

## ASSESSING GEOTOURISM POTENTIALS OF KOTO PANJANG HYDROELECTRIC RESERVOIR, KAMPAR REGENCY, RIAU, INDONESIA

BY

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### Abstract

Koto Panjang hydroelectric reservoir is a prime locality for the study which aims to assess the potentials of the reservoir as a tourist destination as well as to classify it as the (geo)tourism place. The research method is qualitative descriptive with data collection was taken from observation and interviews. The description, interpretation, and evaluation of the important geological heritages indicated that the geotourism is potential of the region. The results of this study showed that the reservoir as a geotourism destination needs to be more focused on scenic tourism which is an important factor in the successful development of the tourism area. The results are intended to justify a remarkable tool for elevating and boosting awareness of the geological heritage of the Koto Panjang hydroelectric reservoir. Optimization of utilization can be based on assessment because it plays an important role in the development of the reservoir. In an effort to increase this optimization, it is necessary to follow-up the assessment.

**Keywords:** Tourism destinations, optimization of reservoir utilization, regional development, Koto Panjang reservoir, reservoir tourism

## 1. INTRODUCTION

Beginning its construction in 1992 in Kampar regency, Riau province, Koto Panjang hydroelectric reservoir (KPHR) was completed in 1998, having a weir height of 96 m and an inundation area of 12,400 ha with water depths ranging from 73-85 m (Republic of Indonesia, 2003).). This reservoir gets its main water supply from the Kampar and Batang Mangat rivers which originate from West Sumatra province (PLN, 2002). The KPHR shares borders partly with community-owned land that has been occupied before the reservoir was built and partly with forest area. After the reservoir was serviceable, the number of people living in the catchment area continued to increase and they used the catchment area for agriculture and plantations, while the reservoir waters were used for floating net cage fishing activities.

As one of the inland water resources in Kampar regency, the KPHR has attracted academicians to carry out their researches. With proper and good management, the existence of the reservoir becomes a new tourist destination for the local people and its surrounding communities. Utilizing the reservoir as tourist

destination as well as sustainable aquaculture area has embellished the reservoir to be another source of local people's income; it has improved their economy, thus, it can be argued, the KPHR has brought positive impact on the economic development of the area in general. Because of its potential, the reservoir is suitable as a new tourist activity center as well as communal economic activities and people's welfare.

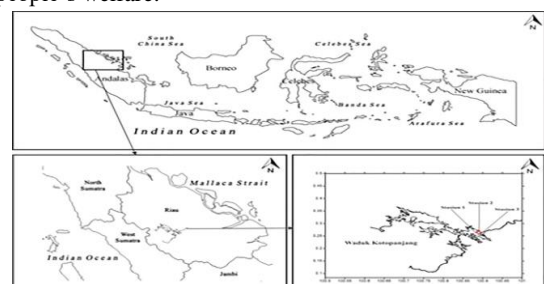


Figure 1. Map of Koto Panjang Hydroelectric Reservoir  
Source: Siagian, M., 2018

As one of the inland water resources in Kampar regency, the KPHR has attracted academicians to carry out their researches. With proper and good management, the existence of the reservoir becomes a new tourist destination for the local people and its surrounding communities. Utilizing the reservoir as tourist destination as well as sustainable aquaculture area has embellished the reservoir to be another source of local people's income; it has improved their economy, thus, it can be argued, the KPHR has brought positive impact on the economic development of the area in general. Because of its potential, the reservoir is suitable as a new tourist activity center as well as communal economic activities and people's welfare.

Utilization of the KPHR's existing natural resources for water tourism destination and aquaculture area should be based actually on three pillars of sustainable development, namely economically viable, socially acceptable, and environmentally sound (Asdak, 2012). On the basis of the above conditions--management and utilization, a more studies are needed, not only to scrutinize the existing conditions but also rejoiner some challenges in the regional economy development.

Tourism contributes 4.80 percent to Indonesia's Gross Domestic Product (GDP) and foreign tourist visits in 2019 amounted to 16.11 million people, and the movement of Indonesian tourists in 2018 amounted to 303.4 million times (Central Bureau of Statistics, 2020, in Nurlaila, 2021). Tourism business requires a clear business concept about how to attract visitors and about how to sustain such business. Therefore, in order to be sustainable Muta'ali, (2012) proposed three concepts: economically sustainable concept, socially sustainable concept, and environmental sustainability (ecology). Sustainable tourism is a term used to classify types of tourism products that have an environmentally friendly basis (Vellas and Bacherel, 2008). Sustainable tourism has the aim of providing support for efforts in the context of environmental conservation and of increasing community participation when management takes place (Supriatna, 2008). Canadian Tourism Board defines sustainable tourism development as the management of all resources in such a way that people can meet their economic, social, and aesthetic needs while maintaining cultural cohesion, important ecological processes, biological diversity, and life support systems (Vellas and Becherel, 2008).

Sustainable tourism is defined as the ability to meet the needs of tourists and the area visited, as well as to increase future opportunities (Suardana, 2011). Sustainable development must be based on the development of the relationship between the tourism industry, environmental advocates, and the community; the relationship involves three principles of sustainable development (Vellas and Becherel, 2008), namely 1) ecological sustainability, in which development must be in accordance with the necessary maintenance of ecological processes, biological diversity, and biological resources; 2) social and cultural continuity, referring to the development which must increase human control over their lives in accordance with the culture and human values affected by

the development and which must maintain and strengthen the identity of the community; 3) economic sustainability, relating to the development which is carried out economically efficient, in which resources are managed in such a way that it can support future generations.

The development of a tourist destination is dependent on sustainable development in relation to land, city, business, community, etc. in order to meet the needs of the present which compromise the fulfillment of the needs of future generations. Tourism can only be sustainable if the components of the tourism subsystem, especially tourism actors, are used for activities on finding optimal results (profits and satisfaction); maintaining all tourism products and services is sustainable and well-developed (Damanik, 2006).

## 2. LITERARY REVIEW

### Geotourism

On 17 November 2015, UNESCO created the UNESCO Global Geoparks (UGGp) label and certified the first UGGp; these geoparks were all members of the Global Geoparks Network (GGN) at that time; this step was seen as confirmation of the successful implementation of the geotourism concept (Frey, 2020). Frey also notes that in 2002, geotourism was proposed as a discipline within the applied geosciences in German language publications. The National Geographic Society defines Geotourism as "tourism that sustains or enhances the geographical character of a place—its environment, culture, aesthetics, heritage, and the well-being of its residents" (Crown of the Continent Discovery Center), adding that geotourism builds on a destination's "sense of place," to emphasize the distinctiveness of its locale and benefit visitors and residents alike. The Crown also notes four benefits of geotourism and four characteristics of the geotourists; this paper focuses on the KPHR's environment. The UNESCO mentions that geotourism implies traveling through a territory where the tourists explicitly understand that the landscape they observe contains unique forms modeled by dynamic processes that have left visible traces (Sanz et al., 2020; Roda, 2001). Geotourism is sustainable tourism with a primary focus on experiencing the earth's geological features in a way that fosters environmental and cultural understanding, appreciation, and conservation, and is locally beneficial (Dowling, 2013). Natural resources include landscapes, landforms, rock outcrops, rock types, sediments, soils, and crystals. The 'tourism' part means visiting, learning from, and appreciating geosites (ibid). The concept of geotourism ... has been defined by two different standpoints, that is, geotourism being defined as either 'geological' or 'geographical' tourism (ibid). The development of geotourism has given rise to several related to 'geo' activities, like 'geo-art' in Norway, 'geo-bakery' in Portugal, 'geo-climbing' in Spain, and 'geo-trekking in Indonesia (Dowling and Newsome, 2018). In addition, 'geo-medicine' is described as the link between geotourism and medical geology and the health benefits of geotourism in natural healing areas, as well as the development of related products, which is being investigated in Cape Verde (ibid).

Only the development of geotourism through a planned and sustainable way may lead to ... a significant geocomposite (Das and Roy, 2019). An increased interest in geological and heritage awareness has stimulated interest in geotourism as a tourism product particularly as it often shares management responsibility with local communities and national guardians (Matshusa et al., 2021). Geotourism addresses the theories and practicalities involved in managing attractions which have a high geological value, emphasizing the need for more integrated research in fields related to geology, geography, geomorphology, and tourism (Ólafsdóttir, 2019). Geotourism has been conceptualized as the union of three components: forms, processes, and tourism (Fernández et al., 2011; Dowling, 2011). Forms (landforms and landscape) include existing landscapes with their characteristics and components. Processes (how the landforms originated) include tectonic activity, weathering, deposition, etc. Time (when these processes occurred and how long they lasted) refers to the human dimension reflected in tourist activities and the appreciation of geology and geomorphology, among others (Chylińska, 2019; Dowling, 2013).

Geoparks are areas which contain a distinct geological heritage. They are demarcated areas, well organized for the preservation of territorial ecosystems and promotion of geoheritage conservation, geo-education, and sustainable regional growth using geotourism products (Stoffelen et al., 2019). Over time, the term geotourism has focused more on the context of geographic tourism. In 2011 at the International Congress on Geotourism held in Arouca (Portugal), the concept of geotourism was clarified, adding "geology" to the definition of geotourism as "tourism which sustains and enhances the identity of a territory, taking into consideration its geology, environment, culture, aesthetics, heritage, and the well-being of its residents" (Herrera-Franco et al., 2020). Geotourism product could combine "on-site" tools (totems and panels) and "digital" tools (smartphone and tablet-readable explanatory material) and could attract people of various age and digital alphabetization range (Drinia et al., 2021). There is a strong interest in visiting geotourism sites, increasing knowledge in history and geology, meeting people from different cultures, enjoying outdoor activities, and staying in simple accommodations (Mao et al., n.d.)

### Environmental Assessment

Environment is made up of a combination of our natural and physical surroundings and the relationship of people with these surroundings comprising the air, water, plants, animals, natural and human-modified features, transportation systems, land-use characteristics, community structure, and economic stability (Jain et al., 2004). They argued environmental assessment implies the determination of the environmental consequences, or impact, of proposed projects or activities (ibid). The term strategic environmental assessment (SEA) has ever been used, comprising of six basic principles: improving the strategic action, promote participation of other stakeholders, focus on key environmental/sustainability constraints, identify the best option for the strategic action, minimize negative impacts, optimize

positive ones, and compensate for the loss of valuable features and benefits, and ensure that strategic actions do not exceed limits beyond which irreversible damage from impacts may occur (Therivel, 2004).

According to the EIA (environment impact assessment) legislation (§1.4) impact prediction should include assessment of direct/primary impacts – that are a direct result of a development; indirect/secondary impacts – that may be 'knock-on' effects of (and in the same location as) direct impacts, but are often produced in other locations and/or as a result of a complex pathway; and cumulative impacts – that accrue over time and space from a number of developments or activities, and to which a new project may contribute (Therivel and Morris, 2001).

### Recognizing Geotourism Potentials

Global tourism is a trillion-dollar industry, representing in the order of 7% of global exports and contributing significantly to global gross domestic product (Travel & Tourism: Economic Impact, 2017). International arrivals and tourism receipts have been growing at an annual 3–5%, outpacing the growth of international trade, and in 2016 exceeded 1 billion and US\$1.2 trillion, respectively (Travel & Tourism: Economic Impact, 2017; UNWTO Tourism Highlights 2016 Edition). Concerning the global tourism, global economic development progresses, especially among high-income countries and regions experiencing rapid economic growth, consumers' demand for travel has grown much faster than their consumption of other products and services (Lenzen et al., 2018).

Priority ways to increase the sustainability of the development of subjects of the tourism industry, mainly cover the following: increasing the level of economic security; improving information support; improving financial security; improving the effectiveness of innovation policy; improving the effectiveness of investment policy (Kozak et al., 2019). Geotourism constitutes a very good tool for highlighting and developing an area and should be used properly and especially prudently (Drinia et al., 2021). Identification of tourism potential areas is an innovative idea, because it generates income, alleviates poverty, and brings sustainable as well as socio-economic development (Das and Roy, 2019). When promoting the tourism potentials of the Al Reem BR, Richtzenhain (2008) has noted its landscapes (for instance, limestone rock formations, mesas, stone deserts, wadis, sabkhas), surroundings (i.e. mountain biking, snorkeling, kite surfing or picnicking), and mammals and small animals living (for example, spiny-tailed lizard, the hooded malpolon snake, the Ethiopian hedgehog, birds, etc.). There are two travel itineraries as primary strategies for the promotion of geotourism development, in which the itineraries meet the following criteria: • tourists can access each selected geosite in their own vehicle; • there exists an infrastructure with accommodation and restaurants within short distances; • tourist and recreational activities are offered (Carrión-Mero et al., 2021).

In case of geotourism potential Matshusa et al., (2021) proposed three phases of methodological approach, such as inventory field instrument conceptualization, field ranking and scoring using the field instrument, and trial geoheritage site database preparation. Concerning Nigeria's tourism potentials, Ebiloma (2019) noted four places, such as mountains, plateaux, historical monuments with four names of destinations, and historical relics consisting of twelve sites. Czuppon (2015) argued any intervention can be considered local economy development (LED), which – by the modification of any component of local economy or the whole of local economy, or/and by the inclusion of a formerly missing component, or/and by the revival of unexploited components – improves one or more characteristics of local economy (efficiency, profitability, quality of products/services, employment, sustainability of the system). Czuppon seemed to agree with what Czene et al. pointed out about LED's five classic tools, such as local products, local currency (local exchange trading system), local alternative energy, autonomous small local communal energy supply, local development of micro-, small- and medium-sized enterprises, and social economy.

When discussing the potentials of rural tourism in developing rural areas in Albania, Nagy et al. (2017) proposed four solutions: the support of sustainable agriculture and diversification, the support by different state funds for the sustainable agriculture and diversification, the extension service and relevant institutions, and investment in road infrastructure in rural areas. Mattsson and Cassel (2020) questioned on how immigrant entrepreneurs could develop potentials in rural tourism development in Sweden. They concluded both immigrant entrepreneurs and regional tourism development actors were seen to face twofold path dependence in their efforts to professionalize and internationalize the tourism sector. Bhuiyan et al. (2011) has ever proposed potentials of Islamic tourism to the Malaysian east coast economic region, which is classified into two types: tourism through which a religious duty is performed, and tourism by which knowledge is recorded and quoted for wider dissemination. They have also proposed five sectors for this tourism, for instance, natural beauties, cultural and archeological heritage, historic heritages, Islamic heritage and places, and historic events. They concluded that Islamic tourism has a chance to succeed in Malaysia.

Rural tourist product may be developed in two ways: through the "traditional" rural tourism (farm accommodation, agricultural activities, etc.) and other "alternative" types of rural recreation (environmental, ethnographical, cultural, etc.) (Trukhachev, 2015). He suggested, for the analysis of rural tourism potentials, six groups of factors: economic, distribution of population, environmental, cultural, infrastructural, and psychological. In case of multicriteria evaluation of tourism potential in the central highlands of Vietnam, two broad aspects, for example, potential of tourist sites and potential of district-wide tourism, can be determined (Hoang, 2018). Regarding the potentials of rural tourism development in mountain regions, six factors of success in rural mountain tourism development include product/service characteristics (i.e. quality, uniqueness, experience), participative

approach (incorporation, community, identification, involve\_all), network creation (cooperation, experts, partners), visionary thinking (initiative, leadership, pioneers, experimenting), organization/financing (cooperative, politics), and communication (multimedia, cooperation) (Lun et al., 2016).

### Riau's Geotourism

In tourism, the sacrifices residents often make to accommodate tourism development manifest themselves in the various adverse economic, socio-cultural, and environmental impacts of development that they must put up with (Nunkoo & Gursoy, 2016). Some literatures paying attention primarily on the development of tourism in Riau can be described here. Food development of smoked selais fish creates a gastronomic tourism attraction in Riau and the development of selais fish as a tourist attraction is supported by traditional fish management (Thamrin, 2020). By using Internal Strategic Factors Analysis Summary (IFAS) and External Strategic Factors Analysis Summary (EFAS), Mulyadi et al. (2021) tried to formulate the strategies of mangrove ecotourism development by applying SWOT analysis. They found, although Riau was noted to have good strengths and opportunities, this province has weaknesses, such as limited financing from stakeholders, lacks of endorsement and supports facilities and ecotourism activities, and threats, for instance, rob flood and coastal abrasion, city development and mangrove forest function transfer, and pollution of solid waste from Dumai.

Concerning the potentials of Teluk Meranti's Bono marine tourism, Akbar et al. (unpublished) also filed several weaknesses and threats which were almost similar to Mulyadi's findings. Efni et al. (2020) studied north Rupa island, Bengkalis regency, and concluded that, in case of the governance of tourism development, local awareness is high although bad management of cultural programs, insignificant promotions, and minimal digital media existed. Siak's tourism is potential although regency should consider transportation facilities, infrastructure conditions, and tourism facilities (Arnis, 2020). Riau's Sungai Apit district is potential and attractive for mangrove ecotourism since this district is in Quadrant I, meaning such ecotourism area has sufficient strengths and does not have much external threats (Yoswaty, 2021). Regarding the development of Sharia tourism, Riau was noted to have quality averages of 3.99, 3.53, 4.04, and 3.54 for its strengths, weaknesses, opportunities, and threats respectively (Rusby, 2020).

### Study Area

The research locations are Kotapanjang hydro-electric power plant (HEPP) (Republic Indonesia, 2003; Mulyadi, 2003; Hasibuan et al., 2017; Siagian, 2010; Harto et al., 2020), and Koto Panjang reservoir (Khairani and Dewata, 2020; Budijono et al., 2021; Hanafi and Harmiaty, 2021). In this paper, the term Koto Panjang hydroelectric reservoir (KPHR), or sometimes, the "reservoir," is used all around. The reservoir is administratively located in two areas of authority, namely Koto Kampar district (Riau Province), and Limapuluh Kota district (West Sumatra Province); precisely, it is located at coordinates 100°40'BT - 101°00'BT and 00°10'N - 00°24'N. As one of the largest reservoirs in Indonesia with about

124 km<sup>2</sup> (or 12,400 Ha) with the production of 114 MW electricity since its operation in 1998 (Republic Indonesia, 2003), the KPHR has effective inundation capacity of about 1,545 million km<sup>3</sup> and a maximum water level of ± 85 m above sea level in full supply conditions. Total inflow to reservoir ± 180.4 m<sup>3</sup>/s and outflow ± 178 m<sup>3</sup>/s. The reservoir is operated at a maximum height of 82–83 m, with an active storage capacity of approximately 1.040 million m<sup>3</sup> (Haryanto et al., 2014).

### 3. METHODS

This study uses a qualitative descriptive approach (Creswell, 2002). The research location was Koto Panjang hydroelectric reservoir, Kampar regency, Riau, Indonesia. The research location had several sites and six specific sites, for example, Puncak Ulu Kasok, Puncak Kompe, Danau Rusa, Putik Island, Dermaga Tepian Mahligai, and artificial lake were chosen as samples which were determined by the random sampling. The study was carried out in three steps; field trip, theoretical potential, and survey (Kamb et al., 2021). The data collected from the research was analysed based on the interests of the study but not analysed numerically. Data collection was obtained from primary and secondary sources; for the first, the data was referred to the actual research observation which was directed to get information on sites, condition, and facilities. The secondary source could be in forms of internal /external documents related to institutions, to laws, and regulations on tourism, reservoir, to statistical information, library as well as Riau's and the reservoir's maps. Data collection techniques were carried out by interviews, observation, documents, and literatures. In case of data validity, three techniques were involved, for instance, continuous observation, continuous perseverance, and triangulation (Moleong, 2016).



**Figure 2. View of Koto Panjang Hydroelectric Reservoir**  
Source: Liputan6.com

#### Selected Criteria for Tourism Potential

Totally, 13 criteria are selected: 7 criteria are related to the internal tourism potential (aesthetic and art value, entertainment value, cultural-historical value, scientific value, biodiversity, the size of tourism destination, and tourism seasonality), while 6 other ones are used for evaluating external tourism potential (Hoang et al., 2018). They then argued that the latter are related to infrastructure and services (linkages with other tourist sites, accessibility, the distance from tourist attractions to the center, accommodation quality, catering quality, and service labor quality).

## 4. DISCUSSION

### KPHR's Current Condition

Koto Panjang hydroelectric reservoir (KPHR) contributes significantly on the hydroelectric power plant, transportation and tourism; however, local people employ it for fishing, agriculture, and toilets. The flora around the KPHR area is tropical forest vegetation such as Kempas, Keruing, Meranti, Resak, Jelutung and Rengas, and pioneer tree species such as Mahang, Senduk-senduk, Medang and Terap also grow; the existing fauna that need to be protected encompass squirrels, hedgehogs, slow lorises, tigers and various kinds of birds. A variety of fish in the reservoir increases the diversity of fauna. Nowadays, the reservoir does not only become the source of electricity in Riau but also attracts people to visit because of its tourist spots, in which its panorama is naturally beautiful with a backdrop of rows of hills overgrown with various types of trees. From afar you can see Bukit Barisan Mount which is the headwaters of this reservoir. The blue water of the lake seems to attract visitors to wade through the reservoir area by boat or *pompong* (local name).



**Figure 3. View of Puncak Ulu Kasok**

Source: Personal collection

Tourism activities are usually related to geotourism, and the natural beauty around the reservoir provides a very nice attraction. Water sports activities might include fishing, water skiing, and rowing in which such activities also fascinate foreign tourists. The existence of the reservoir also affects the socio-cultural conditions of the surrounding community, because the condition of the community around the reservoir develops in accordance with the existence of the reservoir ecosystem. One example is the change in the lifestyle of the people, which at first they were farmers/rice cultivators then became fishermen or fish farmers due to the fact that their paddy fields had been submerged into reservoirs.



**Figure 4. View of Puncak Kompe**

Source: Personal Collection

Potential tourist markets may come from local and regional communities originating from several neighboring provinces such as West Sumatra and North Sumatra, especially tourists and road users crossing the West Sumatra-Riau Route in the area around the KPHR. The high mobility of people crossing the area around the KPR has created a great opportunity for this area to be developed into a second resting place after Lubuk Bangku in Payakumbuh. Considering the driving distance between the two provinces (West Sumatra and Riau) can be a benchmark for the development of this area as a resting place or a stopover place to rest for a while before continuing the journey (resting area). However, so far, the community and businessmen have only used it without wanting to maintain the sustainability and balance of the reservoir area ecosystem, so that environmental degradation is occurring day by day, due to uncontrolled placement of floating net cage cultivation activities, mining of mountain rocks, forest burning to open agricultural land or plantations, illegal logging, and disposal of household and factory waste into reservoirs.



**Figure 5. View of Rusa Lake**

Source: Personal Collection

The lack of attention from the government and relevant stakeholders in managing the HPP is also an omission to the decline in the quality of the HPP in KPR as a power plant because in the rainy season, there are floods and in the dry season there is a

drought so that the water discharge decreases and the power supply is also reduced.

The HPP, if developed, will have a great tourist attraction, because it has a feasibility opportunity as a tourist destination, with various activities that can be carried out both in reservoir waters and land use around the reservoir, which is a combination of water tourism and land tourism. dominated by forest. In the Riau Tourism Destination Database in 2010 the HPP is one of the objects and tourist attractions that need to be continuously developed, thus research can be carried out which aims to determine the general condition of the area in the HPP as a tourist attraction, to analyze the ecotourism potential that can support the use of the HPP and formulate an ecotourism development strategy in the HPP area.

#### **Land Utilization of KPHR as a Tourist Destination**

The development of the KPHR as a tourist destination is based on the concept of a sustainable tourist destination which has two aspects that make up sustainable tourism, including attractions and accessibility. Therefore, the tourism development variable of the reservoir as a tourist destination is based on the conditions of two aspects that supports the sustainability of the tourism. Every aspect that forms tourism development is evaluated using five tourist destination indicators, namely scenery, culinary, selfie, rest tourism, and water tourism.



**Figure 6. View of Tepian Mahligai**

Source: Personal Collection

The first aspect that is evaluated from the tourism development construct is the attraction aspect. Attraction in this study refers to the attraction of a tourist destination which is the main capital of tourism resources. The sources of attraction of a tourist destination can be diverse and generally have unique characteristics that make it stand out from other tourism. Thus, if we discuss the attraction aspect of the reservoir as a tourist destination, the attraction or attraction lies in the beautiful scenery, delicious culinary, and comfortable rest. This research indicates that the current condition of the reservoir as a tourist destination is still not reflected by water tourism and selfies.

The second aspect of developing the reservoir tourism as a tourist destination is accessibility. Accessibility in this study is an illustration of the ease of moving or transportation from one tourist destination to another. In this study, accessibility was evaluated

based on indicators of ease of accessibility of KPHR as a tourist destination assessed from five tours, namely scenery, culinary, selfie, rest, and water tourism. Thus, this study only reviews the accessibility aspects from the viewpoints, culinary, and resorts.

Utilization of the reservoir is based on three aspects, namely economically sustainable aspects, socially sustainable aspects, and environmentally sustainable (ecological) aspects. Theoretical studies indicate that good optimization must be beneficial in improving the community's economy, building community empowerment while maintaining optimal environmental conditions. The results of this study indicate that there is a negative perception of optimizing the use of the reservoir as a tourist destination for the initial function of the Koto Panjang Reservoir. In other words, the development of the reservoir as a tourist destination invites several elements that contradict the main function of the reservoir. The development of Koto Panjang Reservoir as a tourist destination, from the visitor's point of view, is seen as a potential decrease in environmental utilization that can increase the function of the reservoir as an object that can maintain the aesthetics and existence of the environment. The development of KPHR as a tourist destination is inseparable from regional development that reduces environmental functions.

Research conducted by Warsa (2019) on the utilization of Tilong Reservoir, East Nusa Tenggara emphasized that optimization of reservoir utilization should be done in an effort to preserve the ecosystem and be used for fish farming. In addition, research conducted by Ahadunnisa, Anwar, & Margini (2015) show that optimization of reservoirs should be carried out to assist irrigation, water needs, and hydroelectric power. The reservoir optimization function as a tourist destination is not the main goal of reservoir management. However, some of the previous researchers also explained how the condition of reservoir-based tourism development in some areas (Djuwendah, Hapsari, Deliana, & Suartapradja, 2017; Indah & Pati, 2013; Prayuda, Purwanti, & Wijayanto, 2018). Ecotourism development can be carried out in the reservoir area, which makes the reservoir a tourist destination open to the public. Previous research has shown how this optimization can be achieved by preserving the environment while increasing the reservoir's potential as a tourist attraction, particularly water tourism. The results of this study do not support previous research that supports the optimization of reservoirs as tourist destinations. Although the effect is relatively small, the results of the study indicate that the development of the tourist destination of Koto Panjang Reservoir resulted in a decrease in the optimization of the function of Koto Panjang Reservoir in general.

## 5. CONCLUSIONS

Utilization of KPR as a tourist destination needs to be more focused on scenic tourism which is an important factor in the successful development of the tourist area of Koto Panjang Reservoir. The unexplored potential of Koto Panjang Reservoir as a tourist destination needs to be further improved especially culinary tourism and rest. The results indicate that the culinary and resting potential of the KPR is still not optimally explored.

Culinary tourism can be improved by developing distinctive culinary products that give an impression to consumers. In terms of rest itself, the existing infrastructure is still not optimal and needs to be developed further in the future. To develop the area, the optimization of utilization needs to be paid more attention because this optimization plays an important role in the development of the area that is the focus of this research. To increase this optimization, it is necessary to develop ecotourism-based tourism that still preserves nature while developing Koto Panjang Reservoir as a tourist destination. This is an important key in building tourism-based regional development in the KPR.

## DECLARATION OF CONFLICTING INTERESTS

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