Community based ecotourism development of Jatigede Reservoir in Pakualam Village of Darmaraja Sub district of Sumedang Regency

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Abstract. Jatigede Reservoir area has a role as a power plant, the provider of irrigation water, fisheries, and tourism. Tourism that is suitable to be developed in the reservoir area is ecotourism, which is a natural tourism that unites sustainably conservation, society, and travel. The purpose of this study was to identify the potential of Pakualam Village as ecotourism area, to analyze community involvement in ecotourism management, and to identify supporting and inhibiting factors in developing ecotourism in the Pakualam Village. This study used qualitative descriptive method with case study techniques. Data collection was carried out through observation, focus group discussion, in-depth interview and literature study. The data were analyzed using qualitative descriptive and technical boundary partner. The results showed that forest resources, rice fields and waters in Pakualam Village had the potential of ecotourism. In utilizing these potential resources, community involvement existed both as an initiator, implementer or beneficiary. The supporting factors of ecotourism that were found included the cool and natural beauty of natural panorama, the availability of typical culinary and the local wisdom of Pakualam Village community. The main inhibiting factors in the development of ecotourism in this area included poor road infrastructure, limited facilities and supporting institutions.

Keywords: ecotourism, community, Sumedang

1. Introduction

Tourism in the Indonesian economy ranks 4th in the national foreign exchange contribution of 9.3% and its growth is above national economic growth. The tourism sector is expected to be able to improve national and local economies, and encourage business opportunities for the surrounding community in order to absorb labor [1].

The development of tourism, in line with the growing dynamics, has penetrated various terminology such as sustainable tourism development, village tourism and ecotourism. This is an approach to tourism development to ensure that tourism can be carried out in tourist destinations in rural areas. One alternative tourism development approach is rural tourism and ecotourism for sustainable rural development in the field of tourism [2].
Ecotourism is a natural area-based tourism aiming to preserve the environment and encourage the welfare of local people to develop the tourism sector in Indonesia. Ecotourism is not only a leading sector in the development of regional tourism but can be one of the solutions in preserving nature.

There are three basic concepts of ecotourism, namely (1) outdoor and natural travel that does not cause environmental damage, (2) this tourism prioritizes the use of facilities created and managed by the tourist area community and (3) tourist trips places great attention on the natural environment and local culture [3].

Experience in African countries shows that the development of ecotourism in agricultural and forestry areas can provide great benefits to the community [4] such as the ecotourism that was found in Kruger National Park in South Africa, Kinabalu National Park in Malaysia, Yosemite in the United States and Peak District in England. These ecotourisms have a large contribution to national income in each of these countries [5]. The results of research in developing countries show that empirically, ecotourism plays a role in four conservation indicators, namely conservation financing, conservation education, conservation ethics, and resource conservation. As for the issue of poverty, ecotourism contributes in increasing the level of income of local communities, increasing the number of working people, improving infrastructure, and local participation [6].

Community-based ecotourism starts from the concept of utilizing local resources by paying attention to nature conservation and involving the role of local communities in planning, implementing and managing so that the utilization of tourism potential can guarantee environmental sustainability while enhancing economic growth and community welfare. Community-based ecotourism can help maintain sustainable use of natural resources and land. Some conditions for community-based ecotourism development include: (1) landscape and flora that attract tourist, (2) ecosystems that can still receive tourist arrivals without causing damage, (3) local communities aware of potential opportunities, risks and (4) the existence of social structures which allows effective decision making, (5) there is no threat to the existence of local traditions, and (6) the initial market interpretation indicates a potential and effective demand for ecotourism to be accessed [7].

Sumedang Regency is one of the districts in the Province of West Java that has 27 tourism destinations classified as natural tourism, cultural tourism and special interest tourism with diverse management status [8]. In accordance with Regional Regulation Number 2 in the year of 2009 about Sumedang District's long-term development plan in 2005-2025, one of its missions is to realize a resilient and sustainable regional economy based on agribusiness, tourism and industry.

Jatigede Reservoir is a built reservoir located at Sumedang Regency, West Java. This reservoir has multifunctional facilities such as paddy irrigation facilities in Pantura, the sources of drinking water in the areas of Cirebon and Indramayu, as a hydroelectric power plant, flood control and tourism. The regional regulation of Sumedang District number 2 in the year of 2012 about Regional Spatial Planning in Article 35 paragraph 4(a) states that Jatigede Reservoir is one of the plans in the development of artificial tourism in Sumedang District. There are eight potential tourist attractions in the Jatigede reservoir area that has started operating and are spread in five sub-districts, namely Darmaraja, Cisitu, Wado, Situraja and Jatigede. The eight attractions are water tourism, natural tourism, cultural tourism, waterfall tourism, sports tourism, camping grounds and pilgrimage tourism [9].

Pakualam is one of the villages in the Jatigede Reservoir area that has a topography state in the form of hills around the forest with beautiful natural scenery. Based on the resource potential, Pakualam village is designated as a tourist village. Therefore, it is interesting to study the community-based Jatigede reservoir ecotourism development in Pakualam village, Darmaraja sub-district, Sumedang District, West Java.

2. Research Methods

The research area was purposively determined in Pakualam Village Darmaraja Sub-District of Sumedang District, because Pakualam was one of the tourist villages in the Jatigede Reservoir area. This study uses a qualitative descriptive approach with case study techniques. The purpose of the case
study technique is to conduct an in-depth study of a limited case. Case studies are defined as research strategies where researchers carefully investigate individual programs, events, activities, processes, or groups [10]. The data used were primary and secondary data. Secondary data were obtained through literature study while primary data were collected through observation, focus group discussion and interviews. Interviews were conducted with informants consisting of tourist, tourism managers, village officials, NGOs, community leaders, village governments, providers of boat and culinary tourism services, Bappeda and Regency Tourism and Culture Service in Sumedang. Data analysis was carried out through data source triangulation techniques, interactive data analysis, and boundary partner technique.

3. Results and Discussion

3.1. The Potential of Pakualam Village Resources in the Development of Ecotourism

Inventory of natural resources in the development of ecotourism areas is needed to determine the potential of tourism attractions. In general, natural tourist attractions found in ecotourism development areas are rivers, lakes, reservoirs, beaches, forests, caves, waterfalls [4]. The selection of appropriate tourist attraction activities needs to be done to make it easier for managers to evaluate tourist attractions thoroughly and to estimate activities that can still be developed in attracting tourism markets.

Pakualam is a swakarsa village that has lowland and hilly shaped topography with a slope between 20 and 45 degrees. The entire area of Pakualam village has 158.36 hectares located at an altitude of 130-280 meters above sea level and a population density of 323 people per km² [11]. Most of Pakualam society have livelihoods in agriculture. The Pakualam Village has 149 hectares of rice fields that produce agricultural products including rice, cassava, green beans, sweet potatoes, peanuts, long beans, chili, cucumber, and tomatoes. While the plantation land of the Pakualam society produces fruits such as rambutan, mango and sapodilla. There were also of Pakualam society owned livestock businesses such as chickens, ducks, goats, sheep, cattle and buffalo. Thus, tourism based on agricultural activities can be developed in this village.

The capacity of the Pakualam Village is for 94,000 people. The population in 2016 was 1,151 people and the projected population in 2036 was 6,974 people. Thus, Pakualam Village has the capacity of the space to be developed, one of which is ecotourism. The safe land area for the tourism area is 856,000 m² and the area for ecotourism is 300,000 m². The willingness to pay of tourist in the case of the availability of improvements and the development of tourist facilities for infrastructure and accessibility in the Pakualam Village is Rp 13,000 per person [12]. The potential of ecotourism in Pakualam Village is presented in table 1.

| Type of Tourism | Potential Tourism | Tourism site | Tourist attraction | Description |
|-----------------|-------------------|--------------|-------------------|-------------|
| Natural tourism | Water tourism     | Cisema beach | Natural scenery, boating, rest area, fishing and selfie | Already in operation but not well organized |
|                 |                   | Cilembu waterpark | Swimming pool, selfie | Under construction |
| Forest tourism  | Puncak Damar      | Natural scenery, selfies, flying fox, camping ground, and out-bond | Already in operation and development |
| Type of Tourism | Potential Tourist | Tourism site |
|-----------------|------------------|--------------|
| Cultural tourism | Art tourism       | Saung Budaya Pakualam village |
|                  | Performing of kuda renggong, singa depok, jaipongan and calung |
| Religious tourism | The site of Puncak Damar |
|                  | Rest area, historical study |
| Special interest tourism | Agro-tourism Pakualam tourism village |
|                  | Agro-scientific: livestock fisheries and agriculture |
| Village tourism | Kampong Buricak burinong |
|                  | Selfie, cycling, observing the village and its culture |
| Culinary tourism | Pakualam village |
|                  | Enjoy special foods: liwet rice, pindang and grilled lalawak fish |

The natural resource potential of Pakualam Village is beautiful natural landscape combining forests, rice fields and a pool of Jatigede reservoir. This is very suitable as an ecotourism attraction for tourists who like rural nature with a beautiful environment.

Cultural tourism consisting of kuda renggong, sisingaan, jaipongan and calung performances were well preserved. This can be a cultural attraction that is shown to tourists. There were religious tours in the form of historical sites of the stone grave sarcophagus inherited from the Sumedang Larang Kingdom which was found on the Cisema hamlet. This has been known as the Puncak Damar site. The Puncak Damar site is a burial complex located on the highlands of the Cisema hamlet ridge. Many tourists came to make a pilgrimage and pray to get a mate, fortune and safety. In addition, a waterpark is being built in Cilembu hamlet and "kampong Buricak burinong" in Cisema hamlet. In this area, tourists can ride bicycles and self-photos with striking colorful house backgrounds and views of the Jatigede reservoir puddle. The colorful tourist village of “kampong Buricak Burinong” was built using the concept of community empowerment. Initiatives, budgeting, implementation, monitoring and evaluation were carried out by local communities based on Sundanese local culture in the form of mutual cooperation. This local value becomes social capital for community empowerment.

3.2. Community Involvement in the Ecotourism
Pakualam Village has been developing as a tourism village. Tourism village is the form of integration between attractions, accommodation and supporting facilities that are presented in the structure of community life that integrates with prevailing procedures and traditions [13].

Ecotourism development in Pakualam village involves various parties in the process of designing, implementing and managing. The boundary partner ecotourism activities in Pakualam Village is presented in figure 1. Ecotourism development boundary partners consist of three actors namely beneficiaries, implementers and initiators. Beneficiaries are actors who benefit from ecotourism, while implementers are program implementing actors, and initiators are actors who design the program.

The initiator of Pakualam Village ecotourism was the Government of Sumedang District, Perhutani and non-governmental organizations (NGOs). The Sumedang District government through Regional Development Planning Agency designed policies and budget allocations for Pakualam Village ecotourism. Through the Department of Tourism and Culture (DISPARBUD) designed
tourism arrangements in Pakualam Village. The development of “Buricak burinong” hamlet tourism was initiated by non-governmental organizations such as the Motekar Community and Garuda Institute. Ecotourism implementers are tourism driving community groups (KOMPEPAR), forest village community institution (LMDH), Perhutani and tourism and culture offices that act as community advocates and tourism promotion. In addition, DISPARBUD plays a role in human resource development such as providing culinary training, awareness of tourism and how to be a good guide tour.

In the management of Pakualam Village ecotourism, there are members of KOMPEPAR who play a role in ticketing, coordinator of cleaning service, security, and trade. While people who are not members of KOMPEPAR act as the providers of traditional culinary, art players, boat rental services, fishing pond providers, etc. Puncak Damar forest tourism is jointly managed by Perhutani Forest Management Unit (KPH) Sumedang and LMDH Pakualam. LMDH is an institution formed by rural communities who are in or around the forest to regulate and fulfill their needs through interaction in the forest on social, economic, political and cultural context [14].

The beneficiaries of the ecotourism of Pakualam Village are the local community and tourists. Tourists benefit from enjoying the atmosphere and natural beauty, gaining experience and knowledge about culture, various traditional games, agricultural and livestock knowledge. Tourist visits will generate financial benefits from the results of local community and psychological efforts such as feeling happy and proud.

3.3. Tourism supply and demand analysis in Pakualam Village

According to Copper et al (1992) in [15], there are four components of tourism assets that are needed in a tourist destination. The four components are attraction, accessibility, amenity, and ancillary.

| No | Parameter              | Comparison of mean values | Difference |
|----|------------------------|---------------------------|------------|
|    |                        | Supply        | Demand     |             |
| 1  | Natural attractions   | 2.46          | 2.42       | 0.16        |
|    | Reservoir              | 2.58          | 2.58       | 0.00        |
| 2  | Cultural attractions  |               |            |             |
According to table 3, it shows that there is a gap between demand and supply ecotourism, in which the demand is greater than the supply. Therefore, in the development of ecotourism in the Pakualam Village, efforts are needed to improve the security and comfort of tourists through the addition of tourist attractions, the improvement of accessibility, and the addition of tourism support facilities. Ecotourism can be managed by the local government in collaboration with investors and local communities through the concept of community empowerment.

### 3.4. The supporting and inhibiting factors of ecotourism development in Pakualam Village

The supporting and inhibiting factors of ecotourism development in Pakualam Village is presented in table 3.

#### Table 3. Supporting and inhibiting factors of ecotourism development in Pakualam Village

| Factor | Internal | External |
|--------|----------|----------|
| Supporting | 1. The beauty of the natural environment  
2. Strategically located close to other tourism objects in the Jatigede reservoir area  
3. Openness of the community towards tourists  
4. The existence of non-government organizations that care about nature conservation, art, tradition and culture  
5. Multi stakeholder involvement | 1. Development of information and communication technology (internet and social media) for the promotion of ecotourism  
2. Ecotourism development synergistic with environmental conservation  
3. Potential tourists who come to visit  
4. Investment opportunities and ecotourism businesses for the surrounding community  
5. Land use patterns with the concept of agroforestry as the main potential for ecotourism development in the Jatigede reservoir area |
Because the inhibiting factor is more than the supporting factor, the weaknesses and threats are minimized while strength is enhanced through community-based ecotourism development.

4. Conclusion
The results of the study showed that Pakualam Village have the capacity of space and community activities that supported the development of ecotourism. The potential of Pakualam Village tourism attraction is diverse in the form of natural beauty, water tourism, forest tourism, historical and religious educational tours, local cultural attractions, agro-tourism, and selfies. Local communities are involved in ecotourism development as initiators, implementers and beneficiaries. Pakualam Village ecotourism was initiated by the Sumedang District Government, Perhutani and non-governmental organizations. Implementors of ecotourism development are local people who are members of the tourism driving group (KOMPEPAR), forest village community institutions. Perhutani, which is supported by the Office of Tourism and Culture, acts as a community companion and tourism promotion. The beneficiaries of ecotourism development are local community and tourists.

The results of analysis of tourism demand and supply, there are several things that need to be considered in the development of ecotourism in Pakualam Village, namely the cooperation of local governments and local communities through community empowerment, the addition of tourism support facilities, offering conservation attractions and environmental insight in accordance with the conditions of the region.

Ecotourism supporting factors that are identified in this study include natural beauty, village strategic position that close to other tourism objects in Jatigede reservoir area, the openness of the community to tourists, the existence of non-governmental organizations that care about the preservation of art, tradition and culture, the involvement of many stakeholders, the advancement of information and communication technology for promotion, potential tourists, investment opportunities from the community and opportunities for land use with the concept of agroforestry. Inhibiting factors include the lack of professional human resources in tourism, limited development funds, inadequate road infrastructure and supporting facilities for ecotourism, the lack of spatial planning for ecotourism, unexplored tourism potential that supports conservation efforts, low human resource skills, the lack of
assistance from agencies-related, tourist do not come every day, there is no reservoir management authority and the Jatigede reservoir ecotourism development plan.

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References
[1] Soebagyo 2012 Strategi Pengembangan Pariwisata di Indonesia (Strategy of Tourism Development in Indonesia) J. Liquidity, 2 153-158
[2] Sastrayudha G S 2010 Concept Resort and Leisure “Strategi Pengembangan dan Pengelolaan Resort and Leisure” (“Strategy of Resort and Leisure Development and Management”) (Bandung: Universitas Pendidikan Indonesia)
[3] Damanik J dan Helmut F W 2006 Perencanaan Ekowisata dari Teori ke Aplikasi (Ecotourism Plan from Theory to Application). ed Suyantoro S (Yogyakarta: Andi) p 37-43
[4] Fandelil C and Mukhlisun 2000 Pengusahaan Ekowisata (Ecotourism Business) (Yogyakarta: Fakultas Kehutanan Universitas Gadjah Mada)
[5] Wallace G N 1993 Pengelolaan pengunjung pelajaran dari Taman Nasional Galapagos (Visitor management lesson learn from Galapagos National Park) (Ecotourism A Guidance for planner and manager) The Ecotourism Society North Bennington Yayasan Alam Mitra Indonesia
[6] Agrawal A and Redford K 2006 Poverty, Development and Biodiversity Conservation: Shooting in the Dark? WCS Working Paper Number 26 (New York: Wildlife Conservation Society) p 26
[7] Denman R 2001 Guidelines for community-based ecotourism development (Gland: WWF International) p 20-25
[8] Barokah L 2017 Strategi Pengembangan Desa Pajagan sebagai Kawasan Agrowisata di Waduk Jatigede Kabupaten Sumedang (Development Strategy of Village of Pajagan as Ecotourism Area in Jatigede Reservoir Regency of Sumedang) (Bandung: Universitas Pendidikan Indonesia)
[9] Djuwendah E et al 2017 Potensi Ekowisata Berbasis Sumberdaya Lokal di Kawasan Waduk Jatigede Kabupaten Sumedang (Potential of Local Resource Based Ecotourism in Jatigede Reservoir Area of Sumedang Regency) Jurnal Ilmiah Pertanian PASPALUM 5 51-59
[10] Creswell J W 2007 Qualitative Inquiry & Research Design: Choosing Among Five Approaches (California: SAGE Publications) p 61-64
[11] Anonymous 2017 Kecamatan Darmaraja dalam Angka 2017 (District of Darmaraja in Number 2017) (Sumedang: Biro Pusat Statistik) p15-17
[12] Mardiani N and Hindersah H 2017 Proc. Specia. Vol. 3 No. 1 (Bandung: Perencanana Wilayah dan Kota Unisba) p118-125
[13] Nuryanti W 1993 Int. Conf. Pariwisata Budaya (Cultural Tourism) (Yogyakarta: Gadjah Mada University Press)
[14] Awang 2008 Panduan Pemberdayaan lembaga masyarakat desa hutan (LMDH) (Empowerment Guidance of Forest Village Society Institution) ed Santoso L (Jakarta: Harapan prima)
[15] Cooper C, Fletcher, Gilbert D and Wanhill S 1993 Tourism: Principles and Practice (Harlow: Longman Scientific & Technical)