ZONING IDENTIFICATION OF THE CANDIDATE FOR MOUNT SANGGABUANA NATURE PARK, KARAWANG REGENCY

Ina Revayanti
Program Studi Perencanaan Wilayah dan Kota, Fakultas Teknik Perencanaan dan Arsitektur Universitas Winaya Mukti, Bandung, Indonesia
Email: inarevayanti74@gmail.com

ABSTRACT

Located at an altitude of 1,291 meters above sea level, Mount Sanggabuana is located in the Sanggabuana Mountains area and is the only highland with tropical rainforest in Karawang Regency. The tropical rainforest of the Sanggabuana Mountains is one of the oxygen and water contributors to the Karawang community with high natural tourism potential. In 2020 the status of the Sanggabuana Mountains forest, which is a Limited Production Forest, is proposed to be changed to a Nature Conservation Area with National Park status. The structuring of facilities and infrastructure, which has not been optimized, can affect the ecological, aesthetic and social value of a natural tourism destination comprehensively. This research aims to identify the natural attraction zone of Mount Sanggabuana as a natural tourism area design that prioritizes sustainable aspects by adopting the concept of ecotourism. This research uses a descriptive method with a quantitative approach. The analysis used is overlap analysis (superimpose) through the GIS (Geographic Information System) program produces natural tourism park zones supporting the Mount Sanggabuana area as a National Park.

KEYWORDS	*Sanggabuana Mountain, a Nature Tourism Zone, Ecotourism and National Park.*

INTRODUCTION

The effort to change the status of the Sanggabuana Mountain Forest area into a National Park is an effort to preserve and protect the Sanggabuana Mountain area along with its biodiversity (Fauji & Firmansyah, 2023). Sanggabuana Mountain is a Limited Production Forest (HPT) with quite complete biodiversity (Galudra et al., 2005). In the exploration conducted by the Sanggabuana Conservation Foundation

(SCF) team from July 2020 to 2022, five primate species were recorded in Sanggabuana Mountain. Java is known for its unique primate diversity, with three species being endemic to this island: the Javan Gibbon (Hylobates moloch), the Javan Lutung (Trachypithecus auratus), and the Javan Slow Loris (Nycticebus javanicus) (Supriatna & Wahyono, 2000). In West Java, the Javan Surili (Presbytis comata) is a valuable endemic primate. Additionally, the Long-tailed Macaque (Macaca fascicularis) inhabits Sanggabuana Mountain, adding to Java's impressive primate diversity (Rusmana et al., 2018).

Besides primates, 151 bird species from 52 families have been found in Sanggabuana. Some of these are rare, endemic, and endangered birds with an Endangered (EN) conservation status on the IUCN Red List and listed in Appendix 1 of CITES (Safanah et al., 2017). The Javan Hawk-Eagle (Nisaetus bartelsi), a symbol of Indonesia's Garuda Pancasila, still dominates the skies over Sanggabuana Mountain. In addition to native birds from the Falconidae family and songbirds, Sanggabuana is also a migration route for birds such as the Oriental Honey Buzzard, the Chinese Sparrowhawk, and the Japanese Sparrowhawk. In August 2021, SCF began installing camera traps in the Sanggabuana Mountain forest and successfully recorded various wildlife, including wild boars, civets, deer, several bird species, and Sanggabuana's top predator, the Javan Leopard (Panthera pardus melas), which still roams the forests, as well as the Javan Dragon Snake.

In Sanggabuana Mountain, 21 species of Ficus, 10 species of bamboo, and other rare plants have been found, contributing to the area's rich biodiversity (Bonita et al., 2023). To date, 231 plant species from 43 families have been identified. The Terubuk plant is unique to Sanggabuana and is commonly consumed as a vegetable by locals. Other notable plants include the Kapas Cinde (Asclepias curassavica) and the Balloon Flower (Asclepias physocarpa). Given the rich biodiversity in Sanggabuana and its potential to support human life in the surrounding areas, and considering its current status as Limited Production Forest (HPT), conservation and protection efforts are necessary. Ideally, it should be managed as a conservation area with National Park status (Khastini, 2016).

A National Park (TN) is a Natural Preservation Area (KPA) with original ecosystems, managed with a zoning system for research, science, education, support for cultivation, tourism, and recreation purposes. According to the Indonesian Ministry of Environment and Forestry Regulation No. 46 of 2016, a national park is a natural preservation area with original or natural ecosystems managed based on a zoning system (Pratama & Agustriani, 2017). National parks can be used for research, scientific development, cultivation support, tourism, education, and recreation (Yuliana, 2017).

According to Government Regulation No. 104 of 2015 on Procedures for Changing the Designation and Function of Forest Areas, changes in the designation and function of forest areas are carried out to meet the demands of national development dynamics and community aspirations while optimizing the distribution of the functions and benefits of forest areas sustainably and ensuring sufficient and proportional forest area distribution (Syahadat et al., 2019).

Article 42 explains that the scope includes changes in the designation of forest areas and changes in the function of forest areas. Functional changes in the core

functions of Conservation Forest Areas include transforming Nature Tourism Parks into Nature Reserves, Wildlife Reserves, National Parks, Grand Forest Parks, or Hunting Parks (Fitrianingsih, 2017).

The change in the designation and function of forest areas is done through partial changes or changes for provincial areas. Partial changes in the designation of forest areas are carried out through forest area swaps or the release of convertible production forest areas. Forest area swaps are conducted in Limited Production Forests and Permanent Production Forests.

RESEARCH METHOD

The method used in this analysis is superimpose (overlap) (Lukman, 2022). The approach to the modeling process of this work is through the GIS (Geographic Information System) program, also known as SIG (Sistem Informasi Geografis) (Sumantri et al., 2019). The substance of the GIS material that will initiate this work is a form of information system that manages data and produces information with spatial aspects, geo-referencing, and computer-based capabilities to input, organize, manipulate, and analyze data, and display it as information (Suriandjo, 2018).
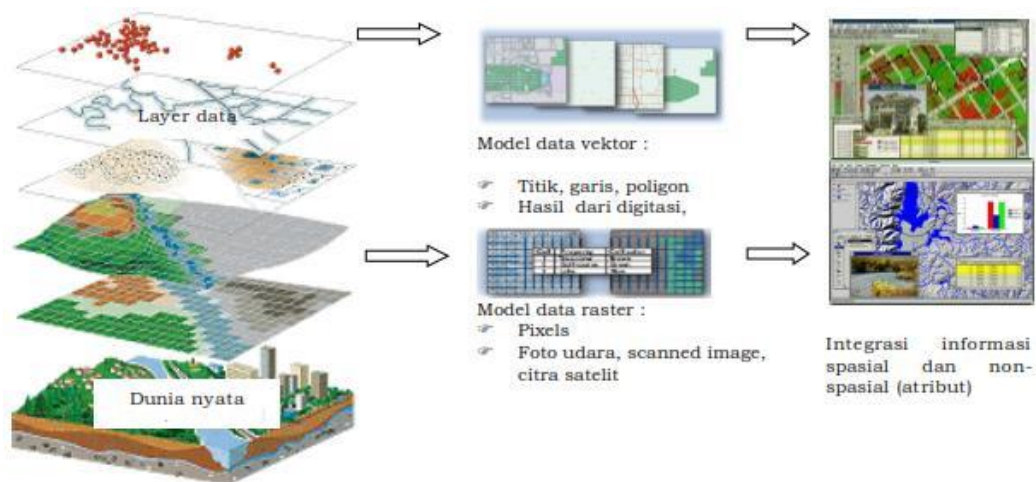
Figure 1. Modeling the Real World in GIS Spatial Data

Data Sources

The data sources in this study are primary and secondary data (Sugiyono, 2021). Primary data includes direct observations at the study location regarding tourism products and markets in Karawang Regency, specifically tourism in Mekarbuana Village, as well as interviews with predetermined respondents. Secondary data is obtained from previous studies related to the research, such as books, articles, village potential data, and other documentation.

Ina Revayanti

Analysis Methods

The analysis in this study is conducted using two methods: qualitative analysis for processing qualitative data and quantitative analysis for processing quantitative data, both of which are obtained from primary and secondary surveys. The method used to analyze qualitative data is descriptive qualitative analysis to describe the regional and tourism conditions based on the results of primary surveys and secondary data obtained. Similarly, the method used to analyze quantitative data obtained from distributing questionnaires at tourist attractions is descriptive analysis with one-way tabulation (frequency table) and cross-tabulation analysis.

Both analysis methods are used to analyze the supply and demand for tourism in Karawang Regency, especially in Mekarbuana Village, Tegalwaru District. Supply analysis is conducted to identify the characteristics, potential, and issues of leading tourism products, including tourist attractions, supporting tourism facilities, and accessibility. Demand analysis is conducted to identify the characteristics, preferences, and potential tourist markets in Karawang Regency in general.

RESULT AND DISCUSSION

The Sanggabuana Mountains span approximately 23 kilometers and cover an area of around 43,000 hectares, located in the regions of Karawang Regency, Purwakarta Regency, Bogor Regency, and Cianjur Regency in West Java. The Sanggabuana Mountain area in Karawang Regency encompasses 20,464.49 hectares, dominated by dryland agriculture covering 3,569.82 hectares, limited production forest (industrial development reserve) covering 3,063.16 hectares, and protected forest covering 3,032.02 hectares.

Table 1. Spatial Pattern of the Sanggabuana Mountain Area in Karawang Regency

No.	District	Description	Area (Ha)
1	Pangkalan	Industrial Development Reserve	3,063.16
		Protected Forest	2,409.25
		Production Forest	306.27
		Industrial Area	60.12
		Urban Settlement	1,346.48
		Dryland Agriculture	1,105.06
		Industrial Zone	1,408.58
2	Tegalwaru	Industrial Development Reserve	1,403.62
		Protected Forest	3,032.02
		Production Forest	2,419.63
		Urban Settlement	131.08
		Dryland Agriculture	3,569.82
		District Urban Area	209.40
		Total	**20.464,49**

Source: Analysis Results, 2022

Protection Of Land Rights Of The Happy Beach Village Community Based On National Agrarian Law

The delineation of the Sanggabuana Mountain area in this study is above 150 meters above sea level, covering 10 villages, with one village in Pangkalan District and nine villages in Tegalwaru District, totaling 5,580.14 hectares. The largest area in the Sanggabuana Mountain Masterplan study is in Mekarbuana Village, covering 1,822.08 hectares, and the smallest area is in Kutalanggeng Village, covering 44.04 hectares.

Table 2. Delineation of the Sanggabuana Mountain Area above 150 Meters Above Sea Level

No.	District	Village	Area (Ha)
1	Pangkalan	Medalsari	353,21
2	Tegalwaru	Cigunungsari	657,18
		Cintalaksana	786,37
		Cintalalanggeng	74,05
		Cintawargi	411,53
		Cipurwasari	220,70
		Kutalanggeng	44,04
		Kutamaneuh	509,80
		Mekarbuana	1.822,08
		Wargasetra	701,18
	Total		**5.580,14**

Source: Analysis Results, 2022

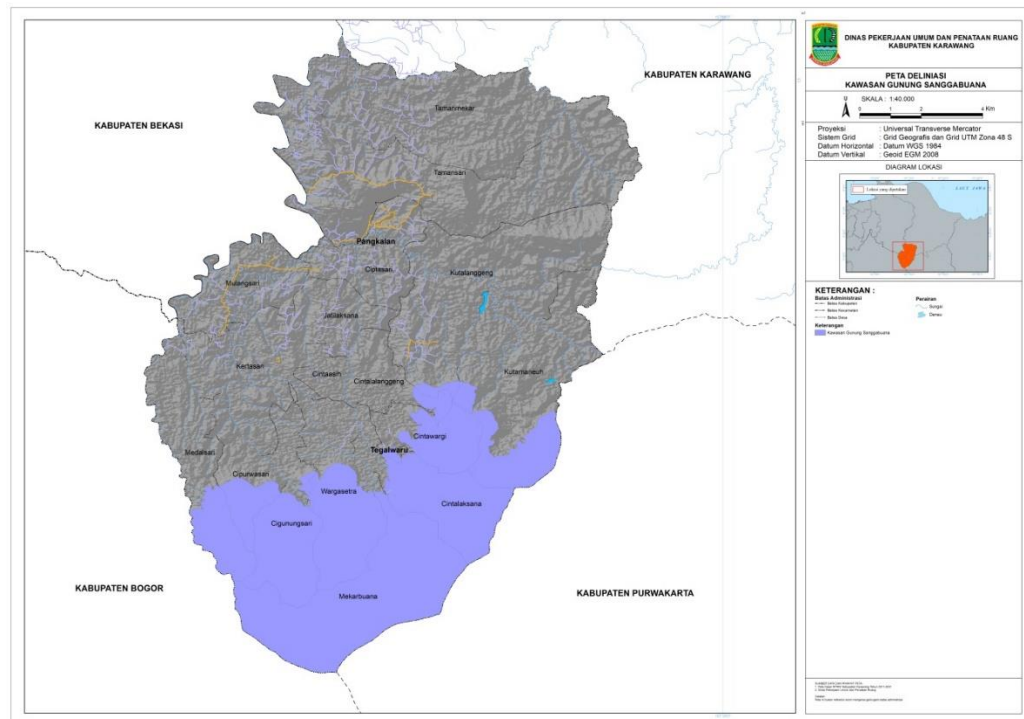**Figure 2. Spatial Pattern Map of the Sanggabuana Mountain Area**

Figure 3. Delineation Map of the Sanggabuana Mountain Area above 150 Meters Above Sea Level

Analysis of Zoning Division in the Sanggabuana Mountain Area

Based on its geographical and socio-economic conditions, as well as its historical background, the Sanggabuana Mountains, once designated as a National Park, will comprise at least seven complete zones: Core Zone, Wilderness Zone, Utilization Zone, Traditional Zone, Rehabilitation Zone, Religious, Cultural, and Historical Zone, and Special Zone. These zoning recommendations serve as a general guideline for the development of conservation areas, which can be used as a reference for building supporting infrastructure, such as accessibility, public and social facilities, and other facilities that support conservation and tourism activities, thereby providing benchmarks for future decision-making in work programs.

This zoning division will refer to the Minister of Forestry Regulation Number 56 of 2006 on Zoning Guidelines for National Parks, Article 5. The zoning divisions are as follows:

Core Zone

The core zone is the part of the national park that is in a pristine natural condition, undisturbed or unaltered by human activities, and is strictly protected. This area must not be disturbed by human activities and serves to protect the representation of unique and endemic biodiversity. The core zone functions to protect ecosystems, preserve characteristic flora and fauna and their sensitive habitats, genetic resources of wild plants and animals, for research and scientific development, as well as for education and cultural support.

Activities allowed in the core zone include protection and security; inventory and monitoring of biological natural resources and their ecosystems; research and development, science, education, and support for cultivation; limited and non-permanent infrastructure may be built for research and management activities.

Example: The core zone in the Sanggabuana Mountains includes habitats for four endemic primate species, the Javan hawk-eagle, and large carnivores such as the Javan leopard, as well as migration paths for birds from China and Japan in the Dindingari area.

Wilderness Zone

The wilderness zone is designated for the preservation and utilization of natural resources and the environment for research, education, conservation (including local forest and protection areas), limited tourism, migratory wildlife habitats, and supporting cultivation as well as the core zone.

Activities in the wilderness zone include protection and security; inventory and monitoring of natural resources and ecosystems; development of research, education, limited nature tourism, environmental services utilization, and support for cultivation; habitat and population management to enhance wildlife populations; and construction of infrastructure for research, education, and limited nature tourism.

Utilization Zone

The utilization zone is a part of the national park where natural conditions and potential are primarily utilized for nature tourism and other environmental services. This zone can also be used for research, education, and cultural purposes.

Activities in the utilization zone include nature conservation-related activities such as protection and security; inventory and monitoring of biological natural resources and their ecosystems; research and development, education, and cultivation support; development of nature tourism potential and attractions; habitat and population management; nature tourism enterprise and environmental services utilization; construction of management, research, education, nature tourism, and environmental services infrastructure.

Example: Utilization zones in the Sanggabuana Mountains include Curug Cigentis, Curug Cipanunda, Natural Tourism Object Puncak Sempur, Cikoleangkak Bird Observation Trail, Curug Cipanunda, Curug Bandung, Curug Cimata Indung, Sanggabuana Hiking Trail, and other nature tourism objects managed by the community.

Traditional Zone

The traditional zone is part of the national park designated for traditional use by communities with historical dependence on natural resources. This zone includes residential areas, agricultural areas such as rice fields, dry fields, gardens, horticulture, livestock, and inland fisheries.

Activities in the traditional zone include protection and security; inventory and monitoring of potential species utilized by the community; habitat and

population management; research and development; and utilization of natural resources potential according to agreed and applicable regulations.

Rehabilitation Zone

The rehabilitation zone is a part of the park that requires restoration activities due to damage, focusing on recovering biological communities and ecosystems.

Activities in the rehabilitation zone include breeding animals and plants to ensure their survival and species preservation; protecting and securing rights from extinction; restoring damaged parts of the park.

Religious, Cultural, and Historical Zone

The religious, cultural, and historical zone includes sites of religious, cultural, or historical heritage utilized for religious activities, protection of cultural or historical values.

Activities in this zone include protection and security; nature tourism utilization, research, education, and religious activities; traditional ceremonies; maintenance of cultural and historical sites, and continuity of religious/ritual ceremonies.

Examples: Puncak Makom Sanggabuana, Kebon Jambe site, and several historical sites around the Sanggabuana Mountains are part of this zone.

Special Zone

The special zone is part of the park where, due to unavoidable conditions, there are community groups and life-supporting facilities established before the area was designated as a national park, such as telecommunications, transportation, and electricity facilities.

Activities in the special zone include protection and security; utilization to support community life; rehabilitation; monitoring of population and community activities as well as area carrying capacity.

Example: The military training area managed by the Training Area Maintenance Detachment (Denharrahlat) Kostrad in the Sanggabuana Mountains.

The zoning division of the Sanggabuana Mountain Area is based on the land use naturally formed through the life processes of the communities around Mount Sanggabuana over generations. For more details, refer to the table and images below.

Table 3: Area Division by Zone in the Sanggabuana Mountain Area

No.	District	Village	Zone	Area (Ha)
1	**Pangkalan**	**Medalsari**	Core Zone	3.97
			Wilderness Zone	74.43
			Traditional Zone	274.58
2	**Tegalwaru**	**Cigunungsari**	Core Zone	14,94
			Wilderness Zone	130,87
			Traditional Zone	510,94
		Cintalaksana	Core Zone	55.12
			Special Zone (Denhar)	43.79
			Utilization Zone	29.99

No.	District	Village	Zone	Area (Ha)
			Rehabilitation Zone	1.90
			Wilderness Zone	186.95
			Traditional Zone	468.04
		Cintalalanggeng	Rehabilitation Zone	39.80
			Traditional Zone	34.20
		Cintawargi	Utilization Zone	13.30
			Rehabilitation Zone	0.61
			Traditional Zone	397.32
		Cipurwasari	Utilization Zone	12.49
			Rehabilitation Zone	62.87
			Wilderness Zone	64.50
			Traditional Zone	80.69
		Kutalanggeng	Rehabilitation Zone	12,02
			Traditional Zone	31,98
		Kutamaneuh	Core Zone	82.23
			Rehabilitation Zone	43.68
			Wilderness Zone	166.83
			Traditional Zone	216.68
		Mekarbuana	Core Zone	122.15
			Special Zone (Denhar)	457.30
			Utilization Zone	28.97
			Rehabilitation Zone	5.01
			Religious, Cultural, and Historical Zone	38.93
			Wilderness Zone	543.16
			Traditional Zone	625.29
		Wargasetra	Utilization Zone	32.30
			Wilderness Zone	111.34
			Traditional Zone	557.05
	Total			**5.576,21**

Source: Analysis Results, 2022

Table 4: Percentage Division by Zone in the Sanggabuana Mountain Area

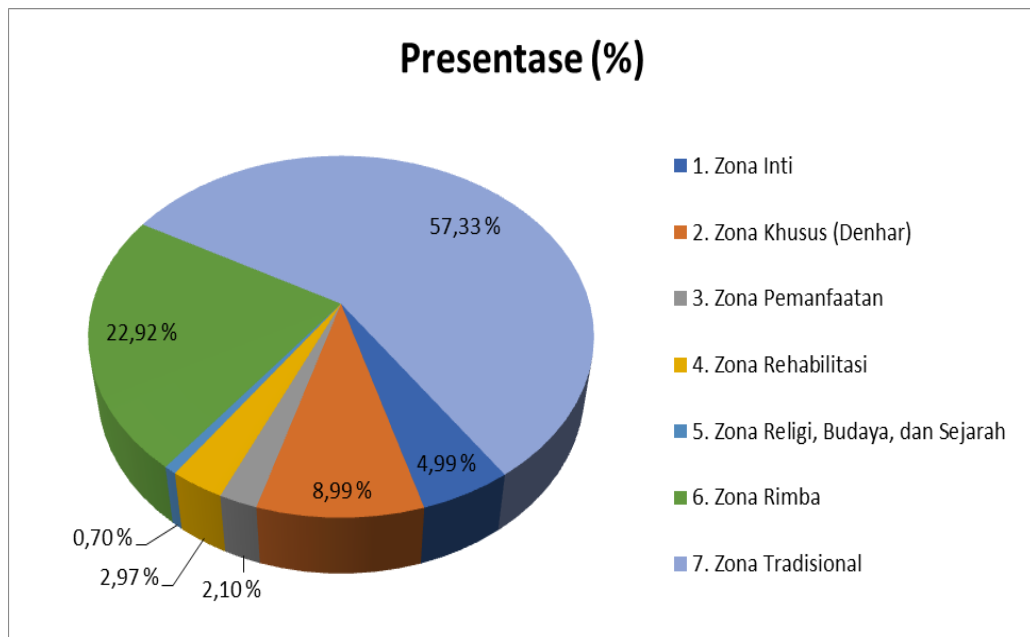| No.	Zone	Area (Ha)	Percentage (%)
1	Core Zone	278.39	4.99
2	Special Zone (Denhar)	501.09	8.99
3	Utilization Zone	117.06	2.10
4	Rehabilitation Zone	165.89	2.97
5	Religious, Cultural, and Historical Zone	38.93	0.70
6	Wilderness Zone	1,278.08	22.92
7	Traditional Zone	3,196.77	57.33
	Total	**5.576,21**	**100,00**

Source: Analysis Results, 2022

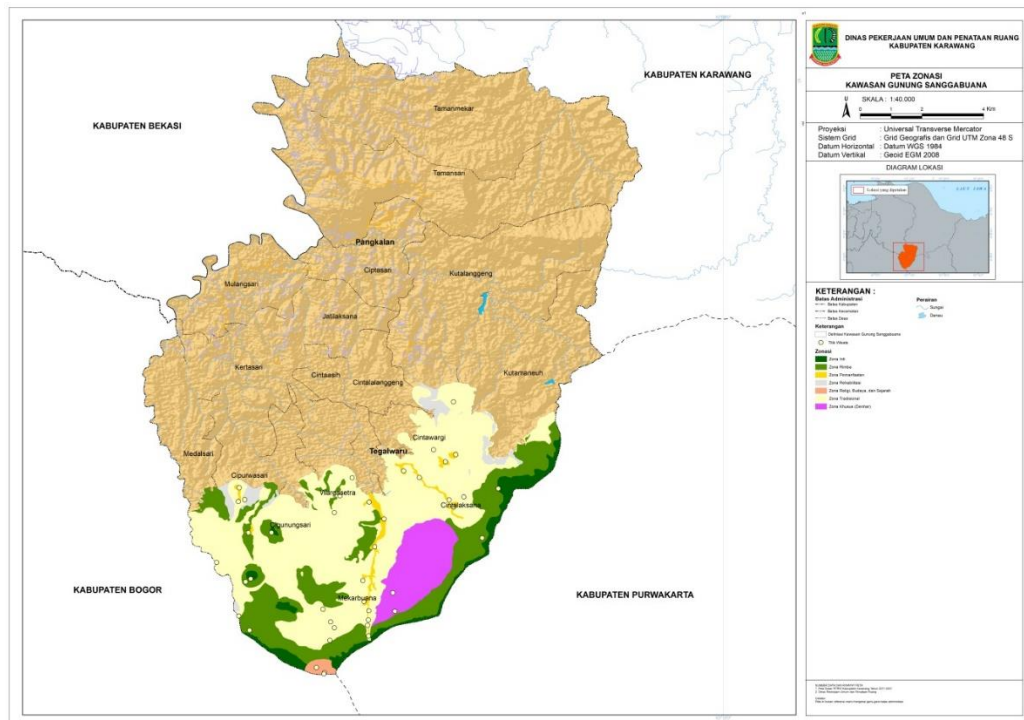**Figure 4. Percentage Division by Zone in the Sanggabuana Mountain Area**

Figure 5. Zoning Map of the Sanggabuana Mountain Area

Figure 6. Existing Conditions in the Sanggabuana Mountain Area

Concept for the Development of the Sanggabuana Mountain Tourism Area

The recommendation for the development of the Sanggabuana Mountain Tourism Area lies in the Wilderness Zone as a conservation zone, with an ideal location being Puncak Sempur. This area, consisting of plantations and forests, is located in Cinta Laksana Village, Tegalwaru District, with a developable area of approximately 60 hectares. The potential of the Sanggabuana Mountain Area includes breathtaking 360-degree panoramic views. The concepts that can be developed for the Sanggabuana Mountain Tourism Area include conservation, ecotourism, educational tourism (arboretum), cultural tourism, and ecological tourism.
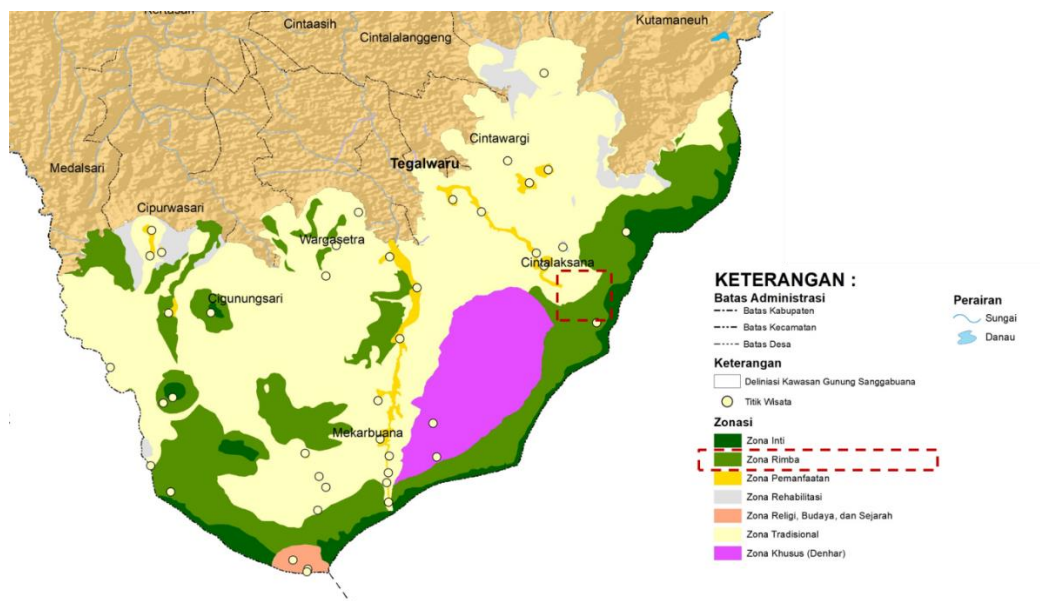

Figure 7. Recommendation for the development of the Sanggabuana Mountain Tourism Area in the Wilderness Zone (Conservation Zone)

Ina Revayanti

CONCLUSION

Based on the research results, it is concluded that the development of the Sanggabuana Mountain Tourism Area must integrate tourism functions with the development of science, research, education, and cultural preservation, while considering the natural, social, cultural, and village community potentials to maintain its unique characteristics. The plan to reclassify the area as a National Park aligns with efforts to preserve nature and promote conservation. This reclassification process must adhere to the proper administrative procedures and actively involve the community. Therefore, the proposed recommendations include a community-based approach, active community participation in development, and training programs to boost the local economy in the tourism sector.

REFERENCES

Bonita, A. F. H., Asfar, A. M. I. T., Asfar, A. M. I. A., Syaifullah, A., & Cakra, A. R. S. (2023). *Inovasi Bio Fertilizer: Mengubah Akar Bambu Menjadi Agen Plant Growth Promoting Rhizobacteria (PQPR)*.

Fauji, R., & Firmansyah, Y. (2023). Analisis Komparatif Kualitas Produk Kopi Gunung Sanggabuana Loji Karawang. *Jurnal Manajemen & Bisnis Kreatif*, *8*(2), 87–98.

Fitrianingsih, E. (2017). Tinjauan terhadap alih fungsi tanah pertanian ke non pertanian (permukiman) di Kecamatan Tomoni Kabupaten Luwu Timur [Review of the conversion of agricultural land to non-agricultural (settlements) in Tomoni District, East Luwu Regency; dissertation].[Makassar]: Universitas Hasanudin Makassar. *Skripsi, Fakultas Hukum, Universitas Hasanudin Makassar*.

Galudra, G., Sirait, M., Rahmadhaniaty, N., Soenarto, F., & Nurzaman, B. (2005). History of Land-Use Policies and Designation of Mount Halimun-Salak National Park. *Jurnal Manajemen Hutan Tropika*, *11*(1), 1–13. https://journal.ipb.ac.id/index.php/jmht/article/view/6101

Khastini, R. O. (2016). *Cendawan endofit akar asal mangrove cagar alam Pulau Dua Banten: kajian karakteristik dan interaksinya dengan tumbuhan*. Untirta Press.

Lukman, D. (2022). Mengenal metode superimposisi oleh prof gleistner dan prof brass. *SKRIPSI-2004*.

Pratama, A., & Agustriani, F. (2017). Valuasi Ekonomi Sumberdaya Mangrove Studi Kasus di Sptn I dan Sptn II Taman Nasional Sembilang Kabupaten Banyuasin Provinsi Sumatera Selatan. *Maspari Journal: Marine Science Research*, *9*(2), 111–120.

Rusmana, E., Herlina, N., & Nasihin, I. (2018). Strategi Pengembangan Obyek Wisata Alam Bumi Perkemahan Ipukan Taman Nasional Gunung Ciremai. *Wanaraksa*, *12*(1).

Safanah, N. G., Nugraha, C. S., Partasasmita, R., & Husodo, T. (2017). Keanekaragaman jenis burung di taman wisata alam dan cagar alam pananjung pangandaran, jawa barat. *Prosiding Seminar Nasional Masyarakat Biodiversitas Indonesia*, *3*(2), 266–272.

Sugiyono. (2021). *Metode Penelitian Kuantitatif Kualitatif Dan R & D* (2 Ctk 3). CV Alfabeta.

Sumantri, S. H., Supriyatno, M., Sutisna, S., Surv, M., & Widana, I. D. K. K. (2019). *Sistem Informasi Geografi (Geographic Information System) Kerentanan Bencana*. CV. Makmur Cahaya Ilmu.

Supriatna, J., & Wahyono, E. H. (2000). *Panduan lapangan primata Indonesia*. Yayasan Obor Indonesia.

Suriandjo, H. S. (2018). Konsep dan strategi pengembangan fisik kawasan dalam wujud detail engineering design (DED) sebagai implementasi produk RTBL di koridor tumbuh cepat Kota Sentani Jayapura. *Media Matrasain*, *15*(1), 37–53.

Syahadat, E., Suryandari, E. Y., & Kurniawan, A. S. (2019). Strategy Review Of Regional Spatial Planning On Forest Area. *Jurnal Penelitian Sosial Dan Ekonomi Kehutanan*, *16*(2), 89–103.

Yuliana, E. (2017). Pengelolaan ekowisata bahari di kawasan konservasi perairan taman nasional karimunjawa. *Optimalisasi Peran Sains & Teknologi Untuk Mewujudkan Smart City*, 89.