

Participation of Local Communities in Supporting the Development of Dark Sky Tourism (Observatorium-Timau) Amfoang Central

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Abstract—This research is intended to understand the participation of local people in supporting the *Wisata Gelap Observatorium-Timau (Dark Tourism Observatory-Timau)* in district Central Amfoang in Kupang District. The participation of local communities (3 Amfoang tribes) in giving their land to build the Timau-observatory is an important part of contribution in their village development. The involvement of the Central Amfoang District Government shows continued support from the government to the development of the Dark Tourism Observatory-Timau. The involvement carried out by the District Government is by holding socialization activities for the construction of the Timau-Observatory and preparing natural resources and human resources. Furthermore, the purpose of this study is to find out what factors (internal and external) influence community participation in the construction of the observatory and dark sky tourism in Central Amfoang. This is part of the form of participation as a form of love for the development of regional development. Based on the results of the discussion and analysis of the research conducted, it can be concluded as follows. The form of community participation is seen from internal and external factors in supporting the development of the Dark Tourism Observatory-Timau, Central Amfoang District. Related to internal factors such as community work, education, gender, and beliefs. As well as external (environmental) factors, namely all interested parties and have an influence on certain programs, such as traditional leaders, religious leaders,

community leaders and government leaders. The participation of the community and government so far has been going well with the awareness of the community and the government itself, they think that it is important to support a development that is in their area, because it will have a positive impact and have an effect on regional progress.

Keywords: *Community Participation, Observatory-Timau, Dark Sky Tourism*

I. INTRODUCTION

The tourism industry in Indonesia has experienced rapid growth in recent years. According to the World Travel & Tourism Council (WTTC: 2018), tourism growth in Indonesia is the 9th fastest in the world, 3rd in Asia and 1st in Southeast Asia. For Indonesia itself, the tourism sector is the third largest contributor to the country's foreign exchange, after palm oil [1]. The development of Science and Telecommunications (Scitecs) encourages the government to modernize the current science and technology equipment. In the field of Astronomy, Indonesia is still far behind other countries in the world. Indonesia has only one Bosscha Observatory which is located in the Bandung area and is more than 90 years old. This is the reason why the National Institute of Space and Aviation (NISA) chose the Amfoang area, which is located on the slopes of Mount Timau, Central Amfoang District, Kupang Regency, East Nusa Tenggara as the location for the construction of a modern National Observatory.

The strategic location of Amfoang in the southern hemisphere brings a significant advantage because as of now there are only few observatories in the the

southern hemisphere, which are only found in South Africa, South America, and Australi. The brightness of the sky is quite high in the Amfoang area, where approximately in a year there are about 250 clear night skies that allow astronomical observations in optical windows. The construction of the Timau Observatory will provide benefits to the scientific aspect, the economic aspect, and the social aspect. In terms of economic aspect of tourism, development of tourism should give more benefit for local people through community-based tourism approach[2]. The government has designated the area around the Timau Observatory as the Dark Sky National Park, which will become a typical tourism site for Amfoang, Kupang Regency for tourists who want to enjoy the beauty of the sky at night.

The construction of the Timau National Observatory, which began in 2018 and is expected to be ready by the end of 2021, will cost around Rp. 340 billion is possible due to the participation of the three tribes (1 Northwest Amfoang tribe, 2 Central Amfoang tribe) who generously gave their own land as development site. This condition gives the impression that the people of Amfoang are very supportive of development and realize the importance of community participation in developing their territory. This community participation encourages researchers to conduct research, to be able to find out what factors influence it. As we know, development in an area can be carried out well if there is good synergy between the government, the private sectors and the community. Meanwhile, community participation in development is an important factor, because it is the community who best understands and controls their territory [3]. Community participation is an important determinant needed in sustainable development as stated by Gunn (1999), which emphasizes that "local people participation is a prerequisite for sustainable tourism". A development program is said to have involved the community if the community has taken real action in the development. The participatory development program is community-oriented, that involve the community from the front-end imclude from the process of planning, implementing, evaluating the process, to the utilizing the results.

There is an urgency of this research because it will help determine the extent to which community participation is involved in the development of dark tourism at the Timau observatory as previous studies have shown that community participation can also have a positive impact and benefits that will be felt also by the surrounding community, so that from the planning process, development to the development stage, it is very necessary to have support and involvement as well as the role or participation of the community to jointly make a major contribution in order to achieve the expected success of a development goal

II. REVIEW OF LITERATURE

2.1 *The concept of Participation*

Participation means the involvement of a person or group of people in the development process, both in the form of statements and in the form of activities by providing input of thoughts, energy, time, expertise, capital, and or materials, as well as participating in utilizing and enjoying the results of development.[4].

[5] Expressed that participation is a manifestation of the desire to develop democracy through a decentralization process where efforts are made, among others and there is the need for bottom-up planning by involving the community in the planning process and community development.

[6] Distinguish participation into 4 (four) types, namelyfirst, participation in decision making. Second, participation in implementation. Third, participation in making use of. And fourth, participation in evaluation. Based on some of the definitions above, it can be concluded that participation and the sharing of authority or shared responsibilities among people within a group.

A. *Factors contributing to community participation*

Internal factors are factors that come from within the individual itself that can influence the individual to participate in an activity [7], several factors (internally) that influence the community to participate are: Knowledge and expertise. The knowledge base possessed will affect the entire environment of the community. This makes the community understand whether or not the stages and forms of participation that exist; Level of Education and literacy. This factor is very influential on the willingness and ability of the community to participate; Gender. It is common knowledge that these factors can affect the willingness and ability of the community to participate, assuming that men and women will have different perceptions and views on an issue; Belief in a certain culture. Communities with a high level of heterogeneity, especially in terms of religion and culture will determine the participation strategy used. Often the beliefs held in the culture might have conflict with existing concepts in the development. External Factors (environment). All parties with an interest and influence on a particular program.

2.2 *Tourism Development Concept*

The scope of tourism development includes: tourism industry, tourism destinations, marketing and tourism institutions. It is mandated in the Indonesia's Act no 10 of 2009, that tourism development is carried out based on the national tourism development master plan, provincial tourism development master plan, and regency/city tourism development master

plan. Referring to the mandate, for the national interest, the government stipulates government regulation number 50 of 2011 concerning the master plan for national tourism development.(RIPPARNAS) from 2010 - 2015.

Government Regulation (PP) Number 50 of 2011 in article 2 states that national tourism development is carried out based on the principle of sustainable development oriented towards efforts to increase growth, increase employment opportunities, reduce poverty, and preserve the environment.

2.3 Observatory-Timau Construction Concept and Dark Sky Tour.

The word observatory comes from the Latin *observare* or *observat* which means to see, observe, then the word becomes *observatory* which means a place of observation. While the origin of the word *observatory* in English, namely *observatory* comes from the French *observatoire* which also comes from Latin *observare* [8]. So the word *observatory* has a close relationship with observation.

Then according to the Merriam-Webster dictionary, an observatory is "a building or place given over to or equipped for observation of natural phenomena (as in astronomy)", which means it is a building with observation equipment to observe natural phenomena in astronomy [9].

According to the statements above, the observatory is a place where regular observations can be made, in the context of this research, the observations in question are astronomical observations. So it can be said that the observatory is a building with facilities for regular observations and astronomical research

2.4 Observatory Construction Requirements

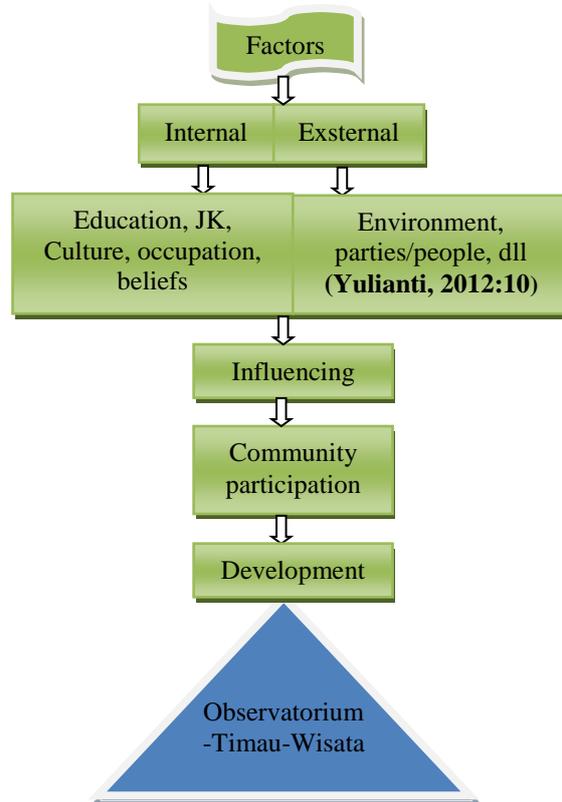
Not all areas or areas can be used as an observatory. According to. Thomas Djamaludin 2016 (in "the joy of looking at the dark sky) [10]. There are at least three requirements that must be met by an area, namely:

1. Weather. Wherever possible, the area has the highest number of sunny days compared to the surrounding area.
2. Accessibility. No less important, in terms of accommodation and transportation, the observatory area must be accessible. Now, in East Nusa Tenggara province (ENT), especially the Central Amfoang area, the road access to the observatory location is currently built. In addition, from the area's affordability, it is relatively easy to reach.
3. Minimal disturbance. The observatory area must be minimally disturbed by light and frequency pollution for radio purposes. This is why, in some developed countries,

international-scale observatories are built on remote islands.

2.5 Research framework

The framework in this research is described as follows:



III. METHODS

The type of research used in this research is descriptive research with a qualitative approach. Data sources come from informants, and documentation. The research location is in Central Amfoang District, Kupang Regency, East Nusa Tenggara. Data collection techniques through interviews, observation, literature study and documentation. Research time in April-August 2021. To determine the informants in this study using a purposive sampling technique [11], namely selecting individuals to be interviewed, by meeting people who have in-depth knowledge and understanding of certain elements. As key informants, namely the Camat of Central Amfoang, and the people of Timau Village.

The data analysis technique uses an interactive model of qualitative data analysis [12], namely data collection, data reduction, data presentation, and drawing conclusions. The scope of the research to be investigated are related to the factors that influence community participation in the construction of the Timau Observatory (Dark Sky Tourism Object) both internally which include: work, education, gender, belief and externally related to the environment or

traditional leaders, religious leaders, influential community and government leaders.

IV. DISCUSSION

4.1 *Geographic location.*

The working area of Amfoang Tengah District consists of 4 villages, namely Fatumonas Village, Binafun Village, Bonmuti Village and Bitobe Village, with a total area of 203.47 km². The total population in Amfoang Tengah Subdistrict spread over 4 villages is 5,927 people, consisting of 2,993 men (50.2%) and 2936 women (49.8%) with a total of 1,322 families. The objectives and targets of the Kupang Regency Government's mission are for the purpose of the 5 P Revolution, while the targets cover the following 5 fields: Agriculture, Plantation, Livestock, Fisheries, and Tourism.

4.2 *Community Participation in Supporting the Development of Observatory-Timau Illegal Tourism in terms of Internal Factors.*

Internal factors are factors that come from within the individual itself that can influence the individual to participate in an activity. Internal factors include community work, education and training, gender, and beliefs.[13]

To realize the success of development, the initiative and creativity of community members are born from awareness and responsibility as human beings who live in society and are expected to grow and develop as a participation. Individual community work factors have an influence on participation because high or large work intensity does not hinder the community from being involved in any collaboration or community service, even involvement in contributing both morally and materially becomes a form of local community participation in development.

The condition of the people of Central Amfoang, which consists of four villages, in which their main priority for livelihood activities is agriculture and animal husbandry. This type of occupation can take an uncertain time, although the work they are engaged in does not guarantee that all their needs are met. With passion and responsibility in sustaining life, they must work everyday.

This does not become an obstacle for their participation in participating in the construction of the Observatory-Timau Dark Tourism Object. The form of participation that has been carried out by the local community in development is by taking the time and energy to do community service to clean the land or construction site, to prepare everything at the groundbreaking ceremony for the construction of the

Observatory-Timau Dark Tourism Object, such as preparing dances to welcome guests and return visits. attended by the father, the Governor of ENT Victor Laiskodat, the readiness to welcome together is the involvement of the local community of Central Amfoang which consists of four villages namely Fatumonas Village, Binafun Village, Bitobe Village, Boenmuti Village where they volunteer to support livestock to be given as a form of donation. Togetherness and community concern is also part of the participation provided by the local community. Not all areas or areas can be used as observatories. The participation of local communities (3 Amfoang tribes) in giving their ulayat land to be built by Obnas is an important part of the real realization of the Amfoang community in development. Because the location of the national observatorium development area is located at an altitude and is located far from residential areas, it is optimal for the construction of the Observatory.

The average education level of the people of Central Amfoang is elementary school and junior high school, only a few people have senior high school and undergraduate education. The education level factor affects the willingness and ability of the community to participate. People who have low educational abilities tend to be less responsive and take part about the importance of development in their residential locations, but not all of them have the same thoughts. Meanwhile, local people who have achieved high school and undergraduate education are classified as having good understanding and understanding and can quickly respond if there are important things that want to be involved in participation.

The gender factor is commonly understood that this factor can affect the willingness and ability of the community to participate, assuming that men and women will have different perceptions and views on a subject matter. From the data obtained, the population of Central Amfoang consists of four villages where the dominant sex is male, namely 2993 people and women 2936 people. Based on the results of interviews with the community, Mr. Maklon Laidat said that for men it was not an obstacle for them to involve themselves in supporting every development program that had become a program. They said they are very supportive because it will have a positive impact in terms of increasing regional development and of course affecting regional income. Regarding the development of the Timau Observatory Dark Tour, the community was very enthusiastic in participating, such as attending meetings held at the village office and sub-district office, getting involved in working together to clean up the construction site, and helping workers to improve road access to the observatory location.

As for the participation support provided by women, can come in the form of preparing food to be served when the community involves themselves working together or doing community service at the observatory construction site, as well as during the groundbreaking event in the construction of the Timau Observatory Dark Tour where various types of activities involve community activities. The participation of the woman can also take part in the form of welcoming dancing for guest. Seeing the current condition of their area is increasingly becoming a development priority which is directly supported by the Governor of East Nusa Tenggara (ENT) Victor Laiskodat, making them confident so that based on an interview with one of the mothers in Fatumonas village, mom Ke'as said that all plans will be carried out to prepare additional income opportunities, namely by increasing the creativity of making traditional cash weaving from the Central Amfoang Region to be sold as a form of souvenirs for tourists who will visit tourist attraction locations.

Belief in a certain culture. Communities with a high level of heterogeneity, especially in terms of religion and culture will determine the participation strategy used. Often the beliefs held can conflict with existing concepts. Plumer (in Yulianti, 2012:10). The people of Central Amfoang have fully put their trust in the government, namely the Subdistrict head, Regent, and Governor of ENT in handling the development of the Timau Observatory Dark Tour. The trust given is to donate land belonging to four villages in Central Amfoang to be used as the location for the construction of the Observatory. This is part of a real form of community participation. The religion and culture of the Middle Amfoang people are still held firmly to be respected, but the village people no longer hold on to cultural beliefs in carrying out development they no longer believe in things that will bring havoc when carrying out development, because their mindset is getting more advanced, so they believe and believes that it will have a positive impact on development and the realization of community welfare. Thus, the development of the Timau Observatory Dark Tour can run well because of the support and participation of the people of Central Amfoang.

4.3 Community Participation in Supporting the Development of Observatory-Timau Illegal Tourism Seen from External Factor.

External (environmental) factors. All parties with an interest and influence on certain programs, such as traditional leaders, religious leaders, community leaders and government leaders.[14].

States that, community participation in development is the participation of the community in development, participating in development activities, and participating in utilizing and enjoying the results of development. Government is an organization that

functions to exercise authority and power in regulating the social, economic and political life of a country and its parts. Regional development planning is a series of policy-making activities carried out by the ruling government that have a direct impact on the social life of the local community. The involvement of the Central Amfoang District Government supports 100% of the development of the Dark Tourism Observatory-Timau. The form of involvement or participation carried out by the District Government is by holding outreach activities for the construction of the Timau-observatory and preparing natural resources and human resources. This remark is delivered directly by the head of the village Marsyuner Prayudin Bureni, SP, MM.

Related to natural resources, there are still many vacant lands that have not been managed so that it becomes an opportunity to be used as potential. As of this year, the Central Amfoang District Government has begun to organize agricultural spatial planning, plantations remain a good village arrangement. Specifically for 4 villages located in the Middle Amfoang area, namely Fatumonas Village as a citrus producing village, Bitobe Village as a coffee-producing village so that it can support people's living standards, Binafun Village as a producer of cashew jamu, and Bonmuti Village as a porang producer. The potentials possessed by this village will be used as the Observatory's kitchen. This is also part of supporting the Kupang Regency government program in accordance with the five Revolutions work program (Agriculture, Plantation, Livestock, Fisheries, Tourism)

Sherly Arnstein classifies public participation as having the authority to influence a policy. In A. Ladder of Citizen Participation Sherry Arnstein eight schemes are divided into three degrees. The highest degree of citizen power which includes the ladder of community control, delegation of power and partnership. Pseudo-degree of attenuation, consultation, and information. The lowest degree is non-participation which includes the ladder of therapy and manipulation.

Regarding human resources, the Central Amfoang District Government supports the construction of the Astronomy State Vocational School which is currently running the planning and development process. This support also received full attention from the East Nusa Tenggara Provincial Government, namely Mr. Victor.B. Laiskodat as Governor of East Nusa Tenggara Provincial Education Office Mr. Linus Lusi as Head of Service, Government of Kupang Regency Education Office.

It is important to know that the Astronomy Vocational School is the only Astronomy Vocational School in East Nusa Tenggara(ENT), even in Indonesia. The goal of the development of the Astronomy Vocational School is still closely related

to the construction of the Timau Observatory, where this Astronomy Vocational School can prepare the best graduates who are professional and have skills in the field of Astronomy and can be used as experts, this is a form of government participation to support human resources. The priority of the expected workforce is the village children of the Central Amfoang community, so that they can provide job opportunities and support the welfare of the village community. This requires the District Government to work hard in providing understanding to the community in terms of parents to fully support their children to go to school, take opportunities to learn so that the community can understand and support and encourage their children to go to school.

V. CONCLUSIONS

Based on the results of the discussion and analysis of the research conducted, it can be concluded as follows. The form of community participation is seen from internal and external factors in supporting the development of the Dark Tourism Observatory-Timau, Central Amfoang District. Related to internal factors such as community work, education, gender, and beliefs. As well as external (environmental) factors, namely all interested parties and have an influence on certain programs, such as traditional leaders, religious leaders, community leaders and government leaders. The local community which consists of 4 villages namely Fatumonas Village, Binafun Village, Bonmuti Village, and Bitobe Village have been involved and active in supporting the development of the Observatory-Timau Dark Tourism. Community participation so far has been going well with the awareness of the people themselves, they think that it is important to support a development that is in their area, because it will have a positive impact and have an effect on regional progress.

The suggestion that I can share on this occasion is to increase the awareness of the local community in getting involved with various development activities or activities that take place in the Central Amfoang area. Not only supports every development, but also supports regional development and promotion to be

known by the wider community. For the NTT Provincial Government, Kupang Regency Government, Central Amfoang District Government, the local Village Government remains in synergy with one heart for involvement in the development of the Central Amfoang area in this case the development of the Dark Tourism Observatory-Timau.

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