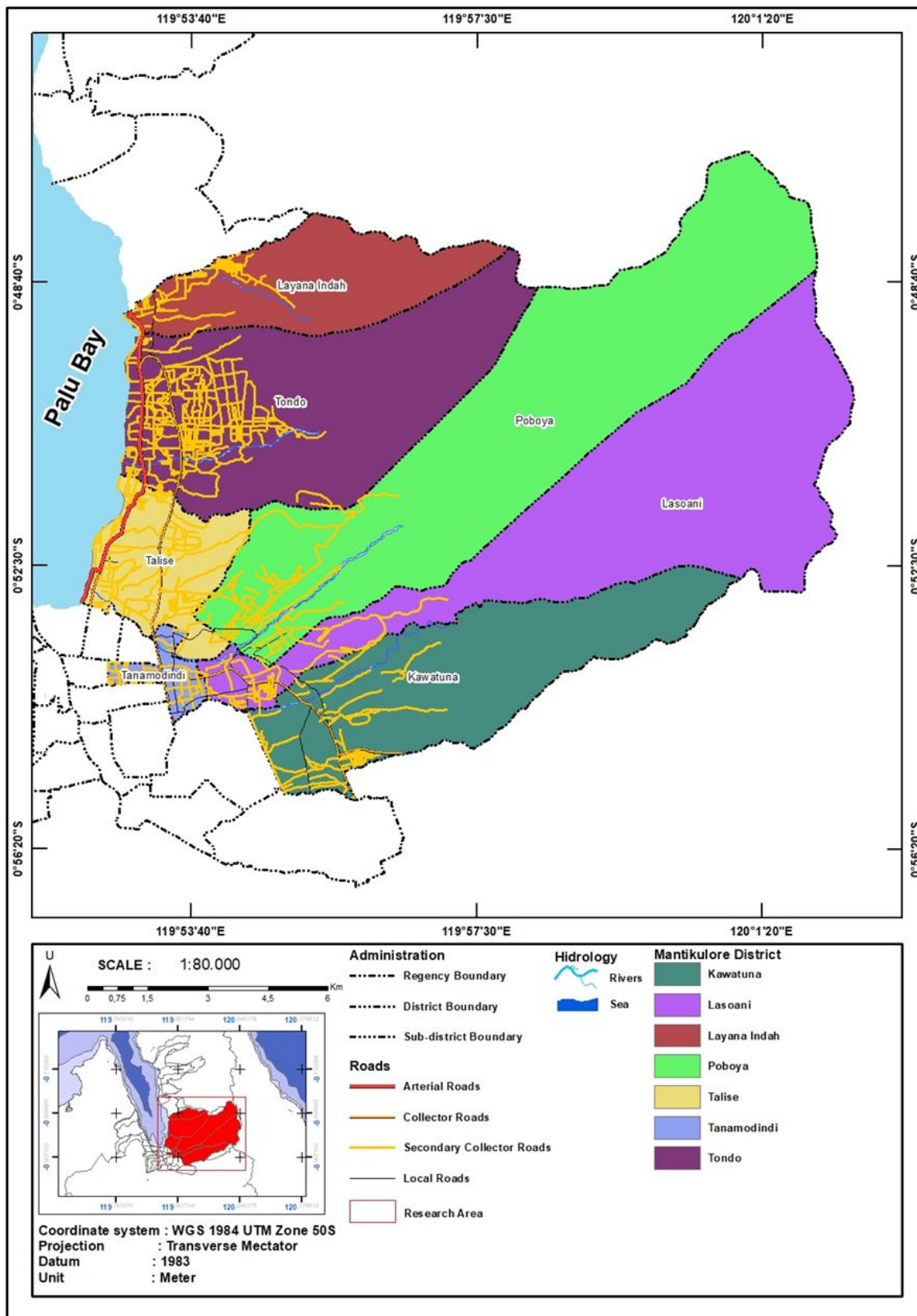


Figure 2: Research Location



### Data Collection

The data in this study are categorized into two groups: (1) Primary data obtained through direct observation and fieldwork; and (2) Secondary data obtained from previous studies related to the settlement areas of Palu City. The data collected through observation include (1) land use; (2) activity systems; (3) spatial utilization patterns; and (4) environmental characteristics. The instruments used for observation are (1) field notes, (2) periodic notes, and (3) checklists. Furthermore, the documentation data used in this study include administrative data, spatial planning policies, land types, rainfall, topography, slope, hydrology, and land use.

### Research variables

The research variable is a characteristic, attribute, or value that exists in individuals, objects, or activities, which has certain variations determined by the researcher to be studied and subsequently used to conclude the research findings (Sugiyono, 2016). The variables in this study are based on the theory proposed by Muta'Ali *et al.* (2012), as shown in the following table:

Tabel 1. Research Variables

Problem Statement	Variable
How is the Land Carrying Capacity and Land Absorption Capacity of Settlements in Mantikulore Subdistrict, Palu City?	Land Area Available for Settlement
	Conservation Zone
	Disaster-Prone Zone
	Land Cover Ratio
	Total Population
	Total Potential Area
What are the Guidelines for the Development of New Settlements After Natural Disasters in Mantikulore Sub-District, Palu City?	Coefficient of Space Area Requirement
	Settlement Capacity
	Disaster Prone Zone of Palu City Spatial Plan

## Analysis

### Settlement Carrying Capacity

Carrying capacity is the ability of an area to support the life and activities of living beings, especially humans. Environmental carrying capacity analysis uses quantitative methods. The analysis assesses how capable an area is of providing adequate settlement land to accommodate a specific population for habitation. To perform the carrying capacity analysis, several data are required, including the size of land available for settlement, the population size, and data on the standard or criteria for land requirements per individual.

The analysis assesses how capable an area is of providing settlement land to adequately accommodate a specific population for habitation. To perform the carrying capacity analysis, several data are required, including the size of land available for settlement, the population size, and data on the standard or criteria for land requirements per individual.

For the development and expansion of settlements, a land cover ratio of 60% of the potential area is considered (Muta'Ali *et al.*, 2012). To obtain the land area that can be developed for settlements from the potential area, it can be calculated using the following formula:

$$LPm = (LWP \times 60\%) \quad (1)$$

Description:

LPm = Area of land available for settlement development

LWP = Potential Area

60% = Land Cover Ratio

Source: Muta'Ali *et al.*, 2012

To find LWP, the author used the formula:

$$LWp = LW - (LKL + LKRB) \quad (2)$$

Description:

LWP = Potential Area Size (ha)

LW = Total Area Size (ha)

LKL = Protected Area Size (ha)

LKRB = Disaster-Prone Area Size (ha)

Once the land area that can be developed for settlements is known using the formula above, the next step in analyzing the carrying capacity of the area for settlements is to calculate the index value based on the available potential area, taking into account the standard per capita space requirements based on geographic location and the latest population data. The purpose of calculating this index value is to determine the potential area's capacity to accommodate an optimal population (Muta'Ali *et al.*, 2012).

Below is the standard per capita space requirements that can be used, along with the formula for calculating the index value of the carrying capacity for settlements.

$$DDPm = \frac{LPm/JP}{a} \quad (3)$$

Description:

DDPm = Residential Carrying Capacity

LPm = Land Area Available for Settlement (ha)

JP = Population (Individuals)

a = Coefficient of Space Requirement (ha/capita)

Source: Muta'Ali *et al.*, 2012

After calculating the carrying capacity of settlements using the formula, the range of carrying capacity index values for settlements is obtained as follows:

- Value of DDPm > 1, meaning that the carrying capacity of settlements is high, and it can still accommodate the population to settle (build houses) within the potential area.

- Value of DDPm = 1, meaning that the carrying capacity of settlements is optimal, and there is a balance between the population that settles (builds houses) and the available potential area.
- Value of DDPm < 1, meaning that the carrying capacity of settlements is low, and it can no longer accommodate the population to settle (build houses) within the potential area.

### ***Residential Absorption Capacity***

Carrying capacity is the ability of a region to accept and accommodate an optimal population. Environmental carrying capacity analysis uses quantitative methods. Carrying capacity analysis is needed in response to the unavoidable dynamics of population growth. The consequences of population growth and development occupying land lead to increased housing density. Several data are required to conduct carrying capacity analysis, namely the results of settlement carrying capacity analysis (DDPm) and data on the population size from the latest year. Therefore, the optimal population capacity can be determined using the following calculation formula:

$$DT = DDPm \times JP \quad (4)$$

DT = Residential Absorption Capacity

DDPm = Residential Carrying Capacity

JP = Population Size

### ***Zoning guidance***

Zoning guidance is part of control through the regulation of zones based on the city's carrying capacity and capacity suitability. Zoning guidance analysis uses qualitative methods. The sources of information in this analysis consist of the results of settlement carrying capacity and capacity analysis and the characteristics of natural disasters in the Mantikulore District of Palu City. Determining the guidance for settlement development in the Mantikulore District refers to the Technical Guidelines for preparing Regional Disaster Management Plans at the District/City Level prepared by the National Disaster Management Agency. In determining the guidance for settlement development, zoning classification is carried out to facilitate appropriate actions in disaster conditions. The zoning classification flowchart can be seen in the following diagram.

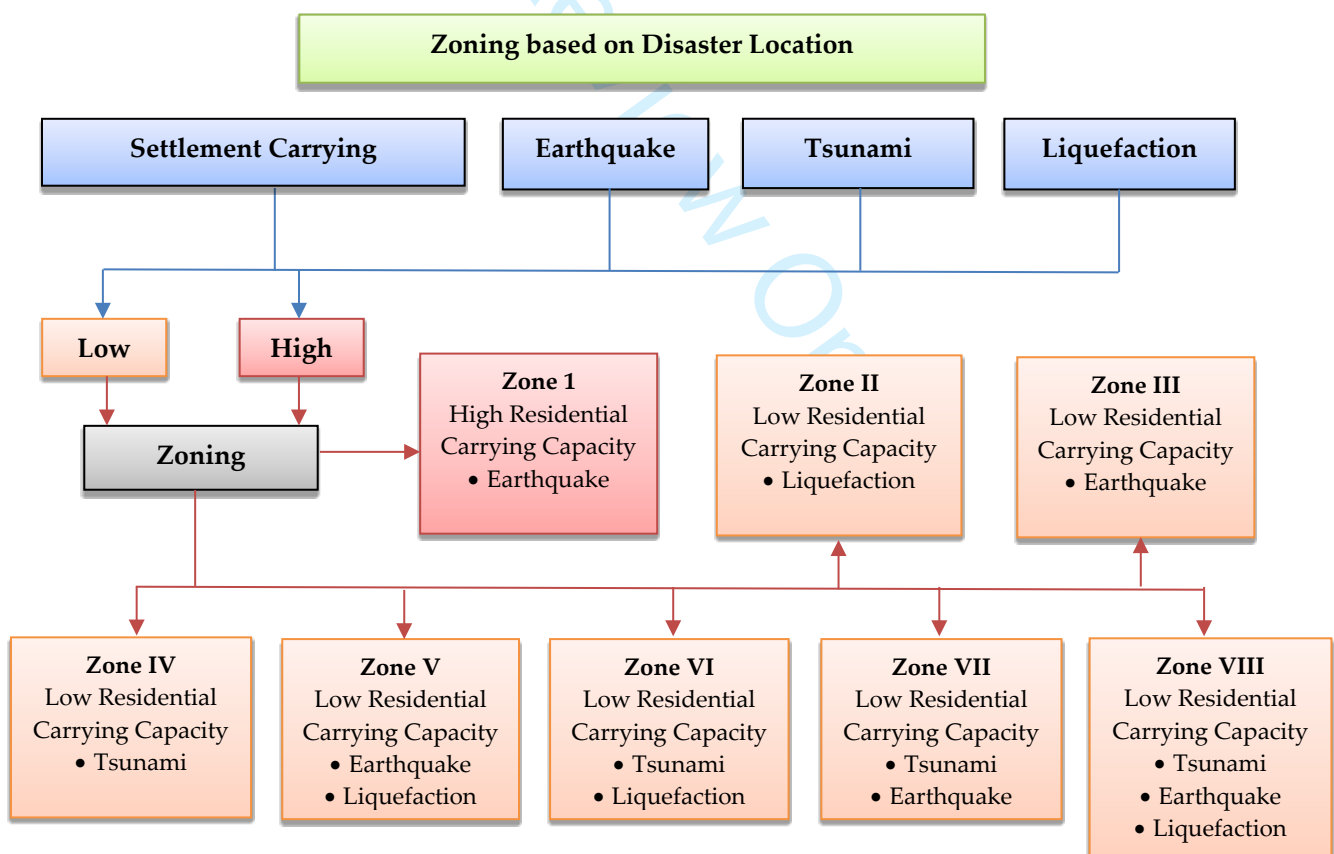


Figure 3. Zoning Based on Disaster Locations

## Results and Discussion

### Overview of the Research Location

Mantikulore Subdistrict is one of the districts in Palu City. It was formed from the expansion of East Palu District and South Palu District. It has the most significant area compared to other districts in Palu City, with its district capital in Talise Village. Based on its geographical position, the study area boundaries selected for this research are as follows:

- North: North Palu District
- South: South Palu District
- East: Parigi Moutong Regency
- West: Palu Bay and West Palu District.

Table 2. Research Area Size.

No.	sub-district	Area Size (Ha)
1.	Kawatuna	2824.75
2.	Lasoani	4717.99
3.	Layana Indah	1617.49
4.	Poboya	5526.01
5.	Talise	1085.16
6.	Tanamodindi	241.73
7.	Tondo	3786.03
<b>Total</b>		<b>19799.16</b>

Source: Spatial Planning Plan of Palu City 2021-2041

Table 2 shows that the largest village in Mantikulore Subdistrict is Poboya Village, with an area of 5526.01 ha. In contrast, the most miniature village is Tanamodindi Village, with an area of 241.73 ha.

### ***Analysis of Settlement Carrying Capacity***

Carrying capacity is the capacity of an area to support the life and activities of living beings, especially humans. This analysis of carrying capacity is beneficial to understand how capable an area is of providing sufficient residential land to accommodate a certain number of inhabitants adequately. In analyzing carrying capacity, several data are required, including the land area available for settlements, the population size, and the standards or criteria for land requirements per person.

Once the extent of land available for settlement development is known, the next step in analyzing the carrying capacity of the region for settlements is to calculate the index value of the existing potential area, taking into account the per capita space requirements based on the geographical location (rural and urban) and the latest population size. The purpose of calculating this index value is to determine the potential area's ability to accommodate an optimal population. The calculation for analyzing the settlement absorption capacity in Mantikulore Subdistrict is as follows.

**Table 3.** Results of Settlement Carrying Capacity Analysis in Mantikulore Subdistrict

<b>No</b>	<b>Sub-districts</b>	<b>Total Population</b>	<b>Lwp (ha)</b>	<b>DDPm</b>	<b>DDPm</b>
1.	Kawatuna	5529	-365.58	-0.61	<i>Low Residential Carrying Capacity</i>
2.	Lasoani	11435	845.16	1.42	<i>High Residential Carrying Capacity</i>
3.	Layana Indah	4400	-376.74	-0.63	<i>Low Residential Carrying Capacity</i>
4.	Poboya	3528	1041.52	1.74	<i>High Residential Carrying Capacity</i>
5.	Talise	21883	-261.69	-0.44	<i>Low Residential Carrying Capacity</i>
6.	Tanamodindi	13242	-18.34	-0.03	<i>Low Residential Carrying Capacity</i>
7.	Tondo	14461	-485.08	-0.81	<i>Low Residential Carrying Capacity</i>

Source: Analysis Results (2023)

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3 The analysis results in Table 2 indicate that the level of settlement carrying capacity in  
4 Mantikulore Subdistrict is divided into high settlement carrying capacity, which is distributed  
5 in Lasoani and Poboya Sub-districts, and low settlement carrying capacity, which is distributed  
6 in Kawatuna, Layana Indah, Talise, Tanamodindi, and Tondo Sub-districts. This is due to the  
7 limited potential areas in the Mantikulore Subdistrict.  
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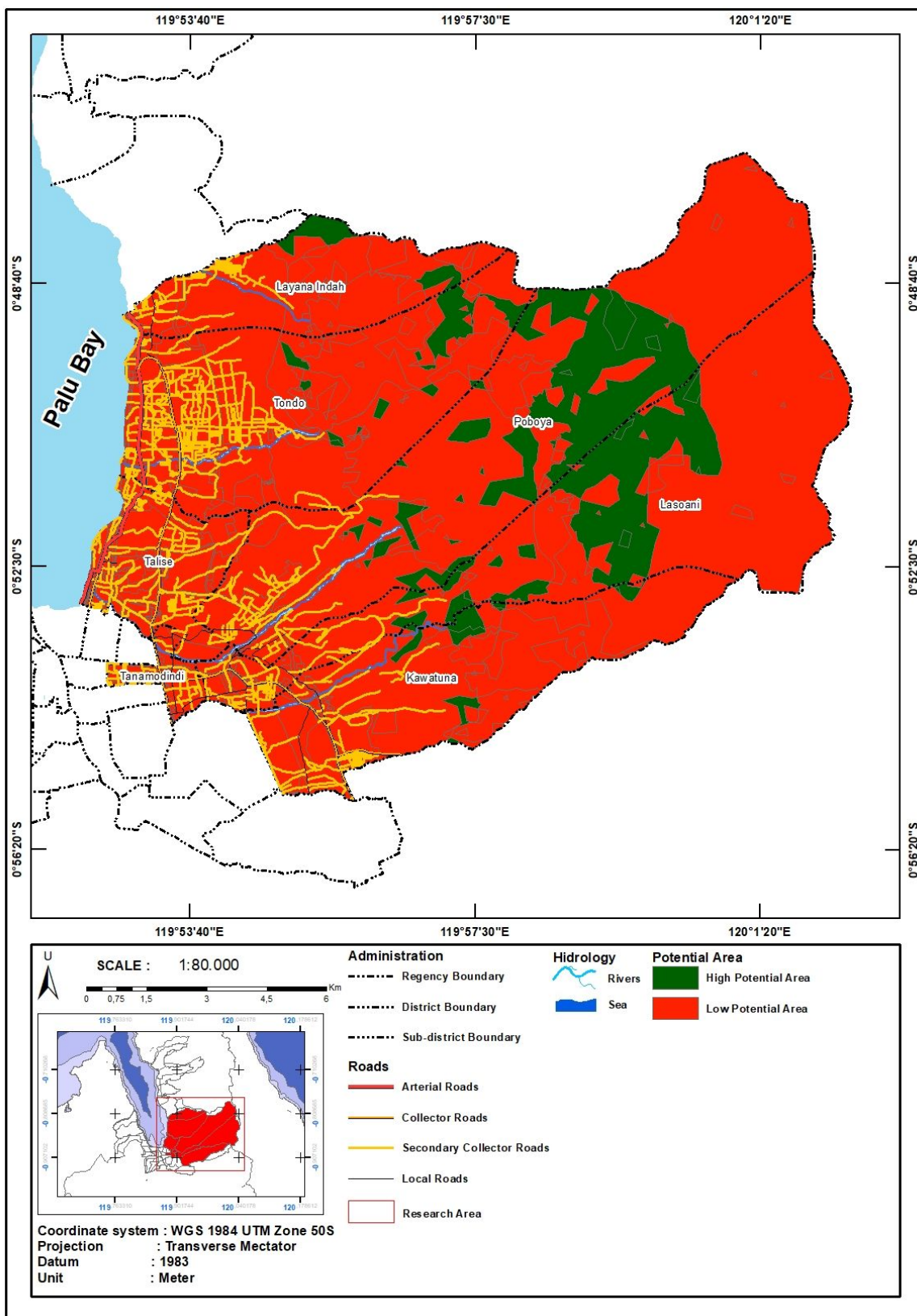


Figure 4: Settlement Carrying Capacity Map of Mantikulore Subdistrict

### ***Analysis of Settlement Absorption Capacity***

Capacity is the ability of a particular area to accommodate and support an optimal population. A capacity analysis is essential to address the dynamics of population growth that is currently inevitable—the consequences of population growth and development occupying land lead to increased housing density. In conducting capacity analysis, several data are required, including the results of settlement carrying capacity analysis (DDPm) and data on the latest population count.

**Table 4.** Results of Settlement Capacity Analysis in Mantikulore Sub-District

No	Sub-districts	DDPm	Total Population	DT (Capacity)	Information
1.	Kawatuna	-0.61	5529	-2,268	<i>The areas cannot accommodate and support settlements</i>
2.	Lasoani	1.42	11435	9,981	<i>The areas can accommodate and support settlements</i>
3.	Layana Indah	-0.63	4400	-1,852	<i>The areas cannot accommodate and support settlements</i>
4.	Poboaya	1.74	3528	2,976	<i>The areas can accommodate and support settlements</i>
5.	Talise	-0.44	21883	-5,516	<i>The areas cannot accommodate and support settlements</i>
6.	Tanamodindi	-0.03	13242	-435	<i>The areas cannot accommodate and support settlements</i>
7.	Tondo	-0.81	14461	-10,426	<i>The areas cannot accommodate and support settlements</i>

Source: Analysis Results (2023)

Table 4 indicates that Mantikulore Sub-District needs to be increased to accommodate the population for settlement. The table above shows Lasoani Village has the most significant settlement capacity, with 9,981 people.

### ***Analysis of Settlement Development Directions in Mantikulore Subdistrict***

To determine the direction of settlement development in the Mantikulore Sub-District, a qualitative descriptive analysis tool is utilized, considering the results of the analysis of settlement carrying capacity, population capacity, and natural disasters in the area. The determination of settlement development guidelines in the Mantikulore Sub-District refers to the Technical Guidelines for preparing Regional Disaster Management Plans at the District/City Level, prepared by the National Disaster Management Agency (NDMA) and the Japan International Cooperation Agency (JICA). For a more precise understanding, please refer to the table below.

**Table 5.** Formulation of Settlement Development Guidelines in Mantikulore Sub-District

<b>Zone</b>	<b>Ddpm</b>	<b>Natural Disasters</b>	<b>Area (Ha)</b>	<b>Development Direction of Settlements</b>
<b>Zona I</b>	High Residential Carrying Capacity	Earthquake	1883.43	<ul style="list-style-type: none"> <li>• Conducting zoning of earthquake-prone areas and land use regulations.</li> <li>• Implementing earthquake-safe building standards down to the neighborhood level, adopted from the provincial Building Code.</li> <li>• Applying land use regulations and building permits based on earthquake disaster risk assessment.</li> <li>• Conducting socialization of disaster threats and their potential impacts on the community, schools, and media.</li> </ul>
<b>Zone II</b>	Low Residential Carrying Capacity	Liquefaction	4.26	<ul style="list-style-type: none"> <li>• We are relocating settlements affected by liquefaction disasters in high-capacity residential areas within Zone I.</li> <li>• We are developing city-level evacuation plans for priority disaster zones.</li> </ul>

<b>Zone</b>	<b>Ddpm</b>	<b>Natural Disasters</b>	<b>Area (Ha)</b>	<b>Development Direction of Settlements</b>
<b>Zone III</b>	Low Residential Carrying Capacity	Earthquake	16895.14	<ul style="list-style-type: none"> <li>• Developing settlement placement plans to reduce housing density in earthquake-prone areas.</li> <li>• Establishing emergency response facilities and infrastructure for disaster preparedness.</li> <li>• Conducting public awareness campaigns on disaster threats and their potential impacts among communities, schools, and the media.</li> </ul>
<b>Zone IV</b>	Low Residential Carrying Capacity	Tsunami	3.16	<ul style="list-style-type: none"> <li>• Establishment of regulations related to land use and Building Permits.</li> <li>• Development of buffer zones and disaster impact mitigating areas for Tsunamis.</li> <li>• Conducting public awareness campaigns on disaster threats and their potential impacts among communities, schools, and the media.</li> </ul>
<b>Zone V</b>	Low Residential Carrying Capacity	Earthquake Liquefaction	781.05	<ul style="list-style-type: none"> <li>• Developing settlement placement plans to reduce housing density in earthquake-prone areas.</li> <li>• Conducting public awareness campaigns on disaster threats and their potential impacts among communities, schools, and the media.</li> <li>• Relocating settlements affected by liquefaction disasters to areas with high settlement carrying capacity in Zone I (Lasoani and Poboya).</li> </ul>

<b>Zone</b>	<b>Ddpm</b>	<b>Natural Disasters</b>	<b>Area (Ha)</b>	<b>Development Direction of Settlements</b>
<b>Zone VI</b>	Low Residential Carrying Capacity	Tsunami Liquefaction	0.14	<ul style="list-style-type: none"> <li>Establishing regulations related to land use and building permits.</li> <li>Developing buffer zones and disaster impact mitigating areas for Tsunami.</li> <li>Conducting public awareness campaigns on disaster threats and their potential impacts among communities, schools, and media.</li> <li>Relocating settlements affected by liquefaction disasters to areas with high settlement carrying capacity in Zone I (Lasoani and Poboya).</li> </ul>
<b>Zone VII</b>	Low Residential Carrying Capacity	Tsunami Earthquake	118.39	<ul style="list-style-type: none"> <li>Prohibited for further development. Housing units are recommended for relocation.</li> <li>Creating settlement placement plans to reduce housing density in earthquake-prone areas.</li> <li>Prioritizing land use for protected areas and green open spaces.</li> <li>Conducting public awareness campaigns on disaster threats and their potential impacts among communities, schools, and media.</li> </ul>
<b>Zone VIII</b>	Low Residential Carrying Capacity	Tsunami Earthquake Liquefaction	25.03	<ul style="list-style-type: none"> <li>Prohibited for any further development. Housing units are recommended for relocation.</li> <li>Prioritizing the utilization of space for protected areas and green open spaces.</li> <li>Conducting public awareness campaigns on disaster threats and their potential impacts among communities, schools, and media.</li> <li>Relocating settlements affected by liquefaction disasters to areas with high housing carrying capacity in Zone I (Lasoani and Poboya).</li> </ul>

Source: Analysis Results (2023)

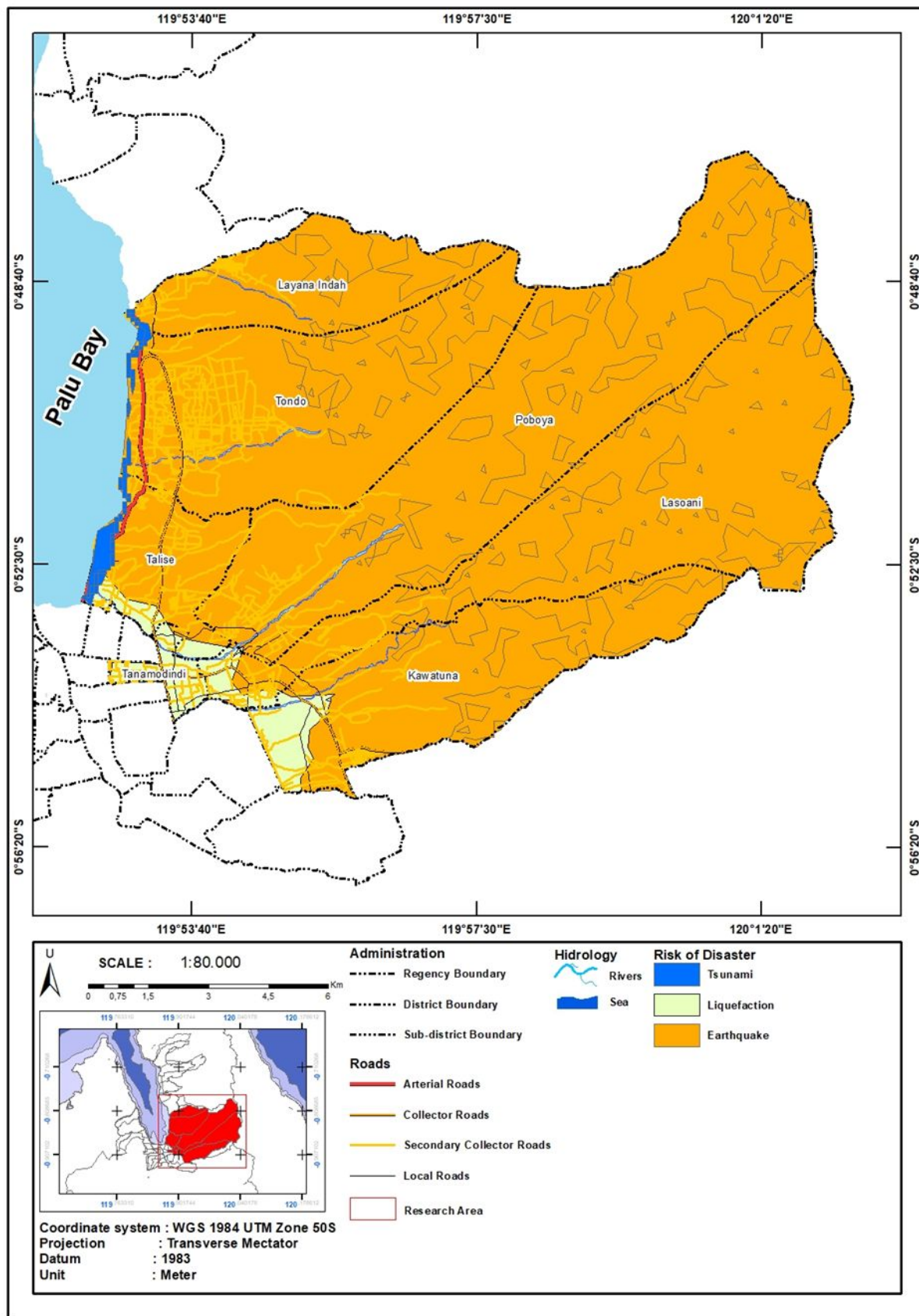


Figure 5. Map of Natural Disaster Vulnerability Zones in Mantikulore Sub-District

## Conclusion

Based on the analysis results of the carrying capacity and capacity of residential zones in Mantikulore Sub-District, Palu City, it is generally observed that the environmental carrying capacity and capacity for residential zones still need to be increased. the Lasoani and Poboya sub-district. show high environmental carrying capacity and capacity for residential zones. At the same time, other sub-district still need to meet the environmental carrying capacity and capacity for their residential development needs. Furthermore, the post-disaster residential development guidelines in Mantikulore Sub-District, Palu City, must be kept in its carrying capacity and capacity conditions. The zoning guidelines for residential areas in Mantikulore Sub-District, Palu City, are divided into permitted zones, conditionally permitted zones, restricted permitted zones, and prohibited zones. Therefore, the development guidelines for residential zones in Mantikulore Sub-District, Palu City, prioritize the Lasoani and Poboya sub-district.

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For Review Only

## **Response to Editor**

**Manuscript ID JSUSM-2023-0551**

**Retitle: SUSTAINABLE DEVELOPMENT GUIDELINES FOR POST-DISASTER SETTLEMENTS IN PALU CITY: A SPATIAL PLANNING PERSPECTIVE**

**Dear Editor,**

We would like to thank you and the reviewers for your time and effort in reviewing this manuscript. We have addressed all reviewer comments and provided responses so that you can easily follow our responses in context. We have uploaded the revised manuscript by line number with the responses to the reviewers' comments included. We hereby submit the revised version based on the feedback on our article:

1. Reviewer comments: In the first section, we were asked to revise the proposed title to "Sustainable Development Guidelines For Post-Disaster Settlements In Palu City: A Spatial Planning Perspective"

Author's Response: Thanks for the comment, we have changed the title of the manuscript as suggested by the reviewer.

2. Reviewer Comments: In the second section, we were asked to follow the format for figure and table captions according to JSSM format.

Author's Response: Thanks for the comment, we have updated the format of the figures and tables of the article according to the JSSM required format and ensured all parts of the format are in line with journal standards.

3. Reviewer Comments: In the third section, we were asked to review the conclusions and recommendations in the manuscript.

Author's Response: Thank you for your comments, we have reviewed the conclusions and recommendations as suggested by the reviewer.

4. Reviewer Comments: In the fourth section, we are asked to correct the additional comments from the reviewers contained in the attached pdf manuscript.

Author's Response: Thank you for your comments, we have reviewed and corrected the reviewer's additional comments contained in the attached pdf file.

5. Reviewer Comments: In the fifth section, we were asked to review the corrections from the Associate Editor (AE) and Editor-in-Chief (EiC).

Author's Response: Thank you for the comment, we have responded and corrected the corrections provided by the Associate Editor (AE) and Editor-in-Chief (EiC).

Overall, the reviewers' comments were very constructive, and we greatly appreciate them on our original manuscript. We found that this experience of revising the manuscript has significantly improved the quality of our article. Thank you in advance for your consideration and support of our manuscript.

Please find point-by-point responses to all comments below. If you have any further questions further questions, please let me know.

Sincerely,

On behalf of the author

**Syafri**

## Response to Reviewers

No	Reviewer Comment	Original Manuscript	Author Comment	Revised Manuscript
1	Retitle as "Sustainable Development Guidelines for Post-Disaster Settlements in Palu City: A Spatial Planning Perspective"	<ul style="list-style-type: none"> <li>• Page 1</li> </ul>	Thanks to the comments, we have changed the title of the manuscript as suggested by the reviewer.	<ul style="list-style-type: none"> <li>• Page 1</li> </ul>
2	Wrong format for the figure and table captions, follow JSSM format.	<ul style="list-style-type: none"> <li>• Page 7, 12, 13, 14, 17, 18, and 21</li> </ul>	Thank you for your comment, we have updated the format of the figures and tables of the article according to the JSSM required format and ensured all parts of the format are in line with journal standards.	<ul style="list-style-type: none"> <li>• Page 7, 12, 13, 14, 17, 18, and 21</li> </ul>
3	Rewrite the Conclusion and Recommendation	<ul style="list-style-type: none"> <li>• Page 22</li> </ul>	Thank you for your comments, we have reviewed the conclusions and recommendations as suggested by the reviewer.	<ul style="list-style-type: none"> <li>• Page 22, 23, and 24</li> </ul>
4	Additional comments in the pdf attached file.	<ul style="list-style-type: none"> <li>• Page 7, 12, 13, 14, 17, 18, 21, and 22</li> </ul>	Thank you for your comments, we have reviewed and corrected the reviewer's additional comments contained in the attached pdf file.	<ul style="list-style-type: none"> <li>• Page 7, 12, 13, 14, 17, 18, 21, 22, 23, and 24</li> </ul>
5	Minor corrections can be accepted for publication upon a further check of the corrected manuscript by AE and EiC JSSM.	<ul style="list-style-type: none"> <li>• Page 7, 12, 13, 14, 17, 18, 21, and 22</li> </ul>	Thank you for your comments, we have responded and corrected the corrections provided by the Associate Editor (AE) and Editor-in-Chief (EiC).	<ul style="list-style-type: none"> <li>• Page 7, 12, 13, 14, 17, 18, 21, and 22</li> </ul>

ACTION	STATUS	ID	TITLE	SUBMITTED	DECISIONED
a revision has been submitted (JSUSM-2023-0551.R2)	<a href="#">Contact Journal</a> ADM: Science and Management, Journal of Sustainability ADM: Ahmad, Aziz <ul style="list-style-type: none"> <li>• Minor Revision (19-Jun-2024)</li> <li>• a revision has been submitted</li> </ul> <a href="#">view decision letter</a>	JSUSM-2023-0551.R1	SPATIAL PLANNING AND SUSTAINABLE CITIES: THE PERSPECTIVE OF SUSTAINABLE DEVELOPMENT OF SETTLEMENTS POST-NATURAL DISASTERS IN PALU CITY, CENTRAL SULAWESI, INDONESIA <a href="#">View Submission</a>	18-May-2024	19-Jun-2024

**Decision Letter (JSUSM-2023-0551.R1)**

**From:** nyukling@umt.edu.my  
**To:** syafri@universitasbosowa.ac.id  
**CC:**  
**Subject:** Journal of Sustainability Science and Management - Decision on Manuscript ID JSUSM-2023-0551.R1  
**Body:** 19-Jun-2024

Dear Dr. Syafri: Manuscript ID JSUSM-2023-0551.R1 entitled "SPATIAL PLANNING AND SUSTAINABLE CITIES: THE PERSPECTIVE OF SUSTAINABLE DEVELOPMENT OF SETTLEMENTS POST-NATURAL DISASTERS IN PALU CITY, CENTRAL SULAWESI, INDONESIA" which you submitted to the Journal of Sustainability Science and Management, has been reviewed. The comments of the reviewer(s) are included at the bottom of this letter.

The reviewer(s) have recommended publication, but also suggest some minor revisions to your manuscript. Therefore, I invite you to respond to the reviewer(s)' comments and revise your manuscript.

To revise your manuscript, log into <https://mc04.manuscriptcentral.com/jsusm> and enter your Author Center, where you will find your manuscript title listed under "Manuscripts with Decisions." Under "Actions," click on "Create a Revision." Your manuscript number has been appended to denote a revision.

You may also click the below link to start the revision process (or continue the process if you have already started your revision) for your manuscript. If you use the below link you will not be required to login to ScholarOne Manuscripts.

\*\*\* PLEASE NOTE: This is a two-step process. After clicking on the link, you will be directed to a webpage to confirm. \*\*\*

[https://mc04.manuscriptcentral.com/jsusm?URL\\_MASK=3438c0d8cd3d435ea1370b749b9f2c9d](https://mc04.manuscriptcentral.com/jsusm?URL_MASK=3438c0d8cd3d435ea1370b749b9f2c9d)

You will be unable to make your revisions on the originally submitted version of the manuscript. Instead, revise your manuscript using a word processing program and save it on your computer. Please also highlight the changes to your manuscript within the document by using the track changes mode in MS Word or by using bold or colored text.

Once the revised manuscript is prepared, you can upload it and submit it through your Author Center.

When submitting your revised manuscript, you will be able to respond to the comments made by the reviewer(s) in the space provided. You can use this space to document any changes you make to the original manuscript. In order to expedite the processing of the revised

manuscript, please be as specific as possible in your response to the reviewer(s).

**IMPORTANT:** Your original files are available to you when you upload your revised manuscript. Please delete any redundant files before completing the submission.

Because we are trying to facilitate timely publication of manuscripts submitted to the Journal of Sustainability Science and Management, your revised manuscript should be submitted by 19-Jul-2024. If it is not possible for you to submit your revision by this date, we may have to consider your paper as a new submission.

Once again, thank you for submitting your manuscript to the Journal of Sustainability Science and Management and I look forward to receiving your revision.

Sincerely,  
Dr. Ma Nyuk Ling (Metabolomics/Environmental Exposome)  
Editor-in-Chief, Journal of Sustainability Science and Management  
nyukling@umt.edu.my  
JSSM is Web of Science (Zoological Record) and Scopus indexed journal

Associate Editor Comments to Author:

Associate Editor  
Comments to the Author:

1. Figure 1 – the size of one box cover part of the content – Coefficient of space area...
2. The paper includes two expressions: "absorption" and "carrying capacity". It is a key topic even as it is mentioned in the first problem statement (Table 1). However, differences between these two concepts are not properly discussed in the paper. Please see for instance: "Absorption" or "Carrying Capacity" of Areas – Assessment Methods on the Example of Detached Housing Real Estate, Real Estate Management and Valuation, 2019, 27(2), pp. 5–19. This publication should help to improve the quality of theoretical background.
3. Please define limitations of the research in the last section.

Reviewer(s)' Comments to Author:

Reviewer: 1

Comments to the Author

The paper entitled "SPATIAL PLANNING AND SUSTAINABLE CITIES: THE PERSPECTIVE OF SUSTAINABLE DEVELOPMENT OF SETTLEMENTS POST-NATURAL DISASTERS IN PALU CITY, CENTRAL SULAWESI, INDONESIA" presents an interesting research which fits to the scope of the journal. However, there are some points which should be revised before publication. Below I present comments which should be considered while improving the paper.

1. Figure 1 – the size of one box cover part of the content – Coefficient of space area...
2. The paper includes two expressions: "absorption" and "carrying capacity". It is a key topic even as it is mentioned in the first problem statement (Table 1). However, differences between these two concepts are not properly discussed in the paper. Please see for instance: "Absorption" or "Carrying Capacity" of Areas – Assessment Methods on the Example of Detached Housing Real Estate, Real Estate Management and Valuation, 2019, 27(2), pp. 5–19. This publication should help to improve the quality of theoretical background.
3. Please define limitations of the research in the last section.

**Date Sent:** 19-Jun-2024

**File 1:** - Revisi ID-JSUSM-2023-0551 Proof hi Retitle as as Sustainable Development Guidelines for Post-Disaster Settlements in Palu City.docx

**SPATIAL PLANNING AND SUSTAINABLE CITIES: THE PERSPECTIVE OF  
SUSTAINABLE DEVELOPMENT OF SETTLEMENTS POST-NATURAL  
DISASTERS IN PALU CITY, CENTRAL SULAWESI, INDONESIA**

**Abstract:** Post-natural disaster spatial planning requires a study of spatial carrying capacity and support to promote the sustainability of settlement development. This study aims to analyze settlements' carrying capacity and spatial support and formulate development guidelines for post-natural disaster settlements in the Mantikulore Subdistrict, Palu City. The study adopts a sequential explanatory approach combining quantitative and qualitative methods. Data were obtained through observation, surveys, and documentation. The analysis of the carrying capacity and spatial support for settlement zones in the Mantikulore Subdistrict, Palu City, shows that the environmental carrying capacity and support for settlement zones could be more robust. Only the neighborhoods of Lasoani and Poboya demonstrate high environmental carrying capacity and support for settlement zones. In contrast, other neighborhoods must meet the environmental carrying capacity and support needed for settlement development. The zoning guidelines for settlements in the Mantikulore Subdistrict, Palu City, are divided into allowed zones, conditionally allowed zones, limitedly allowed zones, and prohibited zones. Consequently, the developmental direction for settlement zones in the Mantikulore Subdistrict, Palu City, prioritizes Lasoani and Poboya neighborhoods.

**Keywords:** Settlement development, natural disasters, city zoning.

**Introduction**

Indonesia's cities face complex social, economic, and environmental issues that impact urban life (Wandl *et al.*, 2017; Panteleeva & Borozdina, 2022; Ouedraogo *et al.*, 2023). The lack of city planning and management contributes to a decline in urban environmental quality, leading

**Commented [A1bZ1]:** The abstract is well-written. However, it is suggested if it can be continued with a summary of the conclusion - what the study has contributed to the body of knowledge in general.

**Commented [AZ2]:** Much of the introduction content can be turned into Literature Review. Introduction must only offer the background of the study, while the in depth studies from the past can be discussed further in LR.



to the proliferation of slums and natural disasters (Bathrellos & Skilodimou, 2019). To achieve better city management, spatial planning is necessary, which involves designing and organizing land use, infrastructure, and the environment to attain sustainable urban development (Turkelboom *et al.*, 2018; Ouedraogo *et al.*, 2023). Effective spatial planning can help reduce disaster risks, including avoiding construction in disaster-prone areas (Hofmann, 2022). In this regard, spatial planning refers to zoning urban areas based on land-carrying capacity and environmental support, creating safe, comfortable, and sustainable spaces (Liu *et al.*, 2018; Kalfas *et al.*, 2023). In other words, good spatial planning can aid in minimizing disaster risks, including avoiding construction in vulnerable areas like earthquake-prone and flood-prone regions (Hofmann, 2022; Huang *et al.*, 2023).

Spatial planning in Palu City is a process of recovering and reconstructing urban areas that suffered damages from earthquake disasters. The National Disaster Management Agency (NDMA) reported a 7.7 magnitude earthquake in Palu City in 2018, resulting in thousands of casualties, extensive infrastructure damage, and significant social and economic impacts on the community. Meanwhile, according to the Central Bureau of Statistics of Palu City, in 2023, the population growth in Palu City will continue to experience an average growth rate of 1.27% in 2022, leading to increasing demand for residential land. Therefore, Palu City requires well-structured spatial planning and integration of social, economic, environmental, and infrastructure (Teklemariam, 2022; Alipour & Dia, 2023). Directed spatial planning is crucial for sustainable urban growth (Næss, 2001; Lara *et al.*, 2021; Kalfas *et al.*, 2023). Proper zoning for residential areas and disaster-responsive zones must be the primary consideration in Palu City's planning (Akola *et al.*, 2023; Dandoulaki *et al.*, 2023). Thus, good spatial planning can help reduce disaster risks, including avoiding building settlements in disaster-prone areas (Mileu & Queirós, 2018; Rezvani *et al.*, 2023).

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It is noted that this tendency for repeating descriptive elaborations of similar concepts is recurring throughout the paper.

It may be due to the manuscript being converted from a non-journal publication. Although it is alright, the author may need to rewrite some paragraphs to reflect a more efficient journal paper.

Settlement development in Palu City is a part of the post-earthquake recovery and reconstruction process for residential areas. Selecting the locations for post-earthquake settlement development should be based on a comprehensive risk assessment to ensure the new settlements are safer, sustainable, and earthquake-resistant (Alipour & Dia, 2023). In other words, the development of settlements in Palu City is of utmost importance, considering the environmental carrying capacity and support to strike a balance between urban growth and the environment's capacity to maintain sustainability and environmental quality (Luo *et al.*, 2022; Pourebrahim *et al.*, 2023). Factors considered for settlement development in terms of environmental carrying capacity and support in Palu City include protected zones, disaster-prone zones, land cover ratio, population size, potential area size, and the coefficient of built-up area requirement (Wang, 2018; Alipour & Dia, 2023). Therefore, sustainable settlement development provides residents safety and comfort (Ibrahim *et al.*, 2020 & Harbiankova & Shcherbina, 2021).

Previous studies that support this research include: (1) Lara *et al.* (2021) found that non-integrated city planning between the city center and other sub-centers leads to urban issues in terms of economic, social, and environmental aspects; (2) Atmaca *et al.* (2023) stated that the lack of resources for post-disaster temporary evacuation plans resulted in significant physical, economic, and social losses for the community; (3) Hofmann (2022), mentioned that effective governance supports faster and better post-disaster recovery and resettlement; (4) Nickuyin *et al.* (2020), Medeiros *et al.* (2020), and Kalfas *et al.* (2023), found that weak institutions in managing urban activities lead to social, economic, and environmental problems.

These four studies collectively emphasize the need for more resources in post-disaster urban planning and management institutions. Furthermore, this study focuses on assessing the environmental carrying capacity and support as determining factors for the sustainability of post-earthquake settlement development in Palu City (Luo *et al.*, 2022). Thus, the

**Commented [AZ4]:** The background lacks author's own theoretical idea. This could be problematic as too many works of others being cited but there are fewer author's voice.

**Commented [AZ5]:** Avoid lists within paragraph. Instead, use bullet points or create a table for clarity.

**Commented [AZ6]:** Readers have been reminded of what this study is focusing on in earlier paragraphs. This is repeated information.

environmental carrying capacity and support contribute significantly to sound spatial planning and sustainable settlement development in Palu City (Rustiadi *et al.*, 2021).

The long-term benefits to be obtained are as follows: (1) the availability of settlement land zoning that is not prone to natural disasters; (2) the fulfillment of housing needs to support the social and economic activities of the community; (3) the establishment of sustainable spatial planning for settlements in Palu City. These three benefits will encourage the creation of a balanced settlement environment towards the effective utilization of natural resources and the restoration of the environmental quality of Palu City (Wardhani *et al.*, 2021; Wang *et al.*, 2022). Consequently, settlement development will ensure the safety and security of residents to engage in economic activities and promote the sustainability of urban development (Ayu Purnamawati *et al.*, 2023; Wei *et al.*, 2023).

The development dynamics of Palu City as the capital of Central Sulawesi Province have led to an increase in settlement development, contributing to changes in land use and a decline in environmental quality (Surya *et al.*, 2020). Furthermore, the urgency of this research is contextualized in several aspects, namely: (1) the recovery and reconstruction of residential areas after the earthquake; (2) spatial planning and settlement zoning based on an assessment of environmental carrying capacity and support; (3) the realization of settlement development that ensures human quality of life and environmental sustainability (Mumford, 2021). Thus, the research questions to be addressed in this study are: (1) What is the land carrying capacity and support for settlements in the Mantikulore Subdistrict Palu City? (2) What guidelines are for developing new settlements post-natural disasters in the Mantikulore Subdistrict Palu City?

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It is therefore suggested the RQ be more critical in exploring the 'non-what' questions also.  
Additionally, there seems to be a lack of research objectives found in the paper. It is not known what this paper is studying.

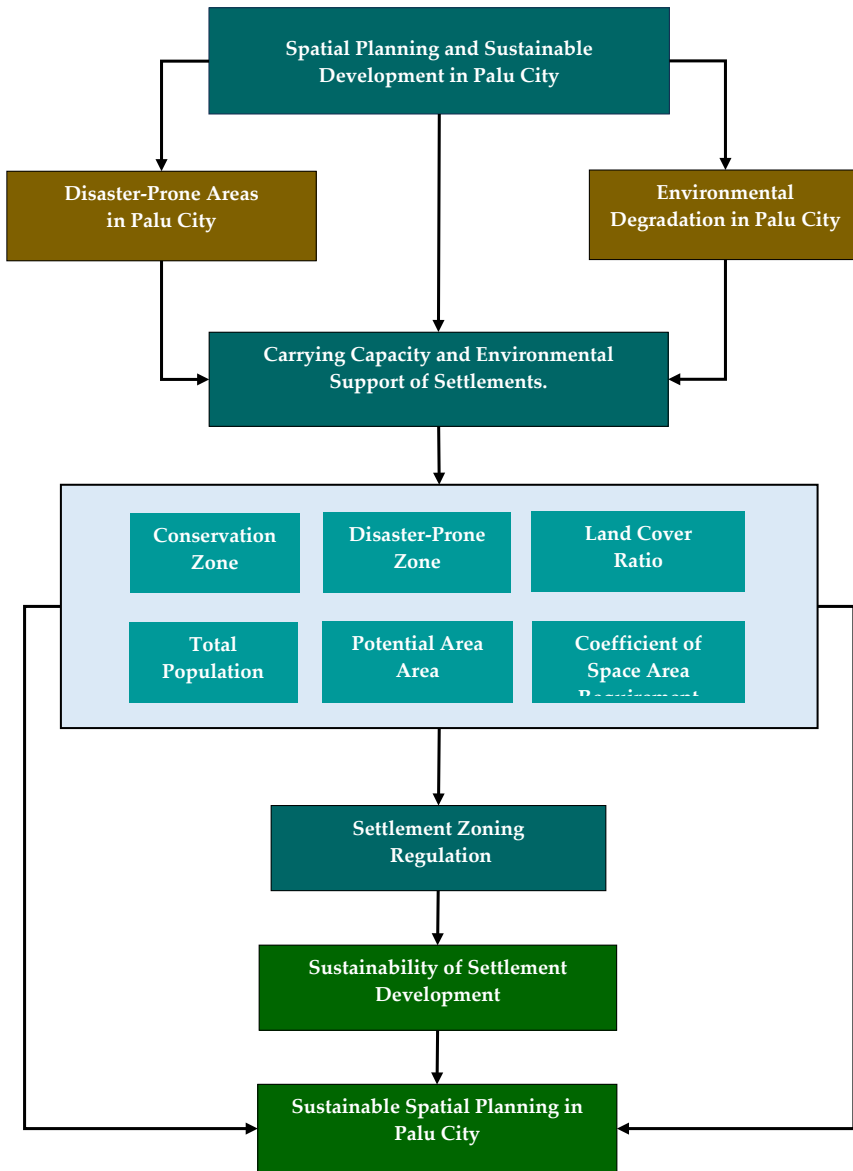


Figure 1: Conceptual Framework of Spatial Planning and Sustainable Cities: Perspective of Sustainable Development of Settlements Post-Natural Disasters in Palu City, Central Sulawesi, Indonesia.

C

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Also, this diagram is too large. This conceptual framework must come after the literature review.

## Materials and Methods

### Type of Research

This study is a mixed-methods research that combines quantitative and qualitative approaches (Cresswell, 2010). Quantitative data were obtained through surveys and documentation, while qualitative data were collected through observations and in-depth interviews.

### Study Area

The study was conducted in Mantikulore Subdistrict, Palu City, Central Sulawesi, with an area of 206.80 km<sup>2</sup>. The selection of the research location was based on the following considerations: (1) It is the largest subdistrict area and relatively still undeveloped in Palu City; (2) Geographically, it is relatively flat and located in hilly areas, thus avoiding the threat of Tsunami; (3) It has relatively good access and is considered a peri-urban area of Palu City, retaining urban characteristics. (4) It is a designated area for Palu City's development, and (5) It significantly contributes to the concept and direction of sustainable city planning. The location of the research is presented in Figure 2 below.

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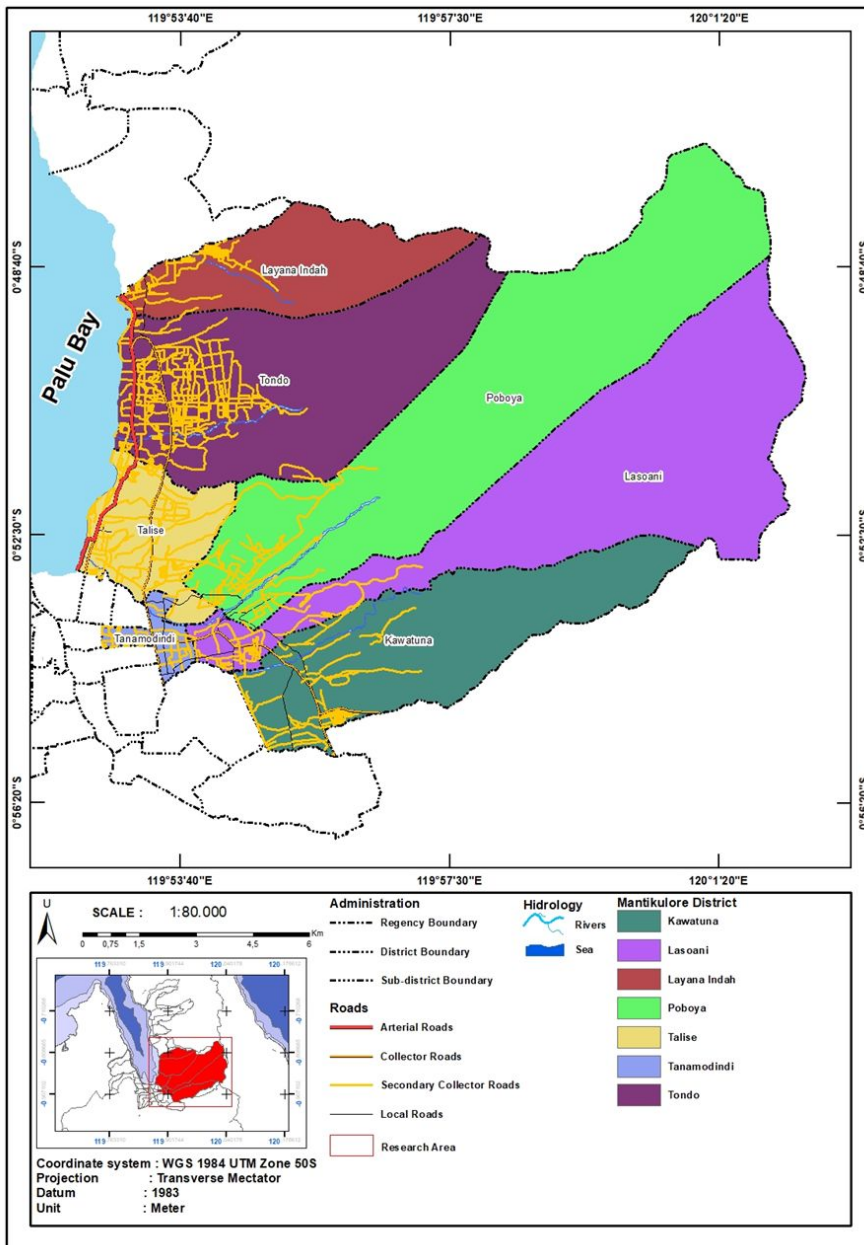


Figure 2: Research Location

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**Data Collection**

The data in this study are categorized into two groups: (1) Primary data obtained through direct observation and fieldwork; and (2) Secondary data obtained from previous studies related to the settlement areas of Palu City. The data collected through observation include (1) land use; (2) activity systems; (3) spatial utilization patterns; and (4) environmental characteristics. The instruments used for observation are (1) field notes, (2) periodic notes, and (3) checklists. Furthermore, the documentation data used in this study include administrative data, spatial planning policies, land types, rainfall, topography, slope, hydrology, and land use.

**Research variables**

The research variable is a characteristic, attribute, or value that exists in individuals, objects, or activities, which has certain variations determined by the researcher to be studied and subsequently used to conclude the research findings (Sugiyono, 2016). The variables in this study are based on the theory proposed by Muta'Ali *et al.* (2012), as shown in the following table:

Tabel 1. Research Variables

Problem Statement	Variable
How is the Land Carrying Capacity and Land Absorption Capacity of Settlements in Mantikulore Subdistrict, Palu City?	Land Area Available for Settlement
	Conservation Zone
	Disaster-Prone Zone
	Land Cover Ratio
	Total Population
	Total Potential Area
What are the Guidelines for the Development of New Settlements After Natural Disasters in Mantikulore Sub-District, Palu City?	Coefficient of Space Area Requirement
	Settlement Capacity
	Disaster Prone Zone of Palu City Spatial Plan

**Commented [AZ11]:** Do not have to explain general concepts or definitions such as what is a research variable. This is not a thesis, and therefore it is safe to presume the readers have some basic idea of these general concepts.

**Commented [AZ12]:** The ones listed in this column are not statements but questions. Also, these questions are no aligned with the research questions established earlier as well. May have to recheck.

**Analysis**

**Settlement Carrying Capacity**

Carrying capacity is the ability of an area to support the life and activities of living beings, especially humans. Environmental carrying capacity analysis uses quantitative methods. The analysis assesses how capable an area is of providing adequate settlement land to accommodate a specific population for habitation. To perform the carrying capacity analysis, several data are required, including the size of land available for settlement, the population size, and data on the standard or criteria for land requirements per individual.

The analysis assesses how capable an area is of providing settlement land to adequately accommodate a specific population for habitation. To perform the carrying capacity analysis, several data are required, including the size of land available for settlement, the population size, and data on the standard or criteria for land requirements per individual.

For the development and expansion of settlements, a land cover ratio of 60% of the potential area is considered (Muta'Ali *et al.*, 2012). To obtain the land area that can be developed for settlements from the potential area, it can be calculated using the following formula:

$$LP_m = (LWP \times 60\%) \quad (1)$$

Description:

LP<sub>m</sub> = Area of land available for settlement development

LWP = Potential Area

60% = Land Cover Ratio

Source: Muta'Ali *et al.*, 2012

To find LWP, the author used the formula:

$$LW_p = LW - (LKL + LKRB) \quad (2)$$

Description:

**Commented [AZ13]:** This part ought to be shortened as the concept is well established earlier



LWP = Potential Area Size (ha)

LW = Total Area Size (ha)

LKL = Protected Area Size (ha)

LKRB = Disaster-Prone Area Size (ha)

Once the land area that can be developed for settlements is known using the formula above, the next step in analyzing the carrying capacity of the area for settlements is to calculate the index value based on the available potential area, taking into account the standard per capita space requirements based on geographic location and the latest population data. The purpose of calculating this index value is to determine the potential area's capacity to accommodate an optimal population (Muta'Ali *et al.*, 2012).

Below is the standard per capita space requirements that can be used, along with the formula for calculating the index value of the carrying capacity for settlements.

$$DDPm = \frac{LPm/JP}{a} \quad (3)$$

Description:

DDPm = Residential Carrying Capacity

LPm = Land Area Available for Settlement (ha)

JP = Population (Individuals)

a = Coefficient of Space Requirement (ha/capita)

Source: Muta'Ali *et al.*, 2012

After calculating the carrying capacity of settlements using the formula, the range of carrying capacity index values for settlements is obtained as follows:

- Value of DDPm > 1, meaning that the carrying capacity of settlements is high, and it can still accommodate the population to settle (build houses) within the potential area.

**Commented [AZ14]:** Many discussions in this paper are too descriptive. Some parts can be shortened.

- Value of  $DDPm = 1$ , meaning that the carrying capacity of settlements is optimal, and there is a balance between the population that settles (builds houses) and the available potential area.
- Value of  $DDPm < 1$ , meaning that the carrying capacity of settlements is low, and it can no longer accommodate the population to settle (build houses) within the potential area.

### ***Residential Absorption Capacity***

Carrying capacity is the ability of a region to accept and accommodate an optimal population. Environmental carrying capacity analysis uses quantitative methods. Carrying capacity analysis is needed in response to the unavoidable dynamics of population growth. The consequences of population growth and development occupying land lead to increased housing density. Several data are required to conduct carrying capacity analysis, namely the results of settlement carrying capacity analysis ( $DDPm$ ) and data on the population size from the latest year. Therefore, the optimal population capacity can be determined using the following calculation formula:

$$DT = DDPm \times JP \quad (4)$$

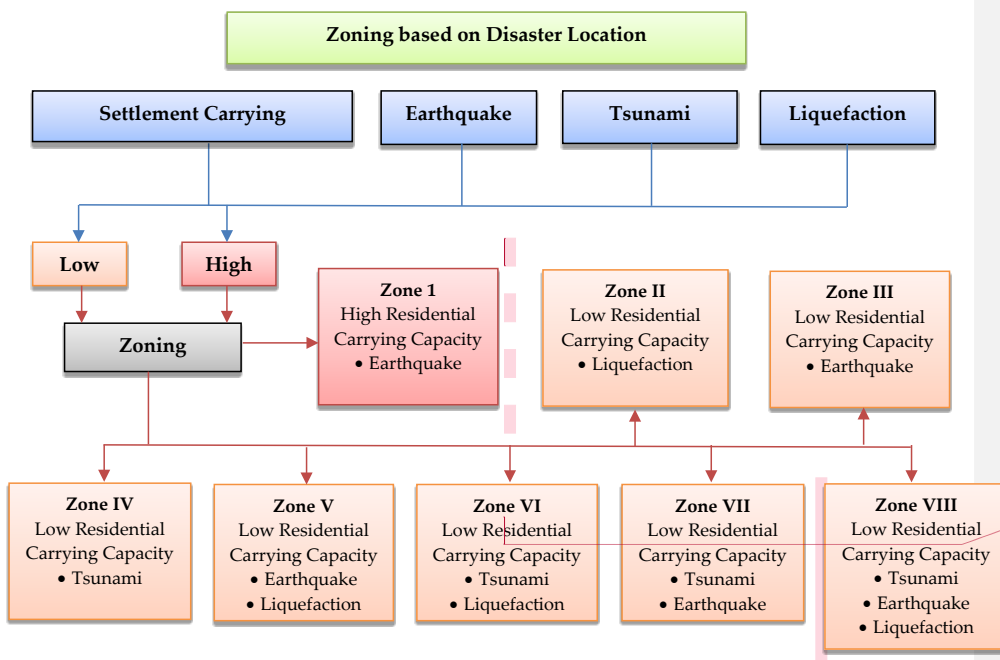
$DT$  = Residential Absorption Capacity

$DDPm$  = Residential Carrying Capacity

$JP$  = Population Size

### ***Zoning guidance***

Zoning guidance is part of control through the regulation of zones based on the city's carrying capacity and capacity suitability. Zoning guidance analysis uses qualitative methods. The sources of information in this analysis consist of the results of settlement carrying capacity and capacity analysis and the characteristics of natural disasters in the Mantikulore District of Palu City. Determining the guidance for settlement development in the Mantikulore District refers to the Technical Guidelines for preparing Regional Disaster Management Plans at the District/City Level prepared by the National Disaster Management Agency. In determining the guidance for settlement development, zoning classification is carried out to facilitate appropriate actions in disaster conditions. The zoning classification flowchart can be seen in the following diagram.



**Commented [AZ15]:** Needing explanations in the text on what determined the zoning I - VIII. If it is derived from some guidelines, mention the source in the figure caption.

Figure 3. Zoning Based on Disaster Locations

**Results and Discussion**

**Overview of the Research Location**

Mantikulare Subdistrict is one of the districts in Palu City. It was formed from the expansion of East Palu District and South Palu District. It has the most significant area compared to other districts in Palu City, with its district capital in Talise Village. Based on its geographical position, the study area boundaries selected for this research are as follows:

**Commented [AZ16]:** The word significant is not appropriate in this context. Significant in what way? May need some clarifications.

- North: North Palu District
- South: South Palu District
- East: Parigi Moutong Regency
- West: Palu Bay and West Palu District.

Table 2. Research Area Size.

No.	sub-district	Area Size (Ha)
1.	Kawatuna	2824.75
2.	Lasoani	4717.99
3.	Layana Indah	1617.49
4.	Poboya	5526.01
5.	Talise	1085.16
6.	Tanamodindi	241.73
7.	Tondo	3786.03
<b>Total</b>		<b>19799.16</b>

Source: Spatial Planning Plan of Palu City 2021-2041

**Commented [AZ17]:** This part should be in the research methodology. Now just straight to the results.

Table 2 shows that the largest village in Mantikulore Subdistrict is Poboya Village, with an area of 5526.01 ha. In contrast, the most miniature village is Tanamodindi Village, with an area of 241.73 ha.

**Commented [AZ18]:** The word miniature may not be appropriate. Use 'smallest' instead.

**Analysis of Settlement Carrying Capacity**

Carrying capacity is the capacity of an area to support the life and activities of living beings, especially humans. This analysis of carrying capacity is beneficial to understand how capable an area is of providing sufficient residential land to accommodate a certain number of inhabitants adequately. In analyzing carrying capacity, several data are required, including the land area available for settlements, the population size, and the standards or criteria for land requirements per person.

Once the extent of land available for settlement development is known, the next step in analyzing the carrying capacity of the region for settlements is to calculate the index value of the existing potential area, taking into account the per capita space requirements based on the geographical location (rural and urban) and the latest population size. The purpose of calculating this index value is to determine the potential area's ability to accommodate an optimal population. The calculation for analyzing the settlement absorption capacity in Mantikulore Subdistrict is as follows.

Table 3. Results of Settlement Carrying Capacity Analysis in Mantikulore Subdistrict

No	Sub-districts	Total Population	Lwp (ha)	DDPm	DDPm
1.	Kawatuna	5529	-365.58	-0.61	<i>Low Residential Carrying Capacity</i>
2.	Lasoani	11435	845.16	1.42	<i>High Residential Carrying Capacity</i>
3.	Layana Indah	4400	-376.74	-0.63	<i>Low Residential Carrying Capacity</i>
4.	Poboya	3528	1041.52	1.74	<i>High Residential Carrying Capacity</i>
5.	Talise	21883	-261.69	-0.44	<i>Low Residential Carrying Capacity</i>
6.	Tanamodindi	13242	-18.34	-0.03	<i>Low Residential Carrying Capacity</i>
7.	Tondo	14461	-485.08	-0.81	<i>Low Residential Carrying Capacity</i>

Source: Analysis Results (2023)

**Commented [AZ19]:** This does not need explanation anymore as it is already explained earlier.

Please omit some explanations on the method. Instead of offering descriptions of the purpose of conducting the analysis, the author may want to offer why and how it is important.

The analysis results in Table 2 indicate that the level of settlement carrying capacity in Mantikulore Subdistrict is divided into high settlement carrying capacity, which is distributed in Lasoani and Poboya Sub-districts, and low settlement carrying capacity, which is distributed in Kawatuna, Layana Indah, Talise, Tanamodindi, and Tondo Sub-districts. This is due to the limited potential areas in the Mantikulore Subdistrict.

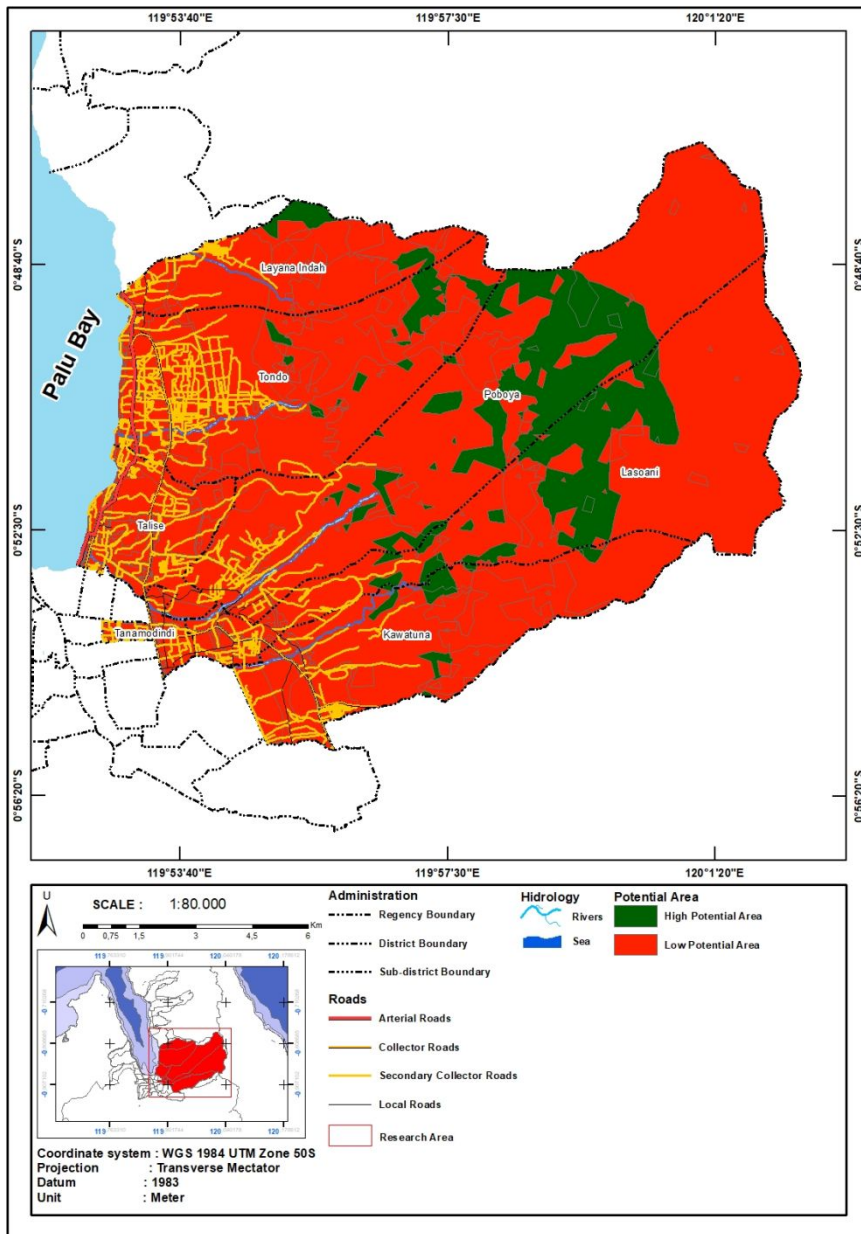


Figure 4: Settlement Carrying Capacity Map of Mantikulore Subdistrict

**Analysis of Settlement Absorption Capacity**

Capacity is the ability of a particular area to accommodate and support an optimal population. A capacity analysis is essential to address the dynamics of population growth that is currently inevitable—the consequences of population growth and development occupying land lead to increased housing density. In conducting capacity analysis, several data are required, including the results of settlement carrying capacity analysis (DDPm) and data on the latest population count.

Table 4. Results of Settlement Capacity Analysis in Mantikulore Sub-District

No	Sub-districts	DDPm	Total Population	DT (Capacity)	Information
1.	Kawatuna	-0.61	5529	-2,268	<i>The areas cannot accommodate and support settlements</i>
2.	Lasoani	1.42	11435	9,981	<i>The areas can accommodate and support settlements</i>
3.	Layana Indah	-0.63	4400	-1,852	<i>The areas cannot accommodate and support settlements</i>
4.	Poboaya	1.74	3528	2,976	<i>The areas can accommodate and support settlements</i>
5.	Talise	-0.44	21883	-5,516	<i>The areas cannot accommodate and support settlements</i>
6.	Tanamodindi	-0.03	13242	-435	<i>The areas cannot accommodate and support settlements</i>
7.	Tondo	-0.81	14461	-10,426	<i>The areas cannot accommodate and support settlements</i>

Source: Analysis Results (2023)

Table 4 indicates that Mantikulore Sub-District needs to be increased to accommodate the population for settlement. The table above shows Lasoani Village has the most significant settlement capacity, with 9,981 people.



**Analysis of Settlement Development Directions in Mantikulore Subdistrict**

To determine the direction of settlement development in the Mantikulore Sub-District, a qualitative descriptive analysis tool is utilized, considering the results of the analysis of settlement carrying capacity, population capacity, and natural disasters in the area. The determination of settlement development guidelines in the Mantikulore Sub-District refers to the Technical Guidelines for preparing Regional Disaster Management Plans at the District/City Level, prepared by the National Disaster Management Agency (NDMA) and the Japan International Cooperation Agency (JICA). For a more precise understanding, please refer to the table below.

Table 5. Formulation of Settlement Development Guidelines in Mantikulore Sub-District

Zone	Ddpm	Natural Disasters	Area (Ha)	Development Direction of Settlements
<b>Zona I</b>	High Residential Carrying Capacity	Earthquake	1883.43	<ul style="list-style-type: none"> <li>• Conducting zoning of earthquake-prone areas and land use regulations.</li> <li>• Implementing earthquake-safe building standards down to the neighborhood level, adopted from the provincial Building Code.</li> <li>• Applying land use regulations and building permits based on earthquake disaster risk assessment.</li> <li>• Conducting socialization of disaster threats and their potential impacts on the community, schools, and media.</li> </ul>
<b>Zone II</b>	Low Residential Carrying Capacity	Liquefaction	4.26	<ul style="list-style-type: none"> <li>• We are relocating settlements affected by liquefaction disasters in high-capacity residential areas within Zone I.</li> <li>• We are developing city-level evacuation plans for priority disaster zones.</li> </ul>

**Commented [AZ20]:** This part has been explained earlier. Please omit.

**Commented [AZ21]:** The table can be smaller and made more compact.

Develop a visual map for clear representation of this table. The figure 5 below does not indicate the proposed Ddpm distribution in the context of natural disasters zones,

<b>Zone</b>	<b>Ddpm</b>	<b>Natural Disasters</b>	<b>Area (Ha)</b>	<b>Development Direction of Settlements</b>
<b>Zone III</b>	Low Residential Carrying Capacity	Earthquake	16895.14	<ul style="list-style-type: none"> <li>• Developing settlement placement plans to reduce housing density in earthquake-prone areas.</li> <li>• Establishing emergency response facilities and infrastructure for disaster preparedness.</li> <li>• Conducting public awareness campaigns on disaster threats and their potential impacts among communities, schools, and the media.</li> </ul>
<b>Zone IV</b>	Low Residential Carrying Capacity	Tsunami	3.16	<ul style="list-style-type: none"> <li>• Establishment of regulations related to land use and Building Permits.</li> <li>• Development of buffer zones and disaster impact mitigating areas for Tsunamis.</li> <li>• Conducting public awareness campaigns on disaster threats and their potential impacts among communities, schools, and the media.</li> </ul>
<b>Zone V</b>	Low Residential Carrying Capacity	Earthquake Liquefaction	781.05	<ul style="list-style-type: none"> <li>• Developing settlement placement plans to reduce housing density in earthquake-prone areas.</li> <li>• Conducting public awareness campaigns on disaster threats and their potential impacts among communities, schools, and the media.</li> <li>• Relocating settlements affected by liquefaction disasters to areas with high settlement carrying capacity in Zone I (Lasoani and Poboya).</li> </ul>

<b>Zone</b>	<b>Ddpm</b>	<b>Natural Disasters</b>	<b>Area (Ha)</b>	<b>Development Direction of Settlements</b>
<b>Zone VI</b>	Low Residential Carrying Capacity	Tsunami Liquefaction	0.14	<ul style="list-style-type: none"> <li>• Establishing regulations related to land use and building permits.</li> <li>• Developing buffer zones and disaster impact mitigating areas for Tsunami.</li> <li>• Conducting public awareness campaigns on disaster threats and their potential impacts among communities, schools, and media.</li> <li>• Relocating settlements affected by liquefaction disasters to areas with high settlement carrying capacity in Zone I (Lasoani and Poboya).</li> </ul>
<b>Zone VII</b>	Low Residential Carrying Capacity	Tsunami Earthquake	118.39	<ul style="list-style-type: none"> <li>• Prohibited for further development. Housing units are recommended for relocation.</li> <li>• Creating settlement placement plans to reduce housing density in earthquake-prone areas.</li> <li>• Prioritizing land use for protected areas and green open spaces.</li> <li>• Conducting public awareness campaigns on disaster threats and their potential impacts among communities, schools, and media.</li> </ul>
<b>Zone VIII</b>	Low Residential Carrying Capacity	Tsunami Earthquake Liquefaction	25.03	<ul style="list-style-type: none"> <li>• Prohibited for any further development. Housing units are recommended for relocation.</li> <li>• Prioritizing the utilization of space for protected areas and green open spaces.</li> <li>• Conducting public awareness campaigns on disaster threats and their potential impacts among communities, schools, and media.</li> <li>• Relocating settlements affected by liquefaction disasters to areas with high housing carrying capacity in Zone I (Lasoani and Poboya).</li> </ul>

Source: Analysis Results (2023)

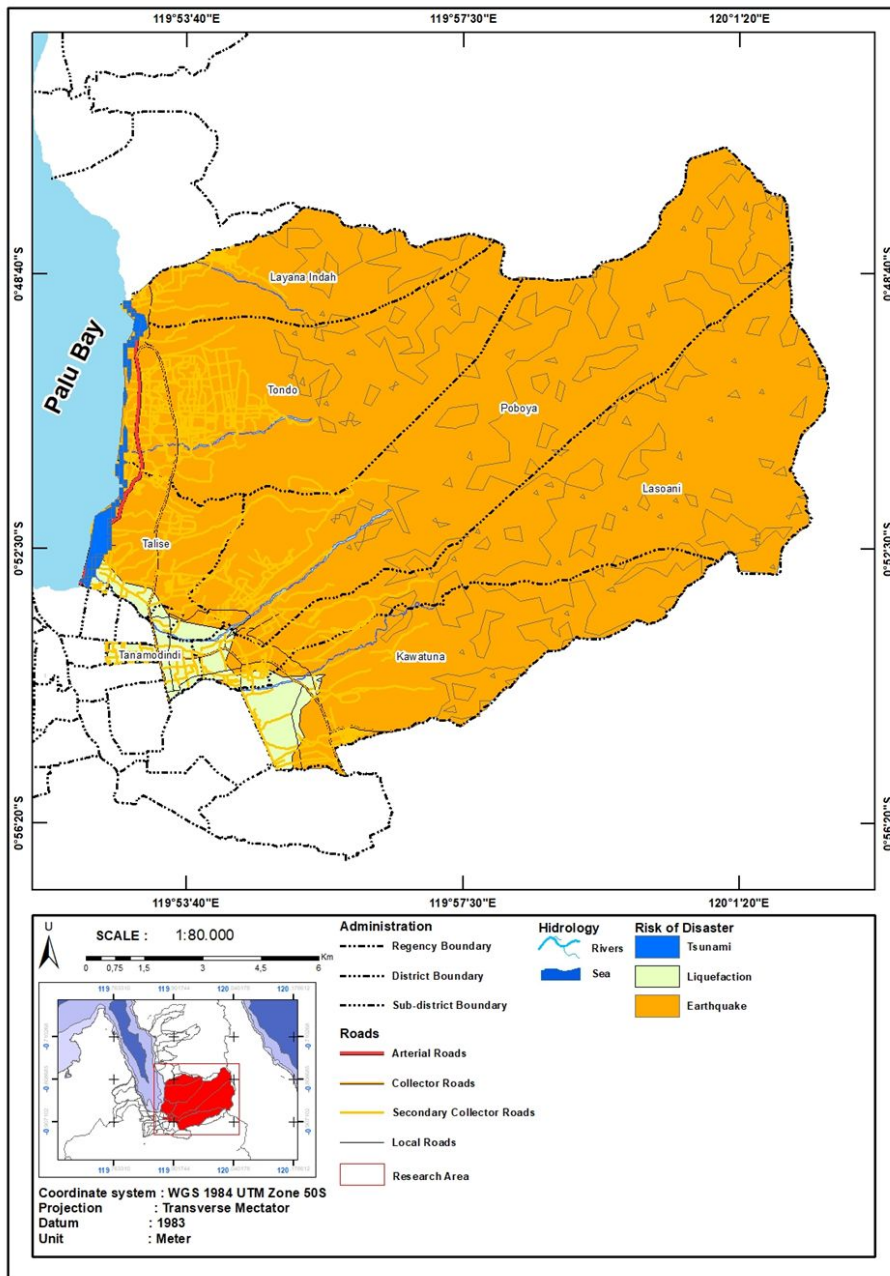


Figure 5. Map of Natural Disaster Vulnerability Zones in Mantikulore Sub-District

## Conclusion

Based on the analysis results of the carrying capacity and capacity of residential zones in Mantikulore Sub-District, Palu City, it is generally observed that the environmental carrying capacity and capacity for residential zones still need to be increased. The Lasoani and Poboya sub-district show high environmental carrying capacity and capacity for residential zones. At the same time, other sub-district still need to meet the environmental carrying capacity and capacity for their residential development needs. Furthermore, the post-disaster residential development guidelines in Mantikulore Sub-District, Palu City, must be kept in its carrying capacity and capacity conditions. The zoning guidelines for residential areas in Mantikulore Sub-District, Palu City, are divided into permitted zones, conditionally permitted zones, restricted permitted zones, and prohibited zones. Therefore, the development guidelines for residential zones in Mantikulore Sub-District, Palu City, prioritize the Lasoani and Poboya sub-district.

**Commented [AZ22]:** Make solid conclusions and list them. Review the research and discuss the strengths and weaknesses of this study.

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**Commented [AZ23]:** To check the citations appear in the reference list and vice versa.

Please also check whether this adheres to the APA format.

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## **Response to Editor**

Manuscript ID JSUSM-2023-0551

### **SUSTAINABLE DEVELOPMENT GUIDELINES FOR POST-DISASTER SETTLEMENTS IN PALU CITY: A SPATIAL PLANNING PERSPECTIVE**

**Dear Editor,**

We would like to thank you and the reviewers for your time and effort in reviewing this manuscript. We have addressed all reviewer comments and provided responses so that you can easily follow our responses in context. We have uploaded the revised manuscript by line number with the responses to the reviewers' comments included. We hereby present the results of the revision based on the feedback on our article. Overall, the reviewer's comments were very constructive, and we greatly appreciate them in relation to our original manuscript. We found that this experience of revising the manuscript has significantly improved the quality of our article. Thank you in advance for your consideration and support of our manuscript.

Please find point-by-point responses to all comments below. If you have any further questions further questions, please let me know.

Sincerely,

On behalf of the author

**Syafri**

## Response to Reviewers

No	Reviewer Comment	Original Manuscript	Author Comment	Revised Manuscript
1	Figure 1 – the size of one box cover part of the content – Coefficient of space area...	• Page 5	Thanks for the comment, we have adjusted the box size to ensure all content is visible.	• Page 5, Lines 11-13
2	The paper includes two expressions: “absorption” and “carrying capacity”. It is a key topic even as it is mentioned in the first problem statement (Table 1). However, differences between these two concepts are not properly discussed in the paper. Please see for instance: “Absorption” or “Carrying Capacity” of Areas – Assessment Methods on the Example of Detached Housing Real Estate, Real Estate Management and Valuation, 2019, 27(2), pp. 5–19. This publication should help to improve the quality of theoretical background.	• Page 8	Thanks to the comment, we have added a detailed discussion distinguishing between "absorptive capacity" and "carrying capacity", referencing relevant literature.	• Page 8, Lines 1-4. Page 9, Lines 11-13
3	Please define limitations of the research in the last section.	• Page 22	Thanks for the comment, we have added a section describing the limitations of the study, focusing on data availability, methodological limitations and generalisability.	• Page 16, Lines 20-25. Page 17, Lines 1-13
4	Commented [A1bZ1]: The abstract is well-written. However, it is suggested if it can be continued with a summary of the conclusion - what the study has contributed to the body of knowledge in general.	• Page 1	Thanks to the comment, we have revised the abstract to include a summary of the study's contribution to the body of knowledge.	• Page 1, Lines 13-16
5	Commented [AZ2]: Much of the introduction content can be turned into Literature Review. Introduction must only offer the background of the study, while the in depth studies from the past can be discussed further in LR.	• Page 1	Thanks for the comment, we have made improvements and reviewed the background to keep the introduction concise.	• Page 1-5
6	Commented [A1bZ3]: These lines seem to be talking about the same thing. Consider	• Page 2	Thanks to the comments, we have reviewed the repetitive sections for	• Page 2, Lines 1-7

No	Reviewer Comment	Original Manuscript	Author Comment	Revised Manuscript
	rewriting for efficiency and clarity. It is noted that this tendency for repeating descriptive elaborations of similar concepts is recurring throughout the paper. It may be due to the manuscript being converted from a non-journal publication. Although it is alright, the author may need to rewrite some paragraphs to reflect a more efficient journal paper.		clarity and conciseness throughout the manuscript.	
7	Commented [AZ4]: The background lacks author's own theoretical idea. This could be problematic as too many works of others being cited but there are fewer author's voice.	• Page 3	Thanks to the comments, we have added the author's theoretical perspective and reduced over-reliance on citations.	• Page 3, Lines 1-14
8	Commented [AZ5]: Avoid lists within paragraph. Instead, use bullet points or create a table for clarity.	• Page 3	Thanks for the comment, we have reviewed the references to previous research that supports this study and reformatted the paragraphs into bullet points.	• Page 3, Lines 15-25. Page 4, Lines 1-6
9	Commented [AZ6]: Readers have been reminded of what this study is focusing on in earlier paragraphs. This is repeated information.	• Page 3	Thanks for the comment, we have removed redundant information to improve readability.	
10	Commented [AZ7]: Research questions lack critical questions as this study is only guided by the 'What' questions. It is therefore suggested the RQ be more critical in exploring the 'non-what' questions also. Additionally, there seems to be a lack of research objectives found in the paper. It is not known what this paper is studying.	• Page 4	Thanks to the comment, we have revised the research questions to include more critical 'how' and 'why' questions and clearly state the research objectives.	• Page 5, Line 1-10
11	Commented [AZ8]: Please check this diagram. Make sure there is no missing word. Also, this diagram is too large. This conceptual framework must come after the literature review	• Page 5	Thanks to the comments, we have corrected the missing words and resized the figures and revisited the conceptual framework to follow the literature review in the introduction.	• Page 5, Lines 11-13

No	Reviewer Comment	Original Manuscript	Author Comment	Revised Manuscript
12	Commented [AZ9]: Does not include the criteria of whether Palu City is prone to disaster?	• Page 6	Thanks for the comment, we have reviewed and rewritten including Palu City's disaster-prone criteria in the introduction.	• Page 2, Lines 8
13	Commented [AZ10]: Could provide a key plan indicating where this area is in Indonesia.	• Page 7	Thanks for the comment, we have added a masterplan map showing the location of the study area in Indonesia.	• Page 6, Lines 11-13
14	Commented [AZ11]: Do not have to explain general concepts or definitions such as what is a research variable. This is not a thesis, and therefore it is safe to presume the readers have some basic idea of these general concepts.	• Page 8	Thanks for the comment, we have removed the explanation of concepts and common definitions.	
15	Commented [AZ12]: The ones listed in this column are not statements but questions. Also, these questions are no aligned with the research questions established earlier as well. May have to recheck.	• Page 8	Thanks for the comment, we have revised the statement to align with the research questions and research objectives previously set out in the introduction.	• Page 5, Lines 1-6
16	Commented [AZ13]: This part ought to be shortened as the concept is well established earlier	• Page 9	Thanks for the comment, we have shortened the discussion to avoid redundancy.	• Page 8, Lines 1-7
17	Commented [AZ14]: Many discussions in this paper are too descriptive. Some parts can be shortened.	• Page 10	Thank you for the comment, we have shortened the overly descriptive section to make it shorter.	• Page 8, Lines 20-23
18	Commented [AZ15]: Needing explanations in the text on what determined the zoning I - VIII. If it is derived from some guidelines, mention the source in the figure caption.	• Page 12	Thanks for the comment, we have added an explanation of the zoning determination and the cited source to the figure caption.	• Page 9, Lines 25-16. Page 10, Lines 1-6
19	Commented [AZ16]: The word significant is not appropriate in this context. Significant in what way? May need some clarifications.	• Page 13	Thanks for the comment, we have revisited this page and removed redundant information to improve readability, as the point is already clearly illustrated in the introduction of the study.	
20	Commented [AZ17]: This part should be in the research methodology. Now just straight to the results.	• Page 13	Thanks for the comment, we have moved the relevant section to the Materials and Methods section as per the JSUSM journal template.	• Page 6

No	Reviewer Comment	Original Manuscript	Author Comment	Revised Manuscript
21	Commented [AZ18]: The word miniature may not be appropriate. Use 'smallest' instead.	• Page 13	Thank you for your comment. We have revisited this page and removed redundant information to improve readability, as the point is already clearly illustrated in the introduction of the study.	
22	Commented [AZ19]: This does not need explanation anymore as it is already explained earlier. Please omit some explanations on the method. Instead of offering descriptions of the purpose of conducting the analysis, the author may want to offer why and how it is important.	• Page 14	Thanks to the comment, we have removed the redundant explanation of the method and emphasised the importance and rationale of the analysis.	
23	Commented [AZ20]: This part has been explained earlier. Please omit.	• Page 18	Thanks for the comment, we have removed the repetitive explanation.	
24	Commented [AZ21]: The table can be smaller and made more compact. Develop a visual map for clear representation of this table. The figure 5 below does not indicate the proposed Ddpm distribution in the context of natural disasters zones,	• Page 18	Thanks to the comments, we have made the tables more concise and developed visual maps to represent the information clearly. Included the DDPm distribution in the figure.	• Page 12, Lines 7. Page 14, Lines 1
25	Commented [AZ22]: Make solid conclusions and list them. Review the research and discuss the strengths and weaknesses of this study.	• Page 22	Thanks for the comment, we have reviewed and strengthened the conclusions and listed them. Discussed the strengths and weaknesses of the study.	• Page 15-17
26	Commented [AZ23]: To check the citations appear in the reference list and vice versa. Please also check whether this adheres to the APA format.	• Page 22	Thanks for the comment, we have reviewed and ensured all citations appear in the reference list and follow APA format.	• Page 17-13

ACTION	STATUS	ID	TITLE	SUBMITTED	DECISIONED
<p>a revision has been submitted (JSUSM-2023-0551.R3)</p>	<p><a href="#">Contact Journal</a> ADM: Science and Management, Journal of Sustainability ADM: Ahmad, Aziz</p> <ul style="list-style-type: none"> <li>Minor Revision (03-Jul-2024)</li> <li>a revision has been submitted</li> </ul> <p><a href="#">view decision letter</a></p>	<p>JSUSM-2023-0551.R2</p>	<p>SUSTAINABLE DEVELOPMENT GUIDELINES FOR POST-DISASTER SETTLEMENTS IN PALU CITY: A SPATIAL PLANNING PERSPECTIVE <a href="#">View Submission</a></p>	<p>23-Jun-2024</p>	<p>03-Jul-2024</p>

### Decision Letter (JSUSM-2023-0551.R2)

**From:** nyukling@umt.edu.my  
**To:** syafri@universitasbosowa.ac.id  
**CC:**  
**Subject:** Journal of Sustainability Science and Management - Decision on Manuscript ID JSUSM-2023-0551.R2  
**Body:** 03-Jul-2024

Dear Dr. Syafri: Manuscript ID JSUSM-2023-0551.R2 entitled "SUSTAINABLE DEVELOPMENT GUIDELINES FOR POST-DISASTER SETTLEMENTS IN PALU CITY: A SPATIAL PLANNING PERSPECTIVE" which you submitted to the Journal of Sustainability Science and Management, has been reviewed. The comments of the reviewer(s) are included at the bottom of this letter.

The reviewer(s) have recommended publication, but also suggest some minor revisions to your manuscript. Therefore, I invite you to respond to the reviewer(s)' comments and revise your manuscript.

To revise your manuscript, log into <https://mc04.manuscriptcentral.com/jsusm> and enter your Author Center, where you will find your manuscript title listed under "Manuscripts with Decisions." Under "Actions," click on "Create a Revision." Your manuscript number has been appended to denote a revision.

You may also click the below link to start the revision process (or continue the process if you have already started your revision) for your manuscript. If you use the below link you will not be required to login to ScholarOne Manuscripts.

\*\*\* PLEASE NOTE: This is a two-step process. After clicking on the link, you will be directed to a webpage to confirm. \*\*\*

[https://mc04.manuscriptcentral.com/jsusm?URL\\_MASK=bbe0bb56c78343bab410b80ec3cf18ca](https://mc04.manuscriptcentral.com/jsusm?URL_MASK=bbe0bb56c78343bab410b80ec3cf18ca)

You will be unable to make your revisions to the originally submitted version of the manuscript. Instead, revise your manuscript using a word processing program and save it on your computer. Please also highlight the changes to your manuscript within the document by using the track changes mode in MS Word or by using bold or coloured text.

Once the revised manuscript is prepared, you can upload it and submit it through your Author Center.

When submitting your revised manuscript, you will be able to respond to the comments made by the reviewer(s) in the space provided. You can use this space to document any changes you make to the original manuscript. To expedite the processing of the revised manuscript, please be as specific as possible in your response to the reviewer(s).

**IMPORTANT:** Your original files are available to you when you upload your revised manuscript. Please delete any redundant files before completing the submission.

Because we are trying to facilitate timely publication of manuscripts submitted to the Journal of Sustainability Science and Management, your revised manuscript should be submitted by 02-Aug-2024. If you can't submit your revision by this date, we may have to consider your paper as a new submission.

Once again, thank you for submitting your manuscript to the Journal of Sustainability Science and Management and I look forward to receiving your revision.

Sincerely,  
Dr. Ma Nyuk Ling (Metabolomics/Environmental Exposome)  
Editor-in-Chief, Journal of Sustainability Science and Management  
nyukling@umt.edu.my  
JSSM is Web of Science (Zoological Record) and Scopus-indexed journal

Associate Editor Comments to Author:

Associate Editor  
Comments to the Author:  
(There are no comments.)

Reviewer(s)' Comments to Author:

Reviewer: 1

Comments to the Author

The Authors did not respond to my comment from the previous round of revision:  
2. The paper includes two expressions: "absorption" and "carrying capacity". It is a key topic even as it is mentioned in the first problem statement (Table 1). However, the differences between these two concepts are not properly discussed in the paper. Please see for instance: "Absorption" or "Carrying Capacity" of Areas – Assessment Methods on the Example of Detached Housing Real Estate, Real Estate Management and Valuation, 2019, 27(2), pp. 5–19. This publication should help to improve the quality of the theoretical background.

**Date Sent:** 03-Jul-2024

- Revised Manuscript ID-JSUSM-2023-

**File 1:** 0551 Proof hi Retitle as as Sustainable Development Guidelines for Post-Disaster Settlements in Palu City.docx



## **Response to Editor**

Manuscript ID JSUSM-2023-0551

### **SUSTAINABLE DEVELOPMENT GUIDELINES FOR POST-DISASTER SETTLEMENTS IN PALU CITY: A SPATIAL PLANNING PERSPECTIVE**

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We would like to thank you and the reviewers for your time and effort in reviewing this manuscript. We have addressed all reviewer comments and provided responses so that you can easily follow our responses in context. We have uploaded the revised manuscript by line number with the responses to the reviewers' comments included. We hereby present the results of the revision based on the feedback on our article.

Overall, the reviewer's comments were very constructive, and we greatly appreciate them in relation to our original manuscript. We found that this experience of revising the manuscript has significantly improved the quality of our article. Thank you in advance for your consideration and support of our manuscript.

Please find point-by-point responses to all comments below. If you have any further questions further questions, please let me know.

Sincerely,

On behalf of the author

**Syafri**

## Response to Reviewers

No	Reviewer Comment	Original Manuscript	Author Comment	Revised Manuscript
1	<p>I would like to thank the editor for the opportunity to review this article. Overall, I saw improvements in this article compared to the first article submitted last year, if I'm not mistaken. Therefore, there are only a few corrections that I could suggest. Thank you again for the opportunity and have a good day.</p> <ul style="list-style-type: none"> <li>The paper includes two expressions: “absorption” and “carrying capacity”. It is a key topic even as it is mentioned in the first problem statement (Table 1). However, the differences between these two concepts are not properly discussed in the paper. Please see for instance: “Absorption” or “Carrying Capacity” of Areas – Assessment Methods on the Example of Detached Housing Real Estate, Real Estate Management and Valuation, 2019, 27(2), pp. 5–19. This publication should help to improve the quality of the theoretical background.</li> </ul>	<ul style="list-style-type: none"> <li>Page 7, Lines 12-21: The study focuses on determining the land carrying capacity and land absorption capacity of settlements in the Mantikulore District of Palu City...</li> </ul>	<p>Thanks for the comment, we appreciate the very useful suggestions and have integrated a detailed discussion on the difference between "absorption" and "carrying capacity".</p> <ul style="list-style-type: none"> <li>The theoretical background has been strengthened with reference to the suggested publication.</li> <li>Additionally, we have transformed Table 1 into a narrative paragraph to enhance readability.</li> <li>Have added new references that have been used in this improvement in the reference section: Forys, I., &amp; Kazak, J. (2019). "Absorption" or "Carrying Capacity" of Areas - Assessment Methods on the Example of Detached Housing Real Estate. Real Estate Management and Valuation, 27(2), 5-19. DOI: 10.2478/remav-2019-0011.</li> </ul>	<ul style="list-style-type: none"> <li>Page 2 Lines 7-12</li> <li>Page 7, Line 24; Page 8, Lines 1-9 added Sub-section: Concept of Absorption and Carrying Capacity</li> <li>Page 11, Lines 6-10</li> <li>Page 19, Lines 1-3</li> </ul>

ACTION	STATUS	ID	TITLE	SUBMITTED	DECISIONED
Copyright Form Completion submitted (11-Jul-2024) - <a href="#">view</a>	ADM: Science and Management, Journal of Sustainability ADM: Ahmad, Aziz <ul style="list-style-type: none"> <li>Accept (11-Jul-2024)</li> </ul> <a href="#">view decision letter</a>	JSUSM-2023-0551.R3	SUSTAINABLE DEVELOPMENT GUIDELINES FOR POST-DISASTER SETTLEMENTS IN PALU CITY: A SPATIAL PLANNING PERSPECTIVE <a href="#">View Submission</a>	03-Jul-2024	11-Jul-2024

### Decision Letter (JSUSM-2023-0551.R3)

**From:** nyukling@umt.edu.my

**To:** syafri@universitasbosowa.ac.id

**CC:**

**Subject:** Journal of Sustainability Science and Management - Decision on Manuscript ID JSUSM-2023-0551.R3

**Body:** 11-Jul-2024

Dear Dr. Syafri:

It is a pleasure to accept your manuscript entitled "SUSTAINABLE DEVELOPMENT GUIDELINES FOR POST-DISASTER SETTLEMENTS IN PALU CITY: A SPATIAL PLANNING PERSPECTIVE" in its current form for publication in the Journal of Sustainability Science and Management. The comments of the reviewer(s) who reviewed your manuscript are included at the foot of this letter.

\*Changes cannot be made after the article has been accepted for publication.

Thank you for your fine contribution. On behalf of the Editors of the Journal of Sustainability Science and Management, we look forward to your continued contributions to the journal.

Sincerely,  
Dr. Ma Nyuk Ling (Metabolomics/Environmental Exposome)  
Deputy Editor-in-Chief, Journal of Sustainability Science and Management  
nyukling@umt.edu.my  
JSSM is Web of Science (Zoological Record) and Scopus indexed journal

Associate Editor Comments to Author:

Associate Editor  
Comments to the Author:  
(There are no comments.)

Reviewer(s)' Comments to Author:

Reviewer: 1

Comments to the Author  
(There are no comments.)

**Date Sent:** 11-Jul-2024



## ACCEPTANCE LETTER AND PAYMENT INFORMATION FOR ARTICLE IN JSSM VOLUME 19 NUMBER 9, SEPTEMBER 2024 (ARTICLE 14)

6 pesan

Journal of Sustainability Science and Management <jssm@umt.edu.my>  
Kepada: syafri@universitasbosowa.ac.id, batara.surya@universitasbosowa.ac.id

Greetings.

Dear authors,

Trust this email finds you in the best of health.

Please find attached the acceptance letter for your article in JSSM Volume 19 Number 9, September 2024 issue.

JSUSM-2023-0551.R3

SUSTAINABLE DEVELOPMENT GUIDELINES FOR POST-DISASTER SETTLEMENTS IN PALU CITY: A SPATIAL PLANNING PERSPECTIVE

Kindly make the payment of **USD300 (RM1,490.00) at the latest on 30 July 2024 (Tuesday) before 12.00 pm (Malaysia time)** through this link <https://www.billplz.com/APC> **to this email with the proof of payment for the article.**

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**Admin Editor**

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Journal of Sustainability Science and Management <jssm@umt.edu.my>  
Kepada: syafri@universitasbosowa.ac.id, batara.surya@universitasbosowa.ac.id

29 Juli 2024 pukul 15.00

Greetings.

Dear authors,

Kindly make the payment of **USD300 (RM1,490.00) at the latest on 30 July 2024 (tomorrow) before 12.00 pm (Malaysia time)** through this link <https://www.billplz.com/APC> and **respond to this email with the proof of payment for the article.**

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## Contents

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### *Original Articles*

- 1-19      [THE DIVERSITY OF SPONGE ASSOCIATED FAUNA \(SAF\) IN FOUR SELECTED MARINE SPONGES \(CLASS: DEMOSPONGIAE\) AT CORAL REEFS OF PULAU BATU RUSA, MALAYSIA](#)  
Al-Jeria Abdul, Melissa Beata Martin, Jasnizat Saidin and Wee Hin Boo
- 20-34      [THE ROLE OF WOMEN IN CONFLICT RESOLUTION ON THE UTILISATION OF CAPTURE FISHERIES RESOURCES IN THE COASTAL AREA OF SOUTH SULAWESI](#)  
Daris Lukman, Massiseng Andi Nur Apung, Fachri Mardiana Ethrawaty, Jaya, Irwansyah, Alpiani and Mustaking Mustaking
- 35-63      [EXPLORING THE POTENTIAL OF GEOGRAPHIC INFORMATION SYSTEM \(GIS\) APPLICATION FOR UNDERSTANDING SPATIAL DISTRIBUTION OF VIOLENT CRIME RELATED TO UNITED NATIONS SUSTAINABLE DEVELOPMENT GOALS-16 \(SDGS-16\)](#)  
Azizul Ahmad, Tarmiji Masron, Asykal Syakinah Mohd Ali, Mohamad Hardyman Barawi, Zaimuarifudin Shukri Nordin, Abg Izhar Abg Ahmad, Mohd Sofian Redzuan and Luqman Haqim Bismelah
- 64-75      [PERFORMANCE OF MEDICAL WASTE ASH AS A PAVING BLOCK: IMPACTS TO AIR QUALITY AND HEAVY METALS IN PRODUCT](#)  
Siti Rachmawati, Syafrudin Syafrudin, Budiyo Budiyo and Siti Nurlita Fitri
- 76-84      [IMPACT OF FISHING GEARS ON CATCH COMPOSITION AND VOLUME OF CATCH BY SPECIES IN GILI SULAT – GILI LAWANG, INDONESIA](#)  
Sari Hidayati and Abdullah Mohamad
- 85-100      [STUDY OF TOURISM SUITABILITY AND CARRYING CAPACITY FOR FISHERIES-BASED ECOTOURISM DEVELOPMENT IN JATIGEDE RESERVOIR, WEST JAVA, INDONESIA](#)  
Sulastri Prihandini, Zahidah, M. Candra W. Arief, Heti Herawati, Carolyn M. Payus and Siti Irbah Anuar
- 101-120      [A SURVEY TO IDENTIFY MOTIVATORS AND BARRIERS OF INTENTION TO REDUCE FOOD WASTE AMONG MALAYSIAN HOUSEHOLDS](#)  
Lin-Sea Lau, Suet-Ling Ching, Nurul Afidah Mohamad Yusof, Ah-Suat Lee, Saw-Chin Khor, Yen-Hong Ng and Edmund Lawrence Kimaro

- 121-131 EXPLORING THE IMPACT OF PARTICIPATION IN AGRICULTURAL SOCIAL MEDIA GROUPS ON TECHNICAL EFFICIENCY: A CASE STUDY FROM ORGANIC RICE FARMERS IN INDONESIA  
Syafrial Syafrial, Moh Shadiqur Rahman, Dwi Retnoningsih and Hery Toiba
- 132-145 SUSTAINABLE DEVELOPMENT GUIDELINES FOR POST-DISASTER SETTLEMENTS IN PALU CITY: A SPATIAL PLANNING PERSPECTIVE  
Syafri and Batara Surya
- 146-162 PHYTOCHEMICAL COMPOSITION OF JACKFRUIT (*ARTOCARPUS HETEROPHYLLUS*) AND INDIAN JUJUBE (*ZIZIPHUS MAURITIANA*) LEAVES EXTRACTED USING DIFFERENT ETHANOL CONCENTRATIONS  
Nabila Amina Mohd Noor, Monirul Islam, Nazimah Hamid and Siva Raseetha
- 163-180 THE INFLUENCE OF SUSTAINABILITY MANAGEMENT ON NATURAL ENVIRONMENTAL CONTROL IN SUSTAINABLE COMPANIES WITH FAMILY OWNERSHIP AS MODERATOR  
Rochmi Widayanti, Sugeng Wahyudi and Harjum Muharam

***Review Articles***

- 181-191 DRIVERS OF SUSTAINABILITY REPORTING AND IT'S THEORETICAL RELEVANCE: A SYSTEMATIC LITERATURE REVIEW  
Endiana I Dewa Made, Ramantha I Wayan, Ariyanto Dodik and Asri Dwija Putri Gusti Ayu Made
- 192-203 MITOCHONDRIAL HETEROPLASMY IN CRUSTACEANS AND ITS IMPLICATIONS TO SPECIES DELIMITATION: A MINI-REVIEW  
Khor Wai Ho and Mohd Fazhan Mohd Hanafiah