Identification of economic activity in coastal community (Case study: Bulu Cindea village, Bungoro district, Pangkep region of South Sulawesi)

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Abstract. The tropical coastal and ocean region is a very productive area because this region is generally a place of concentration of economic activity. The main activities in Bulu Cindea Village consist of capture fisheries, pond aquaculture, agriculture, salt, and industry. The purpose of this study is to identify the economic activities of the community in Bulu Cindea Village. The analysis technique used in this study is a qualitative descriptive analysis technique to compare the existing and ideal conditions as well as the analysis of production projections to see the needs for the next five years. The results show that in the implementation of economic activities in Bulu Cindea Village there is still some that are not in accordance with the standard criteria (ideal conditions) which resulted in economic activities being less than optimal, fish auction places (TPI), and in some ponds are transferred as agricultural land which is adjusted to the slope.

1. Introduction

The coastal region is a very productive area. Therefore this region is generally a place of concentration for various activities. The function and role of coastal and oceanic areas are currently developing rapidly and are more varied. In addition to functioning as a fishing area, the coastal area used for mining oil, natural gas, and other minerals for economic development. Also, coastal and oceanic areas used for recreational and tourism businesses, agro-industry, transportation and ports, industrial development, settlements, and also as a waste disposal location. As a result of these multi-human activities, both those that use technology and traditionally, their development often impacts on the surrounding environment[1].

Multi activities in the coastal area also occur in Bulu Cindea Village, while the main economic activities are capture fisheries, pond aquaculture, agriculture, salt, and industry. However, each of the existing economic activities is considered to be less than optimal because there are many deficiencies in it, such as the lack of community and local government attention to the development of the potential that exists in each economic activity, economic activity is not well organized, so it is still far from ideal word. Meanwhile, in ideal conditions, it can provide welfare and increase economic income for the community. For this reason, it is necessary to study further to identify the condition of economic activities in the village of Bulu Cindea.
2. Literature review
In general, the economic activities carried out by the community can be classified into two groups, namely based on place (village and city) and based on the type of work (agriculture and non-agriculture). Based on the type of work, which includes work in the agricultural sector, including agriculture, plantations, fisheries, livestock, and forestry.

Spatial planning in Law No.26 of 2007 concerning spatial planning, is defined as a form of spatial structure and spatial pattern whereas the spatial structure is the arrangement of settlement center and a network of infrastructure and facilities systems that function as supporting social and economic activities of the society which hierarchically have functional relations [2]. Based on PP No. 26 of 2008 related to the standard criteria for the designation of territories covering: a) the fisheries area consists of areas that can be utilized for fishing, cultivation, and processing of fishery products and does not interfere with environmental sustainability, b) the agricultural area consists of having land suitability for development as an agricultural area, determined as a perennial food agriculture land and can be developed in accordance with water availability, c) the industrial estate consists of land use adjusted to the applicable, access to commercial service center and ports and available supporting infrastructure facilities [3]. As for the salt cultivation criteria area based on the Training and Education Center of Tegal (BPPT), it suggested that the topography should be sloping, there is a salt storage warehouse, soil types consisting of sand, mud and clay and air humidity below 7% [4].

As an effort to create a balance between development and conservation needs, the zoning plan is a spatial implication for implementing the policies of the strategic plan, while the purpose of the zoning plan is to divide the coastal areas into zones according to the designation and activities that support each other (compatible) and separate them from activities that are conflicting (incompatible). The determination of zoning plans is intended to maintain the sustainability of coastal resources in the long term and eliminate various factors [5].

3. Methodology of research

3.1 Research sites
This research conducted in the coastal region of Bulu Cindea village at Bungoro, Pangkep. Located ± 6 km from the Capital of Pangkep Regency and ± 3 km from the Capital of the Bungoro District with an area of 831,29 hectares as shown in figure 1, which have the following territorial boundaries:

- Northside : Labakkang District
- Eastside : Bowong Cindea Village
- Southside : Boriappaka Village
- Westside : Liukang Tuppabiring District

3.2 Data collection technique
Data collection techniques consist of a) literature study, b) field research with surveys, interviews, and image documentation.

3.3 Data analysis technique
This study uses analytical techniques: a) Descriptive analysis is used to compare the ideal conditions and existing conditions; b) Analysis of production projections used to predict the five-year production needs comes with the formula below; c) spatial analysis used to calculate land use suitability based on existing regulations.

\[ R_n = \frac{\sum_{Area} \text{Production}}{\text{Area}} \] (1)
Production projection formula = \( Po(1+r\times n) \)  \( (2) \)

where:
- \( R_n \): average \( n \)-year production
- \( \sum_{production} \): month year production
- \( n \): month year
- \( Po \): base year
- \( r \): average production
- \( P_n \): projection year

4. Finding and discussion

4.1 Economic activity analysis

Based on the criteria of capture fisheries activity, it produced that fishers carry out activities in coastal areas [6], approximately 19% of mangrove sustainability is disturbed due to fishing vessel activities and the absence of processing industry activities. As for the directives that can be given in the form of the addition of a pier or a parking space for ships so as not to disturb the mangrove environment and the direction of the planned activity of the Fish Auction Place (TPI) to spur the growth of the processing industry.

Based on the criteria for pond culture activity, it is produced that the slope of Bulu Cindea village 300.55 Ha is suitable (<8%) with its designation, and 75.13 Ha is not suitable (> 8%). Farm area that is not suitable converted to agricultural land as can be seen in figure 2.

Based on the criteria of salt cultivation activity, it is produced that the slope of Bulu Cindea Village is 0-8% above sea level, potentially having tides that can irrigate ponds. Salt storage on the side of the road because it is close to the location of the pond so that the provision of salt storage warehouse is built...
at the location of the salt pond. Based on the criteria of agricultural activities, it is produced that the Spatial Plans (RTRW) at Bulu Cindea location does not have any agricultural designation, so the direction given is in the form of determining the location of the agricultural area as consideration in reviewing the revised RTRW because the area of agricultural land and its production can support the village economy.

![Figure 2. Comparison of livelihood area and an economical pint of view.](image)

Industrial activities, the standard criteria for industrial activity, states that: a) the slope is 0-8%, b) land use is adjusted to the applicable, c) access to the commercial service center and port services are available, d) available infrastructure to support activities industry. The comparison of the existing conditions, namely: a) is located on the slope of 0-8%, b) in the Spatial Plans (RTRW) is intended as a cement processing site, c) access to the commercial center is available, but the road to the cement processing plant is in the category of light damage, d) there is port and cement storage and packing warehouse. Then the directions generated in the form of improvement of supporting facilities in the form of road repairs.

4.2 Analysis of coastal area characteristics

Table 1 is concluded that the community livelihoods in Bulu Cindea Village are dominated by factory workers with 574 workers or 34.6%, while the least livelihoods in Bulu Cindea Village are salt farmers with 157 people or 9.5%.

| No | Type Of Work      | Total (people) | Percentage (%) |
|----|-------------------|----------------|----------------|
| 1  | Fisherman        | 343            | 20.7           |
| 2  | Fish farmers     | 160            | 9.6            |
| 3  | Salt farmer      | 157            | 9.5            |
| 4  | Farmers          | 425            | 25.6           |
| 5  | Factory workers  | 574            | 34.6           |
|    | Total            | 1,659          | 100            |

Based on the two pie diagrams as shown in table 2, the farmers' livelihoods are related to the area of agricultural activities, this based on the number of percentages among workers with the area of agricultural economic activity as well as the livelihoods of salt farmers having related to the area of salt which has 9% workers comparable to the number of workers is 16%.

Based on the table above it is known that there are three economic activities that have a relationship to the amount of production, namely agricultural activities which have an area of 30%, 26% livelihoods and 55.3% total production so that the amount of production is proportional to the number of livelihoods
working on the area. Then salt activity has an area of 16%, 9% of total livelihoods, and 14% of total production so that the amount of production is proportional to the amount of livelihood and area. Pond cultivation activities have an area of 48%, livelihoods of 10%, and total production of 27% so that the amount of production is proportional to the area of the pond.

Table 2. Percentage analysis of comparative characteristics of coastal areas

| No | Economic Activity | Area | Livelihood | Production Amount |
|----|-------------------|------|------------|------------------|
| 1  | Catch fisheries   | -    | 21         | 4                |
| 2  | Farm cultivation  | 48   | 10         | 27               |
| 3  | Salt              | 16   | 9          | 14               |
| 4  | Agriculture       | 30   | 26         | 55.3             |

4.3 Production projection analysis

Production projection analysis is always grown from the average of industrial numbers. As presented in table 3, all sectors were compared by 5 years.

Table 3. Projection results based on economic activity (ton/year)

| Year | Catch fisheries | Farm cultivation | Agriculture | Salt Cultivation | Industry         |
|------|-----------------|------------------|-------------|------------------|------------------|
| 2018 | 106             | 703              | 1379        | 97               | 12,852,917       |
| 2019 | 115             | 736              | 1495        | 93               | 19,730,833       |
| 2020 | 125             | 766              | 1609        | 90               | 26,608,749       |
| 2021 | 135             | 800              | 1726        | 86               | 33,486,664       |
| 2022 | 145             | 834              | 1840        | 82               | 40,364,580       |

Based on table 3 shows that for capture fisheries production, pond aquaculture, agriculture, and industry each increase by 10 tons/year, ± 35 tons/year, ± 115 tons/year and ± 7,000,000 tons/year. Meanwhile, salt production has decreased the amount of production each year caused by several factors.

5. Conclusion

*Bulu Cindea* village has quite a variety of economic activities, including fishing activities, aquaculture, salt cultivation, agriculture, and industry. However, in the implementation of economic activities in *Bulu Cindea* Village, there are still some that are not by the standard criteria (ideal conditions), which results in economic activities being less than optimal. To meet the criteria standard on the economic activity of Indian fur, it is necessary to increase effectiveness such as the addition of salt storage warehouses, fish auction places (TPI), and in some ponds land is diverted as agricultural land which is adjusted to the slope.

References

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