

## **Study of Environmental Impact in Tourism Development of Delta Areas, Buton Utara Regency, South East Sulawesi**

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**Abstract**-International tourism market competition is forcing each country to diversify tourism products that uniqueness of each country. Tourism market has shifted from "product driven" go to "market driven". It means, consumers are increasingly concerned with efforts in environmentally sustainable tourism, quality of product and service consumer rights. Tourism development of coastal areas become an investment that gives the advantage of the social, physical, and biotic aspects. Therefore, research in the coastal area of Buton Utara Regency conducted at three locations with different ecosystem types, which include: Bonelipu Beach, Mangrove Ecotourism Kulisusu Bay, Labuan Marine Tourism.

The data obtained through the primary and secondary data collection, interviews related to the physical and non-physical condition of the delta area, and survey to check the condition of the location.

The environmental impact of tourism development in the coastal areas Bonelipu Beach, Mangrove Ecotourism Kulisusu Bay, Labuan Marine Tourism causes changes to tourist beaches, utilization rate changes sectoral, changes in the level of damage and change management.

**Keywords:** *Delta Area, Environmental Impact, Tourism Development*

### **1. INTRODUCTION**

#### **1.1. Background Issues**

Coastal often referred to as the coastal area. Regional coastal area is defined as an area that stretches from the breaking wave zone (zone breaker) in the sea up to the deadline for alluvial (coastal plain area) on the ground. On that basis, there are differences between coastal and coastal regions (coast). Coastal areas include land and sea, while only covers the mainland coast alone. (Sunarto, 2001).

Dahuri (1996) mentions that in a coastal area there are one or more system environment (ecosystem). Ecosystem coastal areas are in two forms:

- (1) Artificial ecosystem. Ecosystem artificial (man-made), among others, in the form of ponds, paddy tidal, tourism area, industrial area, argoindustri area and residential areas.
- (2) Natural ecosystems. Natural ecosystems located in coastal areas, among others: the coral reefs (coral reef), mangrove forests, seagrass beds (sea grass), sandy beach (sandy beach), pescaprae formation, formation baringtonia, lagoons, deltas and estuaries.

Coastal area is an area with a high utilization rate. One use of the area is for tourism. Coastal area in Buton Utara Regency, is a region that experiencing expansion. Based on the Act No. 14 of 2007 dated January 2, 2007 on the establishment of Buton Utara Regency in Southeast Sulawesi Province, Buton Utara is then divided into 6 districts as shown in the following figure:



Figure 1. Area of Buton Utara Regency by District

Among all 6 districts are several areas designated as an area for nature tourism, namely:

- (1) Membuku Beach in Distric of Kulisusu;
- (2) Bonelipu Beach in Distric of Kulisusu
- (3) Mangrove Ecotourism Kulisusu Bay in Distric of Kulisusu;
- (4) Marine tourism in the Northern of Kulisusu and Wakorumba Distric;
- (5) The springs Pasarambo Laea in District of Kulisusu;
- (6) The springs Eengkapala in District of Kulisusu;
- (7) The springs Eenunu in District of Kulisusu;
- (8) The springs Eemoloku in District of Kulisusu;
- (9) The springs Cinariene in District of Kulisusu;
- (10) The hot water in the District of Bonegunu and Kambowa;
- (11) Waterfall Latampera in District of Bonegunu;
- (12) Matantahi Water Tourism in District of Kulisusu;
- (13) Natural caves in District of Kulisusu; and
- (14) Buton Utara Wildlife Reserve in District Of Kulisusu, Northern of Kulisusu, Northern of Wakorumba, Bonegunu and Western of Kulisusu.

Conditions of the physical environment, biotic in Buton Utara Regency effect on toward Tourism Development Area (WPP). Some of the physical environmental conditions are:

(1) Topography

Buton Utara Regency consist of mountain ranges which are slightly curved to the north-south, which is nearly half (92,779 ha) or 42,6% of Buton Utara regency area is located at an altitude 100-500 meters above sea level. Then, based on the slope of area, Buton Utara regency area has slope which is almost evenly on each slope classification. The slope of 0-2% is 57,129 hectares (29,71 percent), then followed by the slope 15-40% is 55,309 hectares or 28,76% of total area of Buton Utara regency. Then, the slope of more than 40% is 50,875 hectares or 26,46 percent and the slope of 2-25% is 28,990 hectares or 15,08% of total area of Buton Utara regency.

(2) Geological

Buton utara area condition from the point of geological as shown in table 1.5. generally, Buton utara regency area is located in northern Buton island has Mediterranean, Rensiana, and litosol soil types. While the region of southern Buton Utara Regency has red Yellow Podsollic soil. Based on the types of rocks, 94,457 hectares or 49,12% Buton Utara Regency area has type of rocks with TMC category, followed by TMS and KTC respectively 39,005 hectares (20,28 percent) and 27,718 hectares or 14,41 percent of total area of Buton Utara regency.

Table 1. Tourism Development Area (WPP)

Fuctions	Criteria	Location
<b>Appropriation Region Tourism</b>		
Appropriation Region Nature Tourism	<p>a. Regions which technically can be used for tourism region and does not interfere with the preservation of culture, natural beauty and environment</p> <p>b. In space when used for tourism activities that will benefit:</p> <ul style="list-style-type: none"> <li>• Increase income criteria and leverage investment</li> <li>• Enhance the development of cross sector development and economic sub-sectors and activities around it.</li> <li>• Do not interfere with the function of protection.</li> <li>• Do not interfere with efforts to conserve natural resources.</li> <li>• Improve regional and national income</li> <li>• Increase employment opportunities</li> <li>• Increase public welfare</li> </ul>	<ul style="list-style-type: none"> <li>• Distric of Kulisusu : Membuku beach, Bonelipu beach, Mangrove Ecotourism Kulisusu Bay, marine tourism, The spring of Pasarambo Laea in Kulisusu distric, The spring of Eengkapala, The spring of Eenunu, The spring of Eemoloku, The spring of Cinariene, Natural Caves, Matantahi Water Tourism.</li> <li>• Distric of Bonegunu: hot water, Latambera waterfall</li> <li>• Distric of Kambowa: Hot Water</li> <li>• Distric of Wakorumba Utara : Marine Tourism</li> <li>• Wildlife Reserve Buton Utara Regency in Distric of Kulisusu, Distric of Northern Kulisusu, Northern Wakorumba, Bonegunu dan Western Kulisusu.</li> </ul>

Source: *Plan of Space and Protected Areas , Buton Utara Regency*

The development of the tourism sector today is a concern to all countries in the world. Many countries are increasingly placing tourism as an excellent revenue beyond oil and gas. Tourism has emerged as a primary sector contributes significantly to the state revenue. Therefore, competition between countries are becoming increasingly stringent in line with the growth of international tourism offer of tourist products are relatively similar in each country. It forces each country to diversify tourism products that elevate the uniqueness of each country. Tourism market has shifted from "product driven" go to "market driven". It means, consumers are increasingly concerned with efforts in environmentally sustainable tourism, quality of product and service consumer rights. Tourism development of coastal areas become an investment that gives the advantage of the social, physical, and biotic aspects.

## 2. RESEARCH METHODS

### 2.1 Electoral Areas and Location Research

The selection of the study area using “multistage purposive sampling method” that determines the area of study with consideration of utilization. As for determining the location of the study with consideration of the ecosystem.

### 2.2 Secondary Data Collection Methods

This research was carried out mainly by the method of desk study. In limited, secondary data collection implemented institutionally, carried out on:

- (1) The Department of Tourism Buton Utara Regency and Southeast Sulawesi Province
- (2) The Central Statistics Agency (BPS), Planning and Regional Development (BAPPEDA) and related agencies

### 2.3 Primary Data Collection Methods

Primary data were collected by :

- (1) Interview unstructured
- (2) Content analysis of some documents EIA studies on tourism
- (3) Visit directly at the study site is intended to carry out observations on the issues raise.

No.	Aspects	Components	Parameters	Data Collection								Information X = Implementati on of Data Collection	
				Primary				Secondary					
				Orientation/ Observations	Interview			Air Photo Interpretati on / Map	Instantional	Report	Book		
Formal Leader	Society	Coastal managers											
1.	Coastal Geomorphology	A. Geomorphological processes	1. shape Beach					X				X	
			2. zoning Beach									X	
			3. Coastline	X								X	
		B. Bathymetry	Topographic base						X			X	
			C. Marine water	1. Sea depth					X			X	
				2. Type bedrock beach								X	
Hydrology	A. Air surface	1. Water quality	X										
		2. The use of water	X										
		B. Hydrology	Estuary	X									
	C. Sea water	Utilization	X		X	X							
		A. Flora	1. Mangroves and swamp	X									
			2. aquatic flora	X					X	X	X		
B. Fauna	1. aquatic fauna	X					X	X	X				
	2. River/swamp	X											
C. Exploitation rate	1. Cultivation		X										
	2. arrest		X										
4.	Social Economic	A. Organization that utilizes the beach	1. The amount which has been utilizing		X	X	X						
			2. The amount of the plan			X	X		X	X			
		B. community interaction with the beach	1. Perception	X		X							
			2. Interaction(+/-)	X		X	X						
		C. Laws and regulation	1. Local						X			X	
			2. Regional						X			X	
5.	Spatial and transport	A. Patterns of utilization beach	1. Appropriate/not according to the rules		X				X				
			2. Licensing		X				X				
		B. Spatial Plans	Available/not		X				X				
			Zoning patterns Beach		X				X				

Figure 2. Methods of Data Collection

### 3. RESULT AND DISCUSSION

Tourism activities can have a positive impact but on the other hand have an impact negatively on the physical aspect, biotic and culture. To find out how these impacts, to consider the following matters.

#### 3.1 Changes in Environmental Conditions

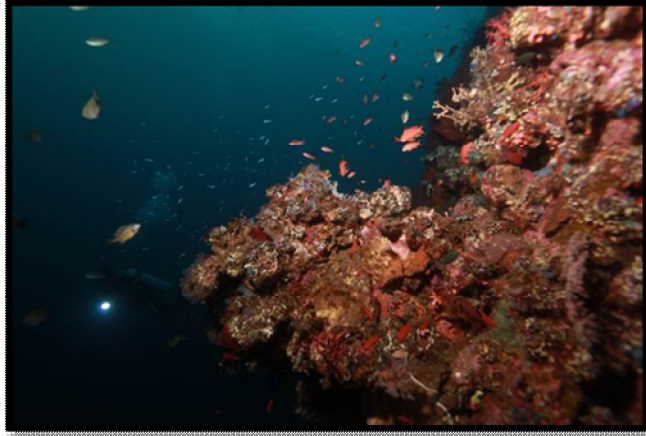
In the National Spatial Patterns Policy for Buton Utara Regency, substantially Spatial Plan Island or Islands intimately associated with the National Spatial Plan (RTRWN). With the policy that is in the direction of land use, the area of Buton Utara Regency primarily as a national protected area covering :

- (1) Protected areas in the form of wildlife
- (2) Cultivation area, among others, as the area of tourism designation.

Some areas of tourism designation are as follows:

- 1) Bonelipu Beach in Distric of Kulisusu  
Beaches in the area of Bonelipu tourism has sandy beach ecotype. The sandy beach is divided into two types of substrates, namely black sand rather grayish derived from the remnants of stone fragments in the mountains and white sandy beach which is a residual fraction of coral reefs. Beaches in Bonelipu is a white sandy beach with a natural attraction that has its own uniqueness.





- 2) Mangrove Ecotourism Kulisusu Bay  
Beach in Buton Utara Regency (Labuan, Labuan Bajo, Lasiwa and Labaraga / labulajo / labaraga) are in the sea border with Distric of Konawe Selatan separated by the Strait of Buton is a beach for marine tourism.



- 3) Marine tourism in Distric of Kulisusu and Distric of Wakorumba Utara  
Mangrove forest area of 25,000 hectares of forest area in Buton Utara Regency, which was developed into a tourist area mainstay in the area. Mangrove forests which are in two districts namely in the Gulf and the region Buranga Kulisusu In the center of the capital of this district as well as the regional center of marine aquaculture "marine real culture".



Figure 2. Labuan Belanda

Appropriation of nature tourism in Bonelipu in District Kulisusu Beach, Gulf Mangrove Kulisusu Travel in District Kulisusu and Marine Tourism in the Northern District of Kulisusu and Wakorumba; will cause the coastal ecosystem change as a result of their activities on the environment. The changes include:

### 3.2 Potential Activities That Can be Developed

- a) The potential activities that can be developed in Turkish Bonelipu in District Kulisusu; more in the field of infrastructure in the natural wealth of the seabed show (basic beach) in the form of biological diversity and the diversity of the seabed morphology. For special interest as there are divers locations named Underwater grand canyon or Nyarai. This location extends from Cape Bonelipu to the Gulf Ereke on S04°50'17.6 and E123°10'16.5 position. Here divers are greeted thousands of reef fish such as fish pusilier, Damsel fish, Snapper, Grouper, Surgeon, clownfish, triggerfish, schooling angel fish and Butterfly fish. In addition, there is also the beauty of exotic coral adorn the walls of the type of hard corals, soft corals and sea fan. Tourism activities that can be developed in this beach is no less interesting is the snorkeling, boating, swimming, surfing.
- b) The potential of marine tourism in the District of Kulisusu and Wakorumba have strait that can be used for quite a lot of tourism activities, such as boating, fishing, swimming. Bird watching is also the potential that can be developed at this beach. This is consistent determination of this coast as a national protected areas in the form of wildlife
- c) Mangrove Tourism in District of Kulisusu generally have a gently sloping beach and the water contains a lot of mud (sediment). In the coastal mangrove forests there are ditches that can be traversed by small boats (canoe). Therefore tourism activities in mangrove forests can be developed for canoeing activities (boating without engine), fishing (fishing).

### 3.3 The Impact Of Potential Activity

1. The physical impact;  
Environmental degradation. The quality degradation caused by; (1) In situ process in the form of accumulation of organic material in the form of seaweed litter, rotting organic waste either on the surface or buried in the sand, (2) The presence of organic material runoff and silt particles through the watershed (river run off) and runoff (surface run-off). (3) Land reduction caused by land use change into an area for the establishment of support buildings like hotels / lodging and restaurants or other facilities.
2. Biotic Impacts;  
Flora changes include a reduction in the number of plants and species of flora. This can happen due to be taken or damaged for tourism activities. Activities in coastal waters that more and more, such as surfing, diving, snorkling, swimming, wind surfing, and others would disturb coastal aquatic biota. Diverse marine wealth will be of interest to be traded. Thus will lead to a reduction of the existing species.
3. Social Impact:  
With the many tourists who come, on the one hand improve the ongoing work both services and facilities that increase the income of society and the State. On the other hand there are also tourist activities impact on the socio-cultural. If this is not terprotek from other areas, the community is forced to accept, and the longer it will diminish the cultural values of tourism ada. Sektor absorb a lot of good investeor and pekerja. Adanya demand for energy, resulting in many segments of society turned-entrepreneur pariwisata. Sosialisasi community facilities that are so closely related to the previous job and job offers baru. Lama gradually decrease the intensity sosialisa perberdaan between members of the public and the profession.
4. The number of tourists who come, on the one hand improve both service and business enterprises increase revenue means that society and the State. On the other hand there are also tourist activities impact on the socio-cultural. If it is not protected, then the public is forced to accept, and the longer it will diminish the cultural values that exist. The tourism sector absorbs a lot of good energy investeor and workers. The demand for energy needs, resulting in many segments of society turned-entrepreneur tourism facilities. Community outreach happened so closely related to the previous job and the new job offers. Gradually decrease the intensity of sosialisa between members of the public and professional empowerment.

### 3.4 Appropriate Management

The principles that need to be considered as a premise in the management of coastal areas is the beach is a medium which is very sensitive to environmental changes. Changes to the ecosystem resulting in changes in other ecosystems, both in the form of expansion and extinction of certain ecosystems.

The principle of management that need to be considered are as follows;  
(a) For the destruction of mangrove forests, management is to keep the mangrove forest ecosystem is the habitat of various fauna beach to give the border may be entered by the tourists and road construction made of bamboo which connects various places in the



mangrove forest, (b) Management's white sandy beaches with coral reefs in order to remain a tourist area that is environmentally friendly:

- The ban on tourists to take the kinds of reef building
- Move the regular boats at anchor or anchor to a place that no coral reefs.

So, Bonelipu Beach has a strategic value in terms of saving the environment can be realized, as a strategic area from the stand point of the interests of the function and capacity of the environment.

Labuan Marine tourism in underdeveloped areas caused by structural poverty and naturally the District Wakorumba and Northern Kulisusu (LABARAGA LABULAJO strategic areas) have economic strategic value, Management of the coast in this area is to involve coastal communities in activities that boost the ability, especially his ability in improving the local economy. This region as a strategic point of view Economic interests.

#### **4. CONCLUSION**

Impact of the activities in Bonelipu Beach, Mangrove Ecotourism Kulisusu Bay, and Labuan Marine Tourism on one side and a positive impact on the other side of the negative impact.

##### 1) Negative impact

- Physical Impact environmental degradation
- accumulation of organic material in the form of seaweed litter, rotting organic waste either on the surface or buried in the sand.-
- The presence of organic material runoff and silt particles through the watershed (river run off) and runoff (surface run-off).
- Land reduction caused by land use change into an area for the establishment of support buildings like hotels or lodging and restaurants or other facilities.

##### 2) Positive Impact

- Tourism area into regions that evolve in line with penyediaan infrastructure supporting facilities like roads built, hotel / lodging and restaurants or other facilities.
- Diverse marine wealth will be of interest to be traded that have economic value.
- Tourists who come to improve efforts both services and facilities that add to the local community in particular income. The tourism sector absorbs a lot of good energy investeor and workers. The demand for energy needs to support community development programs of coastal areas.

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