



IMPACT OF LAND USE CHANGE ON ECONOMIC ACTIVITIES AND ENVIRONMENTAL SUSTAINABILITY

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ABSTRACT

Tibubeneng Village is an area located in a new and developing tourism area that has the potential of the beauty of the Coastal Zone as a natural tourism and Perancak Temple object as a potential spiritual tourism object, especially for Hindus. Looking at the strategic functions of Tibubeneng Village, it is necessary to take control of land use in order to minimize the conversion of land functions. Development of tourism facilities has an impact on changes in land use. The changes observed in this study are changes because land is used for tourism activities. Land use is carried out by local people because they are motivated by several reasons. The method used in this study is the overlay analysis method with intersect technique. This analysis describes the types of land use and percentage changes. The years of observation used in this study are 2000 and 2017. Changes in land use include protected land, agricultural land and rice fields. Of the three land uses, the most change is because tourism activities occur in the rice fields, with 40.52% change. Behind the rapid development of tourism activities carried out by local communities, it is important to know the driving factors that motivate land use for tourism purposes. These are economic factors, availability of infrastructure, regulations and institutions. Economic factors are the biggest influence on land use for tourism activities, thus leading to changes in land use. This research needs to be done to design a land control program so that it can be implemented in conjunction with the economic needs of local residents without compromising the ecological functions of the environment.

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INTRODUCTION

Tourism activities in Bali can be seen from the presence of tourists both domestic and foreign tourists. The highest number of tourist visits in Bali occurred in Badung Regency. The increasing number of tourist visits has led to rapid development in Badung Regency. Development that occurs in Badung Regency can be seen from the reduction of open land into built-up land. Data in 2009 showed that the area built in Badung Regency reached 19.66% of the total area of the Regency. Then, in 2015 there was an increase in built-up land to 38.42%. This increase in built up land is dominated by tourism accommodation development (BPS Badung Regency, 2016). The increasing development of tourist accommodation, the more land needed.

Theoretically, tourism activities can have a positive impact on the economy of the community, such as considerable foreign exchange earnings, encourage infrastructure investment, stimulate other industries and so on (Nizar, 2005).

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However, what happens in the field is to achieve these economic goals, there are ecological aspects that must be sacrificed. Both of these are contradictory things that if left unchecked, it is difficult to achieve the concept of sustainable tourism. Therefore, it is necessary to have an instrument that can maintain the continuity between the development of tourism activities and the ecological functions of the environment.

Transfer of land functions from ecological functions to the function of tourism in Badung Regency mostly occurs in South Kuta District, Kuta District, and North Kuta District. Furthermore, it began to develop in the other sub-districts, namely Mengwi District, Petang District, and Abiansemal District (BPS Badung Regency, 2016).

North Kuta District has a strategic area with carrying capacity and environmental functions. Tibubeneng Village is an area located in a new and developing tourism region that has the potential of the beauty of the Coastal Zone as a natural tourism and Perancak Temple object as a potential spiritual tourism object, especially for Hindus. Looking at the strategic functions of Tibubeneng Village, it is necessary to take control

of land use in order to minimize the conversion of land functions.

In general, the problems in the planning area of Tibubeneng Village include: 1). The lack of compatibility between the size of the area and the population of the village of Tibubeneng to the number of banjars that exist both regarding the distribution of the population and the concentration of the masses in a banjar area; 2). Some of the land in the Planning Area of Tibubeneng Village is dry land that depends on the arrival of the rainy season so that the livelihoods of people whose work in the agricultural sector have not relied on the availability and carrying capacity of farming and making it reliable in the survival of the community; 3). Most of the productive lands which have already been controlled by investors to date have not been managed and empowered in accordance with land use permits, so that new jobs cannot yet be realized and 4). The rapid development in the Southern Area of the Planning Area of Tibubeneng Village (Banjar Tandeg, Banjar Pelambingan, Tegal Gundul Banjar, Banjar Berawa) has led to the handling of security controls (especially the monitoring of migrant populations) of primary concern.

This research observes about changes in land functions that occur because it is used for tourism activities. In addition, factors are also sought to encourage land use for tourism activities. By knowing the function of land that experiences changes and dominant factors that encourage changes in land functions, it can be a suggestion and input to formulate policies related to land use control based on sustainable concepts.

Research Method

The study was conducted in Tibubeneng Village which encompasses the area in the main corridor of the tourism area of Tibubeneng Village, North Kuta District, Badung Regency. The research approach used is a qualitative approach and a quantitative approach. Limiting the problems discussed in this study, the scope of this research is land use change because it is used for tourism facilities.

Data Types and Data Collection Techniques

The type of data in this study is qualitative data and quantitative data. Data collection techniques used in this study include field observations, document review, and interviews. Field observations and document review, namely satellite imagery in 2000 and 2017 to find out land use change that occurred, while interviews to find out the dominant factors that encourage land use for tourism facilities.

Data Analysis Method

The analytical method used in this study is to use overlapping mapping analysis (map overlay) with analytical instruments using the GIS 10.4 application. and descriptive analysis method. The land function map to be analyzed is a land function map in 2000 and a map of existing land functions in 2017. The types of data and techniques for retrieving the data needed can be seen through Table 1.

Table 1 Data Required

Data Type	Data Type Details	Sources
Qualitative	- Types of functions of existing land	
	- Types of land functions in 2000	- Field observation
	- Allotment of land	- Interview
	- Economic factors	- Master Plan of Badung Regency
	- Infrastructure	- Detail Plan of North Kuta District
Quantitative	- Institutional regulations/policies	
	- Land area	- Quickbird imagery
		- Statistical Data (Profile of Tibubeneng Village)

The process of finding and compiling data obtained from observations, interviews, literature studies, and documentation is systematically described so that it is easy to understand and then the stages of data analysis are carried out. After data collection data analysis was carried out. In this study using descriptive analysis method.

LITERATUR REVIEW

Land Use Change

Land is a natural resource that has a very broad function in meeting various human needs from the economic side of land which is the main fixed input for various agricultural and non-agricultural commodity production activities. Barlowe (1986) states that in determining land use there are four important factors that need to be considered, namely land physical factors, economic factors, and institutional factors. In addition, factors in the social and cultural conditions of the local community will also affect land use patterns.

Tourism Activities

Tourism activities that are the focus of this research are the development of tourist objects and tourist facilities that have an impact on land use change in Tibubeneng Village. According to Yoeti (1992), tourism facilities can be divided into three main elements, including:

1. The main means of tourism, is a company that lives and lives depends on the arrival of people who travel. Included in this group are travel agents, tourist transport companies, as well as other types of accommodation, restaurants and other restaurants as well as tourist attractions.
2. Complementary means of tourism are companies or places that provide facilities for recreation whose function is not only to complete the basic facilities of tourism, but the most important thing is to make tourists stay longer in a tourist destination.
3. Tourism supporting facilities are companies that support complementary facilities and basic facilities and function not only to make tourists feel at home in a tourist destination but more important function is for tourists to spend or spend their money on the places they visit.

Mapping Overlay Technique

Overlay is an important procedure in GIS (Geographic Information System) analysis, See Figure 1. Overlay is the ability to place one map graphics on another map graphic and display the results on a computer screen or on a plot. In short, the overlay displays a digital map on another digital map along with its attributes and produces a combined map of the two

that have attribute information from both maps (Guntara, 2017).

An overlay is formed by a set of transparent maps, each of which presents a spatial distribution of an environmental characteristic. The results of the combined map show the physical characteristics of the area, social, ecological, land function and other characteristics that are relevant and related to the proposed location development objectives.

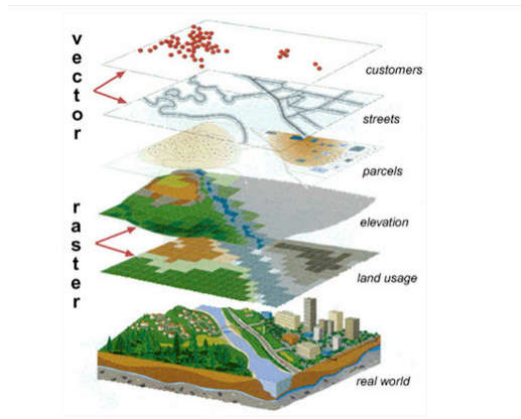


Figure 1 Overlay Technique in GIS

Source: Aronoff, 1989

Similar Research

So far, research on land function changes has been carried out with thematic, holistic and integrative approaches. However, in this study the researchers tried to use a spatial approach using an overlay mapping technique to determine the magnitude of land use changes that occur. In order to gain insight and better understand the problems in this research, the researcher conducted a literature review of similar previous studies, namely Factors Affecting Land Function in Subak Daksina, Tibubeneng Village, North Kuta District, Badung Regency (Suputra, 2012), Changes Spatial Functions as a Result of Tourism Development in Kedungu Kedalang, Belalang Village, Kediri District, Tabanan Regency (Rapiana, 2017), Study of the Functioning of Green Open Space in Denpasar City (Riana, 2013). In the first study dissecting land function changes that occurred in the subak land with a theory of land use change. Then, in the second study explaining changes in spatial functions seen in the context of tourism development and using a spatial approach with mapping. Whereas, in the third study dissecting land use change with land change theory. The theory and approach will be used to solve the problem in this study.

Research Setting

It has an area of 650 ha, divided into three traditional villages and three regencies in the Banjar dinas area. In general, the Tibubeneng Village Area is divided into two sectors, namely the agricultural sector and the tourism sector. Rice fields become the largest area with an area of 362 hectares. However, the research location is limited to the area included in the main corridor of the Tibubeneng Village, as shown in Figure 2.

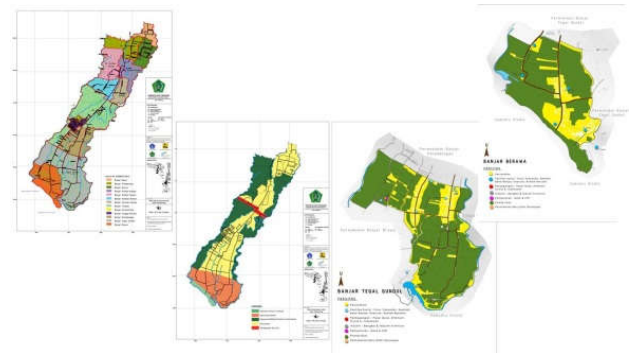


Figure 2 Research Setting

Source: Master Plan of Badung Regency and North Kuta District

RESULTS AND DISCUSSION

Attraction and Natural Potential

Tibubeneng Village is a region that is located in a new and developing tourism area that has the potential of the beauty of the Coastal Zone as a natural tourism and Perancak Temple object as a potential spiritual tourism object, especially for Hindus. In 2000 land use in Tibubeneng Village was dominated by land use with environmental carrying capacity. The function of land in Tibubeneng Village can be seen through land use maps as shown in Figure 3.

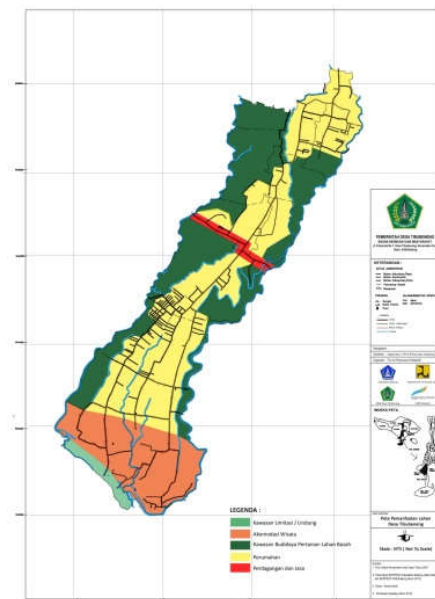


Figure 3 Existing Land Use of Tibubeneng Village

Source: Master Plan of Badung Regency and North Kuta District

From the map it is described that there are new colors on the map, namely red, orange and yellow which explain the development of trade facilities and services (red), tourist accommodation (orange) and housing (yellow).

Factors that Encourage Land Use Change for Tourism Activities

The appearance of various tourist facilities in Tibubeneng Village does not necessarily occur without reason. Moreover, the development of facilities was almost entirely carried out by local residents and there were no residents who were not native to the Tibubeneng Village. Local residents have their own reasons for making them use their land, especially in the functions of gardens and rice fields to be developed into

tourism facilities. As for the factors that become the reason for the encouragement of the population to make land conversion functions can be seen in Table 2. These factors are then referred to as variables.

Table 2 Variables and Driving Indicators for Land Use Change for Tourism Activities

Variabel	Indicators
Economic Interest	- Increased income of the population - Job creation - The occurrence of the transfer of the resident profession
Infrastructure	- Easy accessibility - Completeness and variety of infrastructure - Environmental safety and comfort
Regulation/Policy	- There is a policy of determining the tourist village area - The concept of tourism development that focuses on physical development
Institutional	- Social behavior that shows high interest in the tourism conscious community.

Source: Barlowe (1986), Soegijoko (1997), dan Lestari (2009)

Economic Interest

The development of tourism activities is based on the wishes of local residents to achieve a better level of welfare. One of them is increasing income. This indicator can be seen from the increase in average income per year in several sectors, namely the agricultural sector; plantation; farms; craft; small, medium and large industries, as well as services and trade.

Based on the interviews of respondents who are groups of traditional village institutions, mentioning that the tourism industry can provide a higher income guarantee compared to their work as traditional farmers. Moreover, in recent years agricultural production in Tibubeneng Village has decreased. The local community also argued that tourism activities in Tibubeneng Village provided new jobs for him. Many jobs are created and prioritize local people to work there. Based on the results of interviews with tourism conscious groups, it was stated that, not only increased income and the creation of new jobs, tourism activities in Tibubeneng Village also caused many residents to switch professions because they considered business in the tourism sector to be far more profitable.

Infrastructure

Infrastructure can be assessed through indicators of easy access, completeness and the large variety of infrastructure, as well as environmental security and comfort. Accessibility in Tibubeneng Village such as village roads, inter-village roads, district roads, and provincial roads already have very good quality. The quality in question is using asphalt pavement and concrete. No more macadam roads have been found. There are also bridges made of concrete.

Tibubeneng village has many variations of infrastructure and is available well. In addition to transportation infrastructure, communication and information infrastructure, clean water and sanitation infrastructure, irrigation infrastructure, government infrastructure, worship, sports, health, education, energy and lighting, as well as entertainment and tourism infrastructure were also found.

Based on the results of an interview with one of the adat institutions, it was explained that, with the complete infrastructure owned by Desa Tibubeneng, the community was encouraged to develop various tourism businesses. Because the

existing infrastructure is considered capable of supporting various mobility for the development of Tibubeneng Village, especially in the tourism sector.

Regulation/Policy

This determination encourages the government and local communities to play an active role in developing tourism in Tibubeneng Village. This was done to advance the name of the Tibubeneng Village so that it became better known as a tourist village. Tourism development is carried out physically and also non-physically. Based on the results of an interview with Bendesa Adat in Tibubeneng Village, it was stated that Tibubeneng Village had a local policy that local people were not allowed to sell their land to people who were not native to Tibubeneng Village.

Institutional

The amount of interest of the population is then followed by other residents, so that more and more tourism businesses are developing. The existence of the tourism community in Tibubeneng Village can cause spatial changes because it encourages local residents to participate in developing various tourism activities in Tibubeneng Village.

Dominant Factors that Encourage Land Use for Tourism Activities

Based on the results of interviews conducted with six respondents who have been determined in advance. From the interview results, it was seen how many respondents explained the factors that encourage land use for tourism activities based on the recordings.

The results of the interview explained that economic factors are the dominant factors that encourage land use for the development of tourism facilities. The most economic factor was said by Respondent 4 (R4), which is a tourism business development community in Tibubeneng Village. The community as respondents in this study thought that the necessities of life were increasing so that people had to be smart in seeing the conditions that existed in Tibubeneng Village, tourism activities were developing. Given that agricultural land is no longer productive, the community makes a breakthrough in different fields to utilize the land.

CONCLUSION

From the discussion above, it can be concluded that land use changes that occur in Tibubeneng Village are due to the use of tourism facilities. The functions of land that have undergone changes in area include the functions of protected areas, gardens and rice fields. The function of the land that experiences the most changes in function is the function of paddy fields. The reasons that encourage the development of tourism facilities in the function of paddy fields are caused by economic factors of the population.

The suggestions that can be conveyed in this study, namely: a) Increase and optimize the supervision and control of buildings built on existing land in Tibubeneng Village, especially in paddy fields; b) Designing spatial products related to controlling the use of land functions; c) Implement a system of incentives and disincentives so that land control programs and economic interests of the population can be sustainable; d) This research is expected to enrich references in the field of regional development literature, especially in rural areas

regarding land conversion and control that must be done, and the results of this study are expected to be useful references to understand and further develop such research or more in-depth studies.

References

- Aronoff, S., 1989, "Geographic Information Systems: A Management Perspective", WDL Publications. Canada: Ottawa.
- Badan Pusat Statistik. 2009 & 2015. *Data Penggunaan Lahan*. Badung: Badan Pusat Statistik
- Barlowe. 1986. *Land Resources Economic*. New Jersey: Prentice Hall Inc.
- Dwijendra, NKA (2003). Bali Traditional Housing and Settlements. *Journal of Settlement Natah*, Vol. 1 No. February 1, 2003: 8 - 24.
- Dwijendra, NKA (2008) *Arsitektur Rumah Tradisional Bali, Berdasarkan Asta Kosal Kosali*, Denpasar: Udayana University Press.
- Dwijendra, NKA (2009) *Arsitektur Kebudayaan Bali Kuno*, Denpasar: Udayana University Press.
- I Ketut Mudra, Ngakan Ketut Acwin Dwijendra (2018) 'Conflicts Interests of Economic, Political and Culture: Elimination Practices of Green Open Space in Bali', *International Journal of Current Advanced Research*, 07(6), pp. 13680-13685. DOI: <http://dx.doi.org/10.24327/ijcar.2018.13685.2456>
- Kementerian Agraria dan Tata Ruang. 2007. *Undang-Undang Penataan Ruang Nomor 26*. Jakarta: Direktorat Jenderal Penataan Ruang.
- Ngakan Ketut Acwin Dwijendra and I Putu Gede Suyoga (2018) 'How A Power Relationship Affects the Practice of Traditional Architecture in Bali, Indonesia', *International Journal of Current Advanced Research*, 07(6), pp. 13350-13354. DOI: <http://dx.doi.org/10.24327/ijcar.2018.13354.2377>
- Ngakan Made Anom Wiryasa & Ngakan Ketut Acwin Dwijendra (2017). Institutional Structure Models in Implementation of Spatial Planning. *Journal of Sustainable Development; Vol. 10, No. 4; 2017 ISSN 1913-9063 E-ISSN 1913-9071*. Published by Canadian Center of Science and Education.
- Ni Made Emmi Nutrisia Dewi, Ngakan Ketut Acwin Dwijendra (2018) 'Transformation of Bale Daja Architecture in Housing of Sading Village, Badung, Bali, Indonesia', *International Journal of Current Advanced Research*, 07(6), pp. 13221-13225. DOI: <http://dx.doi.org/10.24327/ijcar.2018.13225.2347>
- Pemerintah Kabupaten Badung. 2010. *Surat Keputusan Bupati Nomor 47 Tahun 2010 tentang Penetapan Desa Wisata di Sangeh*. Badung: Pemerintah Kabupaten Badung
- Pemerintah Propinsi Bali. 2009. *Peraturan Daerah tentang Rencana Tata Ruang Wilayah Propinsi Bali*. Denpasar: Pemerintah Propinsi Bali.
- Rapiana, Edi. 2017. "Perubahan Fungsi Spasial Sebagai Akibat Perkembangan Pariwisata di Banjar Kedungu, Desa Belalang Kecamatan Kediri Kabupaten Tabanan" (*tesis*). Denpasar: Pascasarjana Universitas Udayana.
- Riana, I Nengah. 2013. "Kajian Alih Fungsi Ruang Terbuka Hijau di Kota Denpasar". (*tesis*). Denpasar: Pascasarjana Universitas Udayana
- Widiastuti, Syamsul Alam Paturusi, Ngakan Ketut Acwin Dwijendra (2017). Cultural Value Transformation in Traditional Market Spatial Planning in City of Denpasar, Gianyar and Klungkung – Bali, Indonesia. *Journal of Sustainable Development; Vol. 10, No. 4; 2017 ISSN 1913-9063 E-ISSN 1913-9071*. Published by Canadian Center of Science and Education.
- Yoeti, Oka A. 1992. *Pengantar Ilmu Pariwisata*. Bandung: Angkasa.

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