

Development Planning of Tourist Village Using Participatory Mapping (Case study: Mambal Village, Badung Regency, Indonesia)

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Abstract. Tourism sector is the highest source of income in Badung Regency so it is interesting to see the development of tourist village as one of the alternative tourist destinations in Badung Regency. Most of the village areas in Badung Regency do not have policies, vision and mission as an effort to develop the village into a tourist village. As a result the role of tourist village does not grow in terms of economic and social community. The purpose of this research is to determine and to map the tourism development plan using participatory mapping. The methodology used in this research is field surveys and interviews for data collection and participatory mapping to map the development plan to support tourism. Mambal village is located in Sub-district of Abiansemal, Badung Regency, Indonesia. Mambal village has the potential to become a tourism village because it is supported by the uniqueness of nature and tradition. Mambal village passed by Ayung river, where along the river there are beautiful cliffs which potential to develop as adventure tourism. There is also Senaung Pengibul Cave with a length of more than 15 meters and is wide enough to pass. Mambal village also has a spiritual tour of Pura Demung and Pancoran Pitu, which has a magical story. Currently farmers in Mambal Village are focusing on developing organic farming, of which 38% of the rice fields present in Mambal are pure organic that produces organic rice. Around the rice field area is also created a jogging track for visitors while enjoying the natural beauty of rice fields. Farmers also cultivate oyster mushrooms. In addition, Mambal Village Community also produces handicraft products that are woven in the form of symmetrical Endek (traditional fabrics) and processed products from used goods such as bags, wallets, pencil boxes and others.

Keywords: Tourist village, Development plan, Participatory mapping

1. Introduction

Tourism as the temporary movement of people to destinations outside their normal places of work and residence, the activities undertaken during their stay in those destinations and the facilities created to cater to their need [1]. Badung Regency is a well-known tourism area in the international arena. South Badung area previously been famous for its coastal charm, but North Badung its existence not yet as famous as South Badung. Characteristic of North Badung is different from South Badung, besides its



quieter and cooler environment, its population density is not as dense as South Badung, so Northern part of Badung is very suitable to be a tourist place for tourists who want rural condition.

One approach to developing alternative tourism development is tourist village for sustainable rural development in tourism. Tourism village is a rural area that has some special characteristics to become a tourist destination. In this area, the inhabitants still have tradition and culture that is still original. In addition, several supporting factors such as typical food, agricultural systems and social systems also become potential to a tourist village area. Beyond these factors, nature and environment are still original and awake is one of the most important factor of a tourist destination.

Aspects of natural resources, culture, customs, religion, and character of local community contribute to this holistic [2]. Participation of citizens in management of tourist village not only facilitate their understanding of local tourism [3], but also improve the quality of planning and decision to include the views of locals [4][5]. One of the methods in tourism development planning can be done by geographic information system (GIS). Geographic information system (GIS) has had a positive impact on social, economic and civic progress in order to penetrate the global market [6]. Participatory mapping using GIS applications can be utilized in many ways, such as community and neighborhood planning, environmental and natural resource management, and mapping traditional ecological knowledge of indigenous people [7]. The development of tourism using GIS applications done by the government of Republic Indonesia.

The Government of Republic of Indonesia also showed a strong desire to develop rural tourism by providing funding and guidance to tourist village. In 2012, government of Republic of Indonesia to develop as many as 978 tourist villages through the National Program for Community Empowerment (PNPM) [8].

Through the issuance of Regulation of Badung Regent Number 47 Year 2010 on Stipulation of Tourism Village Area in Badung Regency [10], Regent of Badung is currently focused to develop tourist villages. One of the villages that developed the concept of a tourist village is Mambal Village. Mambal village is very rich in potential that can be developed. Mambal village has a very wide expanse of rice fields that are still very natural with organic farming systems. Mambal village is also passed by Tukad Ayung with along the river there are beautiful cliffs.

The positive effects of tourism are production of income, occupation and new economic resource for local people, assist to reduce on social unbalanced powers, providing job opportunities for maintaining regional population and coefficient of high multiplicity, reviving local culture, enhancing of national dignity and self-confidence, preserving natural and cultural resources [10]. Another positive economic benefit of tourism is that it can provide stability in an economy.

The problem that happens is the potential of natural resources with human resources are not optimized. It is seen that there is no arrangement and management of the existing potential to support the activities of village tourism. People who usually pass through the village of Mambal just look at the natural scenery without any interaction with the local community to know about what is in the village of Mambal whether it's typical food or local products. Although Mambal village has a lot of potential, but there is no clear arrangement from the community, besides the participation to encourage the development of tourism village activity is still low.

2. Methodology

2.1. Area of Study

Area of study is located in Mambal Village, Abiansema Sub-district, Badung Regency, Bali Province, Indonesia. Geographically, Mambal Village located 8.5410° S, 115.2215° E. Mambal Village bordering with Bongkasa Village, Abiansema Village in the north, Sedang Village, Mekar Bhuana Village in the east, Sibang Kaja Village in the south and Penarungan Village of Badung Regency in the west.

The area of Mambal Village is 3.06 km² with 184 ha of paddy field (90%), 48.07 ha of moor (16%), 38.03 ha (13%) of yard, 28.4 ha (9%) of plantation, and other landuse for 7 ha (2%) [11]. Mambal Village is 30 kilometers from Ngurah Rai International Airport with travel time about 1 hour 10 minutes with normal traffic.

2.2. Tools and Material

The material used in this research are spatial data as follows:

- Questionnaire to conduct interviews related to tourism potential of Mambal Village
- Google Satellite Image year 2017 from obtained from Openlayers Plugin in QGIS to map the location of potential tourism destination
- Openstreet Map data for street and utility data

While the tool used are:

- Computer to process the spatial data
- GPS (Global Positioning System) to determine the coordinate point of observation.
- Camera to record the potential tourism destination in Mambal Village
- Stationary

2.3. Data collection

Data collection method used in this research is primary data and secondary data collection

- Secondary data collection consists of collecting satellite image and maps, including Google Satellite Image and Openstreet Map data. Secondary data will be used as preliminary data for conducting field surveys, interviews and participatory mapping.
- Primary data collection obtained from (1) observing and recording the potential tourism destination in Mambal Village using GPS, (2) conduct interviews with key person who are incharge and understand about the tourism potential in Mambal Village, (3) conduct participatory mapping involving village leaders, communities, and stakeholders to discuss the mapping and planning for tourism destination as well as best management practice for developing tourism in Mambal Village.

2.4. Data Analysis

Data analysis in this research consist of two phase, which are:

- Analysis of potential tourism destination in Mambal Village
Potential tourism destination as well as challenges to develop tourism in Mambal Village were analysed by interviews with Head of Village, tourism enthusiast or stakeholders at Mambal Village. The result then mapped using QGIS software.
- Analysis of tourism destination planning, supporting facilities and best management practice.
Tourism destination planning as well as best management practice for developing the tourism in Mambal Village will be conducted using field check and participatory mapping. Field check conducted to map the location of potential tourism destination meanwhile participatory mapping were conducted for establishing tourism development planning and potential tourist destination. Participatory mapping will makes the people of Mambal Village become leading actor to develop their own Village. Besides, the possibility to accommodating suggestions from stakeholders will make the planning become more effectively and become community-based planning. The result of participatory mapping then mapped using QGIS software.

The complete process of methodology used in this research is featured in Figure 1.

3. Result and Discussion

3.1. Existing Condition and Potential Tourism Destination

Mambal village has very rich in potential to developed. Mambal village has a very wide expanse of rice fields that are still very natural. Mambal village is also passed by Tukad Ayung (Ayung River), where along the river there are beautiful cliffs and natural panorama. There is also Senaung Pengibul Cave with a length of more than 15 meters and its wide enough to pass with unique characteristics with the height and texture that are formed naturally. Mambal village also has a spiritual tour of Demung Temple,

which surrounding there are pancoran and various unique stone that have a magical story called Pancoran Pitu. Pancoran Pitu and Cave Senaung Pengibull is a symbol that can be developed into a new tourism potential in Mambal Village. Figure 2 shows the atmosphere of Pancoran Pitu, while Figure 3 shows the atmosphere of the Senaung Pengibull Cave.

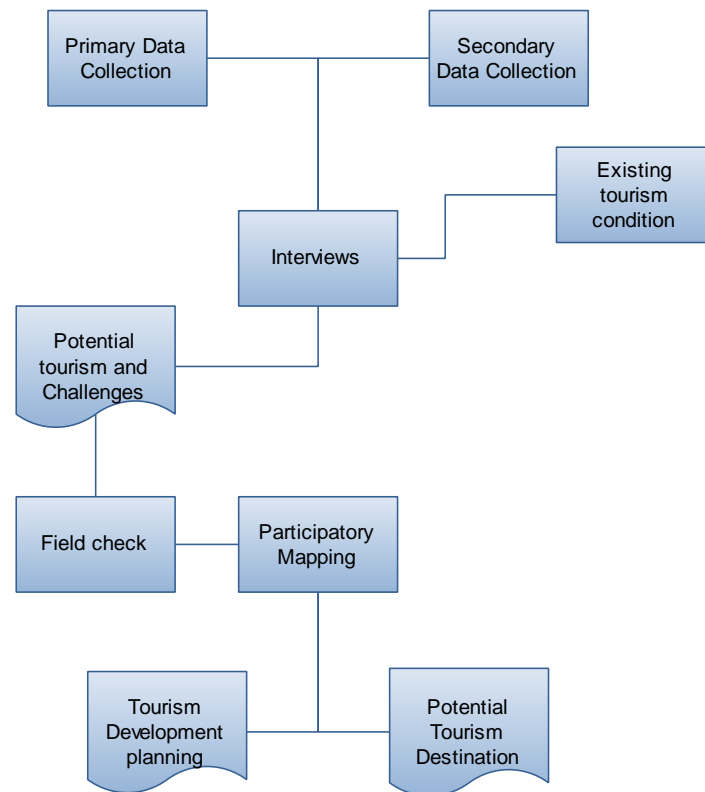


Figure 1. Research diagram



Figure 2. Demung Temple and Pancoran Pitu

People in Mambal Village are mostly farmers, where all the agricultural activities that occur under the Subak organization named Subak Mambal. Currently farmers in the Mambal Village are focusing on developing organic farming, of which 38% of the rice fields in Mambal are pure organic that produces organic rice. Not only rice cultivation, Mambal villagers also continuously grow sweet corn. Around the rice fields there are also a path / farm road that is intended to jogging tracks for visitors while enjoying

the natural beauty of rice fields in Mambal. Figure 4 shows the condition of rice fields and jogging tracks in Mambal Village.

In addition to agricultural crops, the condition of Mambal Village temperature is cool enough to encourage the cultivation of oyster mushrooms. Oyster mushroom cultivation has been successful in supporting the economy of Mambal villagers. Organization of oyster mushroom cultivators in Mambal Village is named Jamur Kumbung. In addition to farming, Mambal Village Community also produces handicraft products that are woven in the form of symmetrical endek fabrics and processed products of handicraft from used goods such as bags, wallets, pencil boxes and others. Villagers involved in this handicraft already have an organization called Undagi Lestari. These products have also been able to follow the events both in local and national scale.

This organic farm and handicraft products makes potential for Mambal Village to manage its tourism. In general, the potential of natural resources and culture of Mambal Village able to supports the development of Mambal Village as Tourist Village. Figure 5 shows the results of oyster mushroom cultivation, while Figure 6 shows the handicrafts of Mambal villagers.



Figure 3. Senaung Pengibull Cave



Figure 4. Ricefields View and Jogging Track



Figure 5. Oyster Mushroom Cultivation

All facilities and infrastructure supporting tourism activities are still in small quantities / small scale. For further development it is necessary to re-add facilities and infrastructure, such as restaurant, ATM, and others. All tourism support activities that exist in Mambal still maintained the local culture and are traditional, it can be seen from the arrangement of tourist attractions that carries the concept of Tri

Mandala. In addition, people in Mambal village still adhere to the concept of Tri Hita Karana to maintain a harmonious relationship with God, fellow society and with the natural surroundings.

Mambal village is very open with tourists both local and foreign. To support the development of village tourism, there have been homestays or inns run by individuals. For further development also needs to be made a place to eat / restaurant that serves local food from the local community. Due to the existence of jogging track, it is necessary to make a bicycle rental bike, so that tourists who may have a cycling pleasure can try and enjoy the beauty of Mambal Village. In addition, it has been conceptualized the development for the location of self-cleaning (melukat) Pancoran Pitu by adding bathing location. Figure 7 shows the distribution of tourist attractions and products of Mambal Village.



Figure 6. Handicrafts from Used goods

3.2. Development Planning

A. Physical Infrastructure Planning

Development planning of Mambal Village involving the people of the Village through participatory mapping. The participatory mapping makes the development plan to become community based. the people of Mambal Village are represented by Head of the Village, youth communities, Hindu Priest and tourism communities in Mambal Village. The participatory mapping process shows in Figure 8.

Facilities development plan and infrastructure plan for Mambal Village is conducted to complete the existing facilities and tourism attractions. The planning resulted from the participatory mapping are isted in Table 1. Figure 9 shows the location of tourism facility planning.

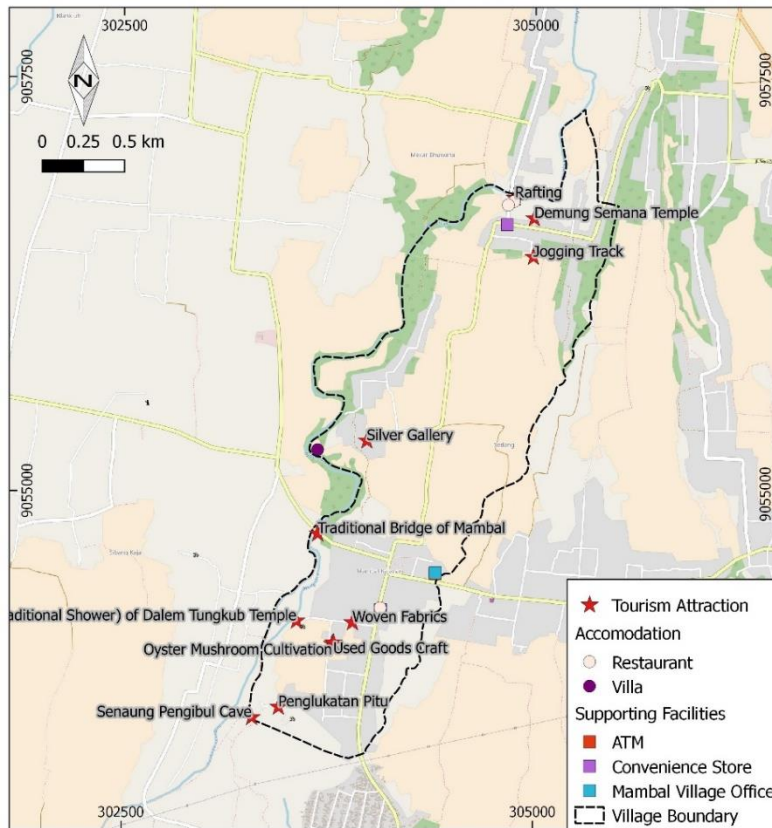


Figure 7. Tourism Attractions in Mambal Village



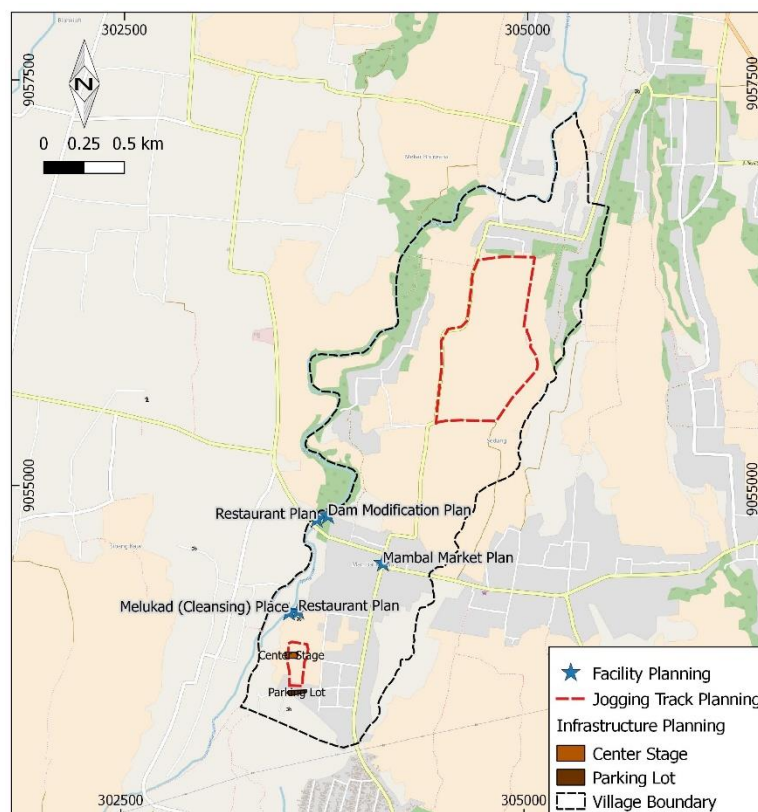
Figure 8. Participatory Mapping Process.

Table 1. Development for Tourism Facility and Accommodation in Mambal Village

Plan	Coordinate x	Coordinate y	Type
Restaurant Plan	303593.78	9054232.69	Accommodation
Melukad (Cleansing) Place	303536.94	9054225.47	Facility
Mambal Market Plan	304117.50	9054530.41	Accommodation
Restaurant Plan	303706.10	9054800.16	Accommodation
Dam Modification Plan	303775.57	9054822.72	Accommodation
Center Stage	303595.73	9053978.32	Facility
Parking Lot	303531.44	9053740.37	Facility
Jogging Track	304510.65	9055411.41	Facility
Jogging Track	303622.61	9053772.41	Facility

Beside accommodation i.e restaurant plan, Dam modification plan, and market plan, there's also facility planning including melukad (cleansing) place for Hindus, center stage, parking lot and jogging track.

Center stage and parking lot will be facilities for art performing includes traditional dance, painting exhibition and other art gallery. Meanwhile jogging track will be complementary facility for Subak tourism in Mamba Village. Other facilities such as homestays will be using houses of people in Mambal Village to maximize the village experiences of the tourists. Homestays will be decorated in traditional village architecture.

**Figure 9.** Planning Map of Mambal Village

The people of Mambal Village fully support the existence of a tourism village. This will provide a very good impact for the community in addition to developing the potential and preserve the nature, the community can also develop themselves from an economic point of view. In addition, many people will be engaged in tourism.

The managerial capacity of the village has been very good and the whole village apparatus can perform its functions well. But for tourism managerial in the future, mamba Village needs to form a group of tourism awareness (POKDARWIS) so that tourism management can be better organized. In addition, training on human resources who will improve the tourism potential of Mambal village. The ability of local community interaction has been very good, the community is open in receiving visits. In addition, there are also many local people who are engaged in tourism and foreign languages.

B. Program and Best Practice Planning

To further increase the selling value and competitiveness Mambal Tourist Village, the Management must make intelligent and creative breakthroughs to conduct structuring and comprehensive improvements to better provide the best and satisfactory services to tourists who come, so that the Mambal Tourist Village growing and become the mainstay attraction in Badung Regency which managed by village community for the benefit of Mambal community itself.

Various programs should be developed divided into 3 (three) Program Phases: Short Term Program, Medium Term Program and Long-Term Program, as follows: (1) Short Term Program, preparing accommodation, such as the provision of local accommodation that is part of the development of Mambal community-based tourism development, preparing local culinary from local with international flavor. This will also provide passion for local communities to create and preserve their local menus, prepare local human resources by providing intensive training and conducting comparative studies to enhance experience in management and exchange of information relating to the management of tourist attraction. In addition, preparing tourist facilities, tour, and products to provide the best service to tourists and also provide the convenience to make tourists stay longer and enjoy the Mambal Village. Convenient resting places to enjoy the natural beauty of Mambal Village, playground for children, places to hold meetings, decorative interiors, arrange the surrounding parks, arrange the paths for travellers, so that all the traders in Mambal get the same opportunity for tourists to shop at their kiosks.

Medium Term Program, to hold cooperation or MoU with tourism stakeholders, such as Travel Agent, Government, and other tourism industry to create better cooperation and marketing. To support the sustainability of such cooperation, it is necessary to create a kind of MoU to be able to facilitate the preparation of event activities or cultural attractions with assistance from Travel Agent or other tourism industry, to create a calendar of events and tourist events at Mambal Village to be delivered to tourists so that various activities can carried out can be published and known by tourists and to be able to provide appropriate services, making local souvenirs to be known and always remembered the uniqueness and beauty of Mambal Village. These souvenirs are important to make tourist who come to Mambal Village to bring evidence that they have visited and can be a direct promotional to friends or families.

Long Term Program, which is: held Mambal Festival, where various tourism potentials owned by Mambal Village can be explored and arranged a diversity of attraction that provides various tourism options.

4. Conclusions

Mambal village has a very wide expanse of rice fields that are still very natural. There is also Senaung Pengibul Cave with unique characteristics with the height and texture that are formed naturally. Mambal village also has a spiritual tour of Demung Temple, which surrounding there are Pancoran Pitu. Pancoran Pitu and Cave Senaung Pengibull is a symbol that can be developed into a new tourism potential in Mambal Village.

To further increase the selling value and competitiveness of Mambal Village, various programs should be developed divided into 3 (three) Program Phases: Short Term Program, Medium Term Program and Long-Term Program. Short term program is to preparing accommodation, medium term program, to hold cooperation or MoU with tourism stakeholders, such as Travel Agent, Government, and other tourism industry to create better cooperation and marketing. Long term program is to held Mambal Festival where various tourism potentials owned by Mambal Village can be explored and arranged a diversity of attraction that provides various tourism options.

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