

Identification of Indications of Spatial Violations Tunggulwulung Village, Malang City, Indonesia

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Abstract— *The phenomenon of land use change generally occurs in a city. Changes in land use, if it is not in accordance with the city spatial plan, have the potential to cause environmental degradation in urban areas. This study aims to identify spatial planning violations in the Tunggulwulung Village, Malang City, using an overlay technique between the spatial planning map of Malang City and the existing land use map. The results show that there are 166 buildings that are considered to have violated the provisions of the spatial plan. Consists of 144 new buildings and 22 old buildings.*

Keywords— *Land use, indications of land use mismatch, indications of spatial planning violations.*

I. INTRODUCTION

Every city always has a tendency to grow and develop from time to time. The growth and development are influenced by the role of the city as a service centre. According to Higgins, what is meant by a service centre is a city's main activity in the form of services (services). Such as trade, transportation, financial services, and other public services (Sjafrizal, 2012).

The role of the city, as described above, is certainly a pull factor for a city to visit. Even inhabited by residents. The completeness of existing facilities and infrastructure in a city will attract people to come and live in it, thus triggering changes in land use. Land use change is a change in use or activity towards a land that is different from previous activities (Kazaz and Charles, 2001). Land conversion is a logical consequence of increased activity and population as well as other development processes (Arsyad and Rustiadi (2008: 78). However, changes in land use need to be considered because they can potentially cause environmental degradation (Benu and Moniaga, 2016). There is degradation environment is a serious threat to the balance of ecosystems and the urban environment in the future.

Malang City is the second largest city in East Java Province. The phenomenon of people's interest in coming and living in a city also seems to be happening in Malang City. This phenomenon certainly causes a change in land use in Malang City. From non-built-up land to built-up land. Changes in land use that occur in Malang City need to be considered because they have the potential to cause an imbalance in the urban environment. The emergence of puddles during the rainy season is proof of an imbalance in the urban environment in Malang City.

Spatial Plan, hereinafter abbreviated as RTR, is the result of spatial planning, in which there is a process for determining spatial structure and spatial patterns. The existence of a spatial plan is intended to organize and plan a service centre system. Infrastructure network system and facilities. as well as the

distribution of space allotment. All of these arrangements and planning lead to the creation of a safe, comfortable, productive and sustainable space.

The existence of a spatial plan, as mandated by laws and regulations. Found in every city, one of them is in Malang City. The spatial planning product in Malang City that is operational in nature is in the form of a Detailed Spatial Plan (RDTR), namely a detailed spatial plan for the district/city area equipped with district/city zoning regulations. The RDTR product is a spatial planning product that is used as a guide in every spatial use permit.

II. LITERATURE REVIEW

Land use is human intervention either permanently or periodically on land with the aim of meeting needs, both material and spiritual needs or a combination of both (Malingreau, 1979). Management of good land use in accordance with the rules of applicable law makes optimal land use so that it is able to meet daily human needs (Luthfina, Sudarsono & Suprayogi, 2019).

Spatial planning is a process of determining the spatial structure and spatial pattern, which includes the preparation and determination of spatial plans. The implementation of spatial planning is an activity that includes arrangement, guidance, implementation, and supervision of spatial planning. The purpose of implementing spatial planning according to Law no. 26 of 2007 namely to realize a national territorial space that is safe, comfortable, productive and sustainable based on the Archipelagic Outlook and National Resilience by 1) realizing harmony between the natural environment and the built environment 2) realizing integration in the use of natural resources and artificial resources by paying attention to human resources 3) realizing the protection of space functions and preventing negative impacts on the environment due to space utilization.

III. STUDY LOCATION

The research location is the Tunggulwulung Village in Malang City. The choice of location was based on the reason that the location of the Tunggulwulung Village coincided with one of the strategic corridors in Malang City, namely Jalan Soekarno-Hatta.

IV. STUDY METHOD

This research is a descriptive study based on existing land use map data and spatial pattern plan map data contained in the Detailed Spatial Plan (RDTR) with the following stages:

1. Identification of existing land use in Tunggulwulung Village in 2015 and 2022.
2. Identification of indications of land use mismatch carried out by overlaying the existing land use of the Tunggulwulung Village in 2022 with the spatial pattern plan contained in Malang City Regional Regulation Number 5 of 2015 concerning Detailed Spatial Plans and Zoning Regulations for the Urban Area of North Malang.
3. Identification of indications of spatial violations. Carried out by comparing the incompatibility of land use and column (X) in the provisions of the ITBX matrix contained in the Malang City Regional Regulation Number 5 of 2015 concerning Detailed Spatial Plans and Zoning Regulations for the Urban Area of North Malang.

V. RESULT AND DISCUSSION

A. The Profile of the Tunggulwulung Village

Administration Boundary of Tunggulwulung Village is one of the sub-districts in Malang City, which was formed in 2001 with the following regional administrative boundaries:

- North side: Tasikmadu Village and Tunjungsekar Village. Malang city
- East side: Mojolangu Village. Malang city
- South side: Jatimulyo Village and Tlogomas Village. Malang city
- West side: Tegalcondo Village. Malang Regency

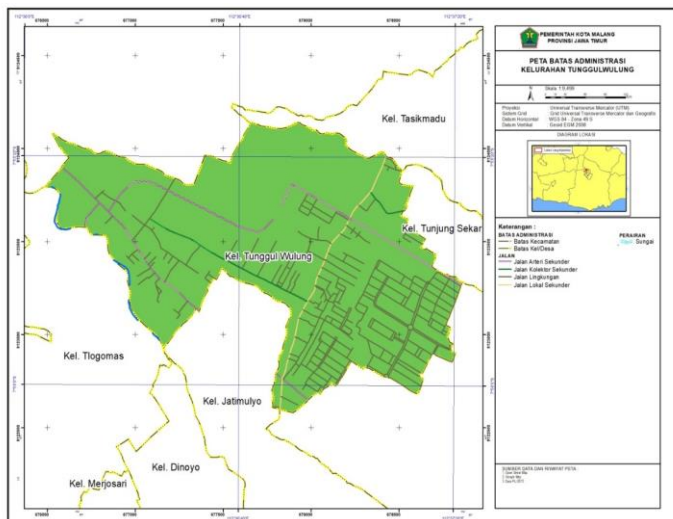


Fig. 1. Territorial Administrative Boundary

B. Topography of the Tunggulwulung Village

According to ESRI (2015), topography is a comprehensive set of editing rules, tools and techniques allows geodatabase to model

geometric relationship of the feature class resulting in an error such as gaps or patchy errors can be found and repaired. Tunggulwulung Village is located at an altitude of 500-1000 meters above sea level.

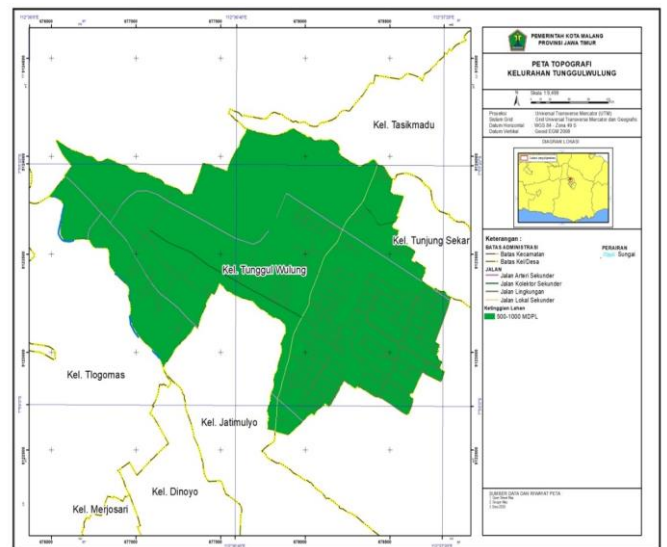


Fig. 2. Area Topography

C. The Slope of the Tunggulwulung Village

The Tunggulwulung Village has 3 (three) types of slope, namely:

1. High. with a slope of 5-15% covering an area of 7.02 Ha.
2. Moderate. with a slope of 2-5% covering an area of 96.77 Ha.
3. Low. with a slope of 0-2% covering an area of 94.08 Ha.

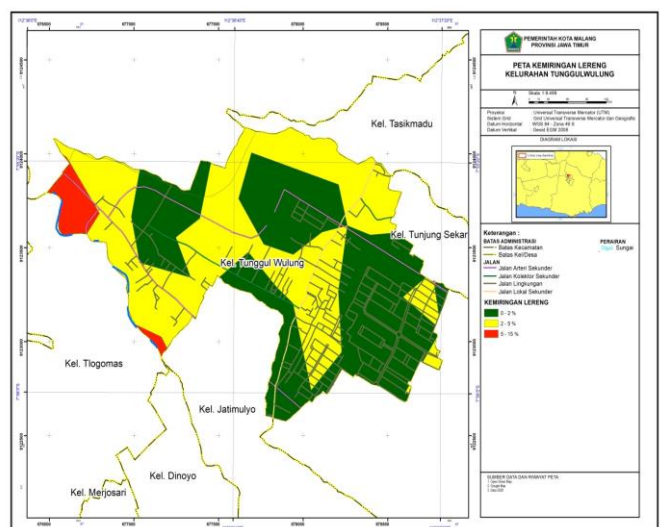


Fig. 3. Slope of the Region

D. Total Population of the Tunggulwulung Village

The population of the Kelurahan in the last 5 (five) years has continued to increase

TABLE 1. Total Population of the Tunggulwulung Village

Years	Total Population
2016	7.860
2017	8.030
2018	8.201
2019	8.373
2020	9.190

Source: Malang City in Figures, 2021

E. Identification of Existing Land Use in Tunggulwulung Village in 2015 and 2022

Land use map data for 2015 shows that existing land use is dominated by rice fields which cover an area of 93.02 Ha or 46.94% of the total area of the Tunggulwulung Village. while the 2021 land use map data shows that existing land use is dominated by housing which reaches an area of 85.46 Ha or 43.19% of the total area of the Tunggulwulung Village.

TABLE 2. Land Use Comparison 2015 and 2022

No	Land Use	2015	2022	Difference (Ha)
		area (Ha)	area (Ha)	
1	The road	11.16	14.19	3.03
2	River Body	3.27	3.55	0.28
3	Industry or Warehousing	1.04	0.17	-0.87
4	Health	0.01	0.16	0.15
5	Grave	0.99	0.00	-0.99
6	Field Empty land	0.05	15.90	15.85
7	Grave	1.95	2.15	0.20
8	Tourist	0.00	0.65	0.65
9	Education	0.34	3.38	3.04
10	Trade and Services	3.27	4.91	1.64
11	Worship	0.16	0.75	0.59
12	Office	0.35	0.38	0.03
13	Housing area	78.70	85.46	6.76
14	RTH	2.79	2.76	-0.04
15	Ricefield	93.12	61.54	-31.58
16	SPU Sports	0.68	1.50	0.82
17	SPU Socio-Cultural	0.00	0.39	0.39
18	Garbage dump	0.00	0.03	0.03
Total		197.88	197.88	0.00

Source: Author, 2022

Based on the table above, it can be seen that the type of land use that experienced a relatively large increase was housing. While the type of land use that experienced a relatively large decline was rice fields. The increase in land use for housing is due to the Ministry of Public Works and Public Housing (PUPR) program which states that the implementation of the One Million Houses Program (PSR) is a concrete manifestation of the government's efforts to address the challenges and constraints of housing development in Indonesia (perumahan.pu.go.id, 2022). In addition, property sales in Malang City will increase by 40 per cent throughout 2022. This trend shows that there is growing interest in buying from the public, which is getting better after almost a year of being hit by the Covid-19 pandemic. Easing the Implementation of Community Activity Restrictions (PPKM) is one of the reasons for property sales, such as houses, to increase again.

F. Identification of Indications of Land Use Incompatibility

The results of the overlay between the existing land use of the Tunggulwulung Village in 2022 and the spatial pattern plan contained in the Malang City Regional Regulation Number 5 of 2015 concerning Detailed Spatial Plans and Zoning Regulations for the North Malang Urban Area can be seen in

fact there are 729 location points which are indicated to be not according to type space function.

TABLE 3. Identification of Indications of Land Use Incompatibility Year 2022

No.	2015 RDTR Zone Plots	Land Use 2022	Number of Location Points	Area (Ha)
1.	Office Zone	Grave Housing	4	0.20607
2.	Residential Zone	Education, trade and services, worship, offices, green open spaces for cemeteries, health, TPS, industry/warehousing, SPU, sports and tourism	289	6.23175
3.	Green Open Space Zone	Housing area. Trade and Services. Tourist. office. Education. Industry / Warehousing	93	4.17921
4.	Public Service Facility Zone	Housing area. office. Trade and Services. Grave	17	1.55463
5.	Trade and Services Zone	Housing area. Education	10	1.33481
6.	Road Benefit Space Zone and Water Body	Housing area. Trade and Services. RTH. Ricefield. worship. Education. Grave. Industry or Warehousing. Tourist. Public Service Facility. Health. Office	306	5.24428
7.	Local Protection Zone	Ricefield Housing area RTH Education	10	1.62167

Source: Author, 2022

G. Identification of Indications of Spatial Violations

The results of a comparison between indications of land use mismatch with the provisions of the ITBX matrix contained in Malang City Regional Regulation Number 5 of 2015 concerning Detailed Spatial Plans and Zoning Regulations for the Urban Area of North Malang can be seen, in fact, there are 76 location points that are indicated to violate spatial planning.

From the results of this study, the majority of misuse of land use is in the aspect of housing, which is built on land that is not allowed to be built, such as housing construction where some of the house buildings stand on the equivalent of roads and rivers.

TABLE 4. Identification of Indications of Spatial Violations Year 2022

No.	2015 RDTR Zone Plots	Land Use 2022	Number of Location Points	Area (Ha)
1.	Green Open Space Zone	Housing area. SPU Socio-Cultural. Trade and Services	32	2.24123
2.	Road Benefit Space Zone and Water Body	Housing, Religious Affairs, Education, Trade and Services, Rice Fields	40	1.42216
3.	Local Protection Zone	Housing area	4	0.16575

Source: Author, 2022

VI. CONCLUSION

From the result of this study, it can be concluded that:

1. During the period from 2015 to 2022, there has been landed use. The type of land use that experienced a relatively large increase was housing. While the type of land use that experienced a relatively large decrease was rice fields. This indicates land conversion from non-built-up land to non-built-up.
2. There are findings of indications of spatial planning violations originating from land conversion, indicating the weakness of the RDTR as an operational tool in permitting spatial use.

VII. SUGGESTION

Input suggestions that can be said for this study were:

1. Findings of indications of spatial planning violations should be followed up by taking action against findings of indications of spatial planning violations in accordance with applicable laws and regulations so that the objectives of spatial planning as mandated in the Spatial Planning Law can be realized.
2. Dissemination of spatial planning to all levels of society needs to be increased so that efforts to make RDTR an operational tool in permitting spatial use can actually be realized.

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