

# Development Strategy of Geographic Elements of Natural Water Objects

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**Abstract**—The tourism object of LaunDano Waterfall is located in the village of KiawaSatu, Kawangkoan District, Minahasa Regency. The tourism object has its own charms and challenges, where to get to the location of the waterfall through a difficult journey, following the slippery hillside adjacent to a steep valley, the slope of about 45 degrees. The problem is, the geographical elements as its natural potential namely topography are not arranged, flora and fauna are not preserved, accessibility is difficult due to inadequate infrastructure because of the limited potential of the population and capital, there has been no attention from relevant agencies. **Problem Formulation:** How to develop strategies for geographical elements. The purpose, to study the strategy of developing geographical elements. **Research methods, descriptive qualitative.** The results of the study are, the strategy of developing geographical elements is, the cooperation of allocating funds with relevant governments, investors, supported by the realization of community work to conserve land, arrange the appearance of cliffs and valleys to make it look naturally beautiful, preserve flora and fauna, building electrical installations, PDAMs, MCK, infrastructure facilities and such as road repairs with unique models following the relief of land, procurement of transportation to facilitate accessibility to locations of attractions, guard posts, travel and publication travel agency businesses, procurement of lodging houses, representative culinary and repairs neighborhoods to make the environment look beautiful and attractive for tourists, making tourist attractions worth selling.

**Keywords:** *Development Strategy, Geographical Elements, Waterfall Nature Tourism Object*

## I. INTRODUCTION

The nature tourism of Laun Dano Waterfall gives its own charms and challenges, where to go to the location must pass a difficult journey and follow the slippery hillside adjacent to a steep valley, with a slope of about 45 degrees. This tourist attraction is quite extensive, with a small river surrounded by Kalpataru forest and a stretch of rice field owned by the local community. This tourism

object is often used as a camping site because it is close to a hot spring. Around the waterfall, there are three adjacent pools and can be used for swimming. Interestingly again, in the area of tourism, there is a variety of flora and fauna of tropical forests.

This tourism object is also supported by other tourism objects, namely the "Goa Madona Maria" spiritual tourism, nature trails, hot spring baths, waruga cultural tourism objects, and Kiawa campsite, all of which are very important to develop. It is unfortunate, the development and management of these attractions is less attention by the community and related agencies. The elements that need to be arranged and developed include geographical conditions including topography, accessibility, soil conditions, flora and fauna, population potential, while non-physical factors are interests and capital. Another problem is that there is no complete data management that is feasible to be promoted about the potential of tourism objects in this region, which should be handled by related parties. Formulation of the problem in this research, what is the strategy for developing geographical elements in the attractions of the Laun Dano waterfall. **Research Purpose** to study the strategy of developing geographical elements in the natural attractions of the Laun Dano waterfall

## II. METHOD

### A. Research Method

The method used is quantitative with a descriptive approach, which provides a description of the condition of the study area based on data or information obtained in the field systematically, factually, and thoroughly (Kidder dan Riduwan, 2005; Sugiono, 2017).

### B. Research Location

Location of the research, the tourist attraction of Laun Dano Waterfall in Kiawa Village, Kawangkoan District, Minahasa Regency, North Sulawesi Province.

### C. Populasi & Sampel

1) *Population*, is a tourist attraction of Laon Dano waterfall in Kiawa village, Kawangkoan sub-district authors.

2) *Sample*, is the nature tourism area of Laun Dano waterfall as a subject.

3) *The sampling technique* is a random sample or random sampling or probability sampling is a way of taking samples that provide equal opportunity to be taken to each element of the population. (Arikunto, 2010).

#### D. Research Variable

##### Development Strategy:

1) *Geographic Factors*: Accessibility/level of achievement, Topography, Climate, Land Condition, Flora and Fauna Conditions, population potential (education, livelihood / economic level), transportation, Infrastructure Facilities.

2) *Non-Physical Factors*: Attraction, Capital

#### E. Data Collection Technique

1) *Observation*

2) *Interview*

3) *Documentation*

### III. RESULT

#### A. Development Strategy

The development of tourism studies of geographical elements is significant, especially those related to natural potential, population potential, level of achievement/ accessibility, transportation and others, supported by non-geographical factors such as attractiveness and capital.

1) *Geographical Elements*: Accessibility / level of achievement, Topography, Climate, Land Condition, Flora and Fauna Conditions, population potential (education, livelihood / economic level), transportation.

a) *Accessibility / Level of Achievement* Accessibility concerns the distance, level of affordability, how much it costs to get to the attractions of the Laun Dano Waterfall from the city center of Manado and other regency city centers in North Sulawesi Province, as well as the affordability between the attractions of the Laun Dano Waterfall with other tourist objects in Kawangkoan District. The position of the tourist area is strategically reliable as a potential natural tourism area. The distance between Laun Dano Waterfall and the capital city of the sub-district is 2 km and takes about 20 minutes, if a trip using public transportation costs Rp.5000, -; the distance from downtown Minahasa Regency reaches 30 km with a travel time of 30-40 minutes, a trip by public transportation costs Rp.10,000. The distance from the city of Manado is 45 km and takes 60 minutes, a trip using public transportation costs Rp. 15,000. The condition of the road from Kiawa Village to the tourist attraction has not been asphalt concrete, still rough asphalt with some damaged parts. The strategy for easy accessibility is the construction of road infrastructure with a unique model following the relief of the land followed by the procurement of adequate transportation facilities.

b) *Topography* Topography to the natural tourist location of the waterfall is flat, hilly with a slope  $\pm 15^\circ$

0, and mountainous with a slope  $\pm 45^\circ$ . Developing the potential of the beauty of diverse topographic natural panoramas, by carrying out conservation, arranging the appearance of cliffs and valleys to make it look naturally beautiful, combined with unique road model infrastructure following the topography.

#### c) Climate

- **Temperature**The village area of Kiawa has a maximum height of 800 meters above sea level and a minimum height of 300 meters above sea level, with an average temperature of  $22,94^\circ\text{C}$ . **Rainfall**
- **Rainfall data for 2009 - 2019**, an average rainfall of 171.7 mm / month or an annual average of 2000 mm / year. The average number of dry months is 1.7, the average number of wet months is 9.9. Based on the Schmidt and Ferguson climate classification, tourism objects are classified as type A climate, very wet nature with a Q value of 0.17% and a temperature of  $22.94^\circ\text{C}$ . Climate conditions: sunny weather, lots of sunlight, cool during the day, cold at night, this is very suitable for tourism activities, especially natural tourism (Gudang Ilmu, 2013) <https://konsepblackbook.blogspot.com/2013/04/g-eografi-pariwisata.html> . Yoeti (1985), temperatures between  $15-25^\circ\text{C}$  are very suitable for tourism development.

d) *Soil*The type of soil at the study site is Andosol. Andosol soil is a volcanic material that has andesitic, dasitic and basaltic properties derived from lava, volcanic ash and tuff. Andosol soil types are very productive media for the development of agrotourism such as annual crops of coffee, tea, cultivation of food crops (rice, corn), and horticulture. (Sukarman Ai Dariah, 2014)

e) *Flora and Fauna*The flora type is dominated by woody trees which are spread along the road to the area of tourist attractions and within the area namely cananga tree (*Cananga odorata*), cempaka (*Elmerillia ovalis*), clove (*Eugenia aromatic OK*), banyan (*Ficus minahasae Miq*), fruit trees foods such as durian (*Durio zibethinus*), mango (*Mangifera indica*), advocate (*Persea Americana*), soursop (*Annona muricata*), water guava (*Syzygium aqueum*) and several types of forest orchids. Types of fauna, there are bird species (aves) which are endemic species, such as Pigeons (*Columbidae*), Crooked Beaks (*Psittacidae*), King Prawns (*Alcedinidae*), Starlings (*Sturnidae*) Hornbills (*Bucertotidae*), Woodpeckers (*Picidae*), Bees Eaters (*Meliphagidae*), Starlings (*Sturnidae*) Hornbills (*Bucertotidae*), Woodpeckers (*Picidae*), Bee Eaters (*Meliphagidae*) (Dinas Kehutanan Provinsi Sulawesi Utara, 2014). Some types of flora and fauna are currently difficult to find because they are hunted by the community to be used as food, medicine, and furniture / house jewelry. The place to live and breed is destroyed by humans and converted into agricultural land, housing, industry, and others. The development of flora and fauna that is by making several efforts, among others, the establishment of a place of protection for flora and fauna so that the breeding is not disturbed. These

sanctuaries are nature reserves for flora and wildlife reserves for fauna. Steps taken include: 1) forest preservation, by preventing timber theft and illegal logging, reforestation; 2) protect animals from poaching and wild killing, returning domestic animals to their habitat areas, supervising animal release outside.

*f) Potential population (education, livelihood/economic level)* The population of Kiawa Satu Village is 2500 people, education level: 32.63% high school; college graduates 8.91%, others graduated from junior high school and elementary school. The level of education affects the way people look at responding to a phenomenon or problem. The livelihood of the population of 75.91% is farmers. Others as civil servants and private. The agricultural sector has its own interest for tourism, especially when the plants start producing. Therefore, in the development of natural attractions, the farming community does not change the function of agricultural land for other uses. The strategy of developing human resources (HR) is a strategic action to make competent and qualified people as actors supporting tourism objects in the tourist area. Provision of various HR capacity building programs by involving various parties, namely the government, private sector and universities and research institutions. As for the community groups that are the target of developing human resources as tourism object development actors, namely farm laborers, farmers, entrepreneurs, traders. Procurement of human resources is actually an intellectual investment that is very meaningful for the development of tourist areas and improve the welfare of its people.

*g) Transportation.* The role of transportation is very important in the tourism system where transportation is a medium of tourists to bring it from the area of origin to the object of tourism. The condition of transportation is very influential on the attraction of tourism activities. Transportation development is related to road infrastructure. Roads are leveled, widened, paved to accommodate transportation activities. Land transportation is chosen and provided based on tourism needs and factors: vehicle type and specification, distance, destination, availability of transportation equipment, city / village size and settlement density, socio-economic factors. Types of land transportation that are suitable for tourist sites are motorized vehicles, hansom, carts pulled by animals (horses, cows). Consider the carrying capacity aspects of local transportation to other tourism destinations. These aspects include the capacity of transportation between one tourist location to another tourist location. In addition to capacity / capacity, the aspect that needs attention is the feasibility / quality of transportation. The quality of transportation can be controlled by the government through licensing the feasibility of the transportation component. The license must be properly monitored by all stakeholders because it relates to safety and comfort in using modes of transportation. Facilities and infrastructure such as roads from the place of origin to tourist destinations need to be developed both in terms of capacity and quality. The development of transportation infrastructure will

facilitate the movement of people so that it affects travel satisfaction. The aspect of Human Resources in transportation can be in the form of preparing human resources through vocational schools/ tertiary colleges in the field of transportation, licensing management of the profession in transportation and management of human resource management.

*h) Other facilities and infrastructure* Facilities that need to be developed are parking lots, places of worship, toilets, electricity networks. A damaged gazebo needs to be repaired. The source of the spring as a means of clean water is obtained from the Lengkoan mountain spring, the river flows through chunks of rock. Sustainability and cleanliness of the river need to be maintained. Based on topographic maps and field surveys, the village of Kiawa is divided into three permanent rivers, which are rivers with the steady flow throughout the year, namely the Ranowangko river, the Nimpit river, and the Ranosem river. The three rivers spread and irrigated rice fields and fisheries. The rivers flow into the tourist area, wherein the tourist area there are hot and cold water sources. This location will be more productive if a bathing place for tourists is built. A telephone network or cell phone is important to be established.

## 2) *Non-Physical Factors: Attraction, Fund.*

*a) Attraction* Attraction is the potential that drives tourists to tourist destinations. The tourism object of Laun Dano waterfall has two adjoining waterfalls whose height ranges from 75 meters, surrounded by Kalpataru forest which is overgrown with large trees with a background of hills and mountains with diverse topography, cliffs covered with various types of forest vegetation with steep valleys natural. Steep slopes are an interesting challenge for tourists who have rock climbing hobbies. Agrotourism in the east is located between hillsides with a variety of agricultural plants with a terracing model. Beautiful and interesting scenery when plants begin to grow and bear fruit. There are hot springs where bathing, there are also other tourist objects namely waruga where corpses for deceased ancestors, spiritual attractions of Goa Madona Maria, cross-country areas and Kyowa campgrounds, six caves (Hole protruding into) made in World War II by the Japanese army with the help of Chinese Taiwanese who joined the Japanese army, as well as shift workers from the village of Kiawa and its surroundings, as well as other Minahasa people, working day and night from 1943-1944. This cave is used as a hiding place and as a place to store food and medical supplies. The air is cool during the day, cold at night. Cold weather makes the tour feel comfortable, comfortable to rest during the day and sleep at night. The development to increase the interest and attraction of tourism is the provision of representative lodging houses and culinary places.

*b) Fund* The results of interviews with managers of attractions, capital for the development of attractions obtained from the local village government and the sale of admission tickets of Rp 5,000 / person. Tourism comes from the Minahasa district, the district of the surrounding city, as well as foreign tourists. The funds are used to

improve infrastructure facilities as well as add tourist area facilities. But the funds collected are not sufficient for the care and development of tourism development. Capital development needs to be allocated a budget from the relevant government and cooperation with investors.

#### IV. CONCLUSION

The strategy for easy accessibility is the construction of road infrastructure with a unique model following the land topography followed by the procurement of adequate transportation facilities. Topography to the natural tourist location of the waterfall is flat, hilly with a slope  $\pm 15^\circ$ , and mountainous with a slope  $\pm 45^\circ$ . It was developing the potential of the beauty of diverse topographic natural panoramas, by carrying out conservation, arranging the appearance of cliffs and valleys to make it look naturally beautiful, combined with unique road model infrastructure following the topography.

Based on the climate classification of Schmidt and Ferguson, the Laun Dano waterfall tourism object belongs to climate type A, very wet nature with a value of  $Q = 0.17\%$  and an average temperature of  $22.94^\circ\text{C}$ . The temperature between  $15\text{--}25^\circ\text{C}$  is very suitable for the development of tourism areas because in general, the weather conditions are sunny, during the dry season the sun shines full all day, resulting in a cool atmosphere during the day, cold at night, very suitable for nature tourism activities.

The type of soil is Andosol. Andosol soil is a volcanic material that has andesitic, dasitic and basaltic properties derived from lava, volcanic ash and tuff. Andosol soil types are very productive media for the development of agrotourism such as annual crops of coffee, tea, cultivation of food crops (rice, corn), and horticulture.

Development of flora and fauna that is by making efforts to establish a place of protection for flora and fauna so that its breeding is not disrupted, in the form of nature reserves for flora and wildlife reserves for fauna. Steps taken include: 1) forest preservation, by preventing timber theft and illegal logging, reforestation; 2) protect animals from poaching and wild killing, returning domestic animals to their habitat areas, supervising animal release outside.

The strategy of developing human resources (HR) is a strategic action to make qualified and competent people as actors supporting tourism objects in the Laon Dano waterfall area. Provision of various HR capacity building programs by involving various parties, namely the government, private sector and universities and research institutions. As for the community groups that are the target of human resource development to become tourism object development actors, namely farm laborers, farmers, entrepreneurs, traders. Procurement of human resources is actually an intellectual investment that is very meaningful for the development of tourist areas and improve the welfare of its people.

Transportation development is related to road infrastructure. Roads are leveled, widened, paved to accommodate transportation activities. Land

transportation is chosen and provided based on tourism needs and factors such as vehicle type and specifications, distance, destination, availability of transportation equipment, city / village size and settlement density, socio-economic factors. Types of land transportation that are suitable for tourist sites are motorized vehicles, hansom, carts pulled by animals (horses, cows). The aspect of HR in transportation can be in the form of preparing human resources through vocational schools / tertiary colleges in the field of transportation, licensing management of the profession in transportation and management of human resource management.

Facilities that need to be developed are parking lots, places of worship, toilets, electricity networks. A damaged gazebo needs to be repaired. The source of the spring as a means of clean water is obtained from the Lengkoan mountain spring, the river flows through chunks of rock. Sustainability and cleanliness of the river needs to be maintained. Tourist sites become more productive if a representative bathing place for tourists is built. Telephone network or cell phone is important to be established.

Attraction is a potential that drives tourists to a tourist destination. Tourism objects surrounded by Kalpataru forest are overgrown with large trees with a background of hills and mountains with diverse topography, cliffs covered with various types of forest vegetation with valleys, steep slopes become an interesting challenge for tourists who have rock climbing hobbies. The view of agrotourism which is located between the hillsides with a wide variety of agricultural plants with terracing models is very beautiful and interesting especially when plants begin to grow and bear fruit. The hot springs were built as a representative bathing place for tourists, as well as other tourist objects in the vicinity, namely waruga corpses for deceased ancestors, spiritual attractions of the Cave of Madona Maria, cross-country areas and Kyowa campsite, six caves (Hole who protrudes inside) adds interest in the tour to visit. Cold weather makes the atmosphere at home for visitors, comfortable to rest during the day and sleep at night. Another development to increase interest and tourist attraction is the procurement of lodging houses and culinary places that are representative.

Development of additional capital for the development of tourist areas, needs to allocate a budget from the relevant government and cooperation with investors for investment.

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