Strategy of rehabilitation and development mangrove forest in Tauno village sub-district Oba Tengah of Tidore city

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Abstract. Management of mangrove forests as resource-based coastal communities implemented an integrated concept, which in this management involves the entire stakeholder who then assigns priorities that are based on the purpose of the main, i.e. the achievement of environmentally sustainable development. The purpose of the research was to identify the potential of mangrove forests, internal and external factors that influence the rehabilitation strategies and development plans of the mangrove forest in the village of Tauno Subdistrict Oba Tengah. The basic method used in this study is a descriptive-analytical method. The SWOT analysis was done based on internal factors (strengths and weaknesses) and external factors (opportunities and threats). Based on the results of the SWOT analysis, then obtained the position of a strategy of rehabilitation and development of mangrove forests are in quadrant one. This position shows that powers can be used to take advantage of the opportunities that exist.

1. Introduction
Mangrove forests as a natural resource of biodiversity have a diversity of potential that provides benefits to human life. The perceived benefit is to prevent coastal erosion caused by seawater waves. Mangrove forest is an excellent place for some organisms such as shrimp, fish, and crabs in the spawning eggs. Serious threats such as global warming can be solved by developing mangrove forest areas. [1]. Mangrove forests as an ecosystem has the potential of natural beauty and environment of the constituent components ecosystem consisting of vegetation, biota or wildlife associations, organisms and the surrounding environment [2].

The environmental function of mangrove forests as habitat, spawning areas and provider of nutrient elements, besides that as the area of the place of research, education, and ecotourism [3]. A glance at the importance of the development of the mangrove forests to support the conservation of the environment in accordance with the current conditions are quite sensitive to the environmental issues, then the development of the mangrove forests need to be managed properly so that it is able to provide benefits for the life of the community especially clean water and fresh air, mangrove forests also has a function to absorb impurities originating from the garbage of society as well as the ships set sail and anchored on the coast.

Management of mangrove forests as a resource-based coastal communities implemented an integrated concept, which in this management involves the entire stakeholders set priorities-priorities that are based on the primary purpose, that is the achievement of environmentally sustainable development environment [4]. Based on the background, then the research needed to formulate a strategy for the rehabilitation and development of the mangrove forest in the village of Tauno Subdistrict Oba Tengah.
2. Materials and Methods

2.1. Research methods
The research was carried out in the area of mangrove forests Village Tauno Oba Tengah Sub-district. The basic method used in this study is a descriptive-analytical method. This analytical descriptive method is a method of research that focuses on problem-solving. The data and information obtained is then processed, analyzed and interpreted [5].

Implementation technique of using survey methods, namely collecting data or information by using instruments to solicit responses from respondents about things relating to the rehabilitation and development strategies of mangrove forests. Understanding the survey is restricted to the notion of a survey sample, where the information or data obtained processed, analyzed and identify information about the internal and external factors are collected from most of the population to represent the entire population by using the SWOT analysis [6]

2.2. Sampling
Determination of the sample for this study sample consisted of government officials, communities around the mangrove forests, so the total respondents in this research totaled 25 people. The selection of respondents is performed based on the consideration that selected respondents know the conditions and potential of mangrove forests in the area of study both to the environmental factors internal as well as external environment owned hand.

2.2.1. Sample of government officials
Sample Government officials determined in purposive sampling that is 5 people from the Provincial Forestry Department: head of Department, head of the planning staff of the forest and land rehabilitation. Sample of officials was related to determining policy in the field of rehabilitation and development of mangrove forests and who knows about the potential and the policies associated with mangrove forests.

2.2.2. Sampling of community
Community samples in this study as many as 20 people. The selected communities are experienced in the management of mangrove forests and utilizes mangrove forests as a source of income.

2.3. Data Collection Techniques
Data collection techniques used in this study, as follows:

a. observation Technique is a technique of collecting data is carried out by means of direct observation on the object is examined.

b. interview techniques that is a technique of data collection conducted by the way hold communication faqs directly based on a list of questions or prepared questionnaire to respondents who are assigned and it is believed as the sample respondents who rated representative.

c. record-keeping Techniques, namely data collection by way of secondary data from the records all government agencies such as the Central Bureau of statistics, Forestry or other data sources that have to do with this research.

2.4. SWOT Analysis
The SWOT analysis was done based on internal factors (strengths and weaknesses) and external factors (opportunities and threats) [7]. These factors are obtained from the results of the interviews with the decisive policy and society.

The results of interviews collected then analyzed so that the position of the mangrove forests on the competitive environment can be known in order to determine strategies and alternative rehabilitation and development are used appropriately and effectively appropriate conditions in the field.
Factors of internal strategy and external help summarize the strategy in determining and evaluating the internal information (strengths and weaknesses) and external (opportunities and threats) of mangrove forest at a location study [8]

3 Results and Discussions

3.1. Potential rehabilitation of Mangrove Forests

The increasing population coupled with increasing development activities in recent years, has put the area of mangrove forests was exploited was the target of a potential for farming activities, agriculture, and settlements. The utilization of the coastal area increasing the in addition to providing a positive impact through improved livelihood and employment to coastal communities, but also had negative repercussions against the mangrove ecosystem, if its utilization is not environment-friendly and uncontrolled. Therefore, the activities of rehabilitation of mangrove forests have been critical of the conditions necessary to recover and restore the functions of protection, preservation and production functions [9].

Efforts to rehabilitate mangrove forest land that has been critical of is by greening which requires specific techniques, it should be also studied plant species formation which forms or types of mangrove forest compiler on location planting will be done. Generally consists of forest plants, among others, the main constituent of Avicennia SP. Rhizophora sp. Sonneratia SP. or Bruguiera sp [10]. As for measures of activity in the implementation of greening of mangrove land that has been damaged is the provision of seeds, seed selection. the seedbed and the media for the seeds, planting, transporting and keeping [11].

Mangrove forests are very well developed on land that has a texture sandy loam with accumulation of organic substances [12], one of which is the mangrove forest in the village of Tauno Subdistrict Oba Central Tidore Islands is one of Woods the mangrove is quite prospective for developed, a very appropriate substrate for mangrove rehabilitation and development so that mangrove forests have the support of the provincial government through the relevant agencies (Department of Forestry) and socialite local. In terms of social aspects, rehabilitation and development, mangrove forests provide many benefits to society in the form of convenience for activity, whereas the economic aspects of the mangrove forests provide a lot of alternative forest management efforts silvofishery activities as mangrove [13]

3.2. Rehabilitation and development strategies of Mangrove Forests

The strategy is generally defined as a tool to achieve the objectives [14]. The results of the analysis were used to answer the purpose of a research strategy for the rehabilitation and development of mangrove forests, thereby generating variables which summed up to obtain the alternative strategy of venture through external and internal matrix knowing the position of the business. Results and discussion the strategic analysis is presented in table 1, Table 2, 3 and 4.

At this stage, the data has been classified into internal factors and external form of strengths, weaknesses, opportunities, and threats that are owned will be calculated value. Score is calculated based on the assessment of the respondent against those factors. The respondent referred to in this research is that stakeholders understand about this research include Forestry, agriculture, and trade industry, the academics, traders and farmers.

3.2.1. Internal Factors

Based on the results of the survey and the opinion of some respondents involved in the rehabilitation and development of mangrove forests, in particular, managing mangrove forests obtained some internal variables that have different degrees of interest. The results of the assessment weighting and rating factors internally by the opinions of some of the stakeholders displayed on a matrix of factors internal strategy as follows:
Table 1. Internal Factor Analysis Summary (IFAS)

| Strength                                                                 | Weight | Rating | Score |
|--------------------------------------------------------------------------|--------|--------|-------|
| The substrate is very suitable for mangrove                              | 0.24   | 4      | 0.96  |
| Has the potential of ecotourism                                          | 0.20   | 4      | 0.80  |
| Presence awareness to conduct replanting by the community                | 0.15   | 2      | 0.30  |
| The existence of a conservation function                                 | 0.19   | 4      | 0.76  |
| The application of the customs rules is greater in forest management      | 0.21   | 3      | 0.63  |
| **Total**                                                                | 1      | 16     | 3.45  |

Table 2. Internal Factor Analysis Summary (IFAS)

| Weakness                                                                 | Weight | Rating | Score |
|--------------------------------------------------------------------------|--------|--------|-------|
| The presence of mangroves near the settlement                            | 0.20   | 3      | 0.60  |
| Community waste poses environmental pollution                            | 0.13   | 3      | 0.39  |
| The knowledge society is lower in the management                         | 0.18   | 4      | 0.72  |
| More focus to community gardening                                        | 0.24   | 4      | 0.96  |
| Always conflict in communities in the sustainable use of mangrove forests| 0.26   | 2      | 0.52  |
| **Total**                                                                | 1      | 16     | 3.19  |

3.2.2. External Factors
The external factor is the factor or factors outside of a problem and the reason it happens. External factors in the rehabilitation and development of mangrove forests is a form of management which gave rise to opportunities and threats. External factor evaluation matrix is used to evaluate the external factors of a business related to opportunities and threats.

Table 3. External Factor Analysis Summary (EFAS)

| Opportunity                                                                 | Weight | Rating | Score |
|-----------------------------------------------------------------------------|--------|--------|-------|
| The potential for rehabilitation and development of mangrove                | 0.18   | 3      | 0.54  |
| Mangrove planting does not violate the habits and customs                   | 0.18   | 4      | 0.72  |
| Government support-related rehabilitation and development of mangrove forests| 0.20   | 4      | 0.80  |
| The existence of alternative mangrove management in business (silvofishery) | 0.23   | 4      | 0.92  |
| Support from community leaders in the management                            | 0.21   | 3      | 0.63  |
| **Total**                                                                  | 1      | 17     | 3.61  |
Table 4. External Factor Analysis Summary (EFAS)

| Threat                                               | Weight | Rating | Score |
|------------------------------------------------------|--------|--------|-------|
| The community did for the needs of logging firewood  | 0.23   | 3      | 0.69  |
| Lack of awareness of most communities in mangrove management | 0.28   | 3      | 0.84  |
| Increasing land function transition                  | 0.22   | 4      | 0.88  |
| The absence of care and supervision by the mangrove associated after planting | 0.27   | 1      | 0.27  |
| Total                                                | 1      | 11     | 2.68  |

3.3. Position of the rehabilitation and development efforts of mangrove forests in the village of Tauno

Based on the results of the SWOT analysis, then obtained the position of a strategy of rehabilitation and development of mangrove forests are in quadrant I. To obtain the position of the rehabilitation and development strategy to be presented (Figure 1)

The position of the I quadrant shows that a strategy of rehabilitation and development of the mangrove forest in the village of Tauno is the aggressive strategy, i.e. the position where the powers can be used to take advantage of the opportunities that exist. Realization strategy of aggressive (growth) that can be reached is by implementing the following things:

1. Growth and development of plants is very dependent on the State of the media grows plants. Each plant has the power to grow and needs as well as the State of soil nutrient of different to be able to grow and develop. In line with this, the mangrove plants are also in dire need of an appropriate substrate in order to grow and develop in accordance with the Habitat. The substrate in the village Tauno very appropriate so that the potential for rehabilitation and development of mangrove forests need to be done by way of planting mangrove trees with custom rules approach so that it is in the process of planting mangroves not breaking the habit and customs of local people.
2. Have the potential of ecotourism so that got the support of the Government and society-related rehabilitation and development of mangrove forests as an alternative effort management of mangrove forests in silvofishery activities [15].
3. Existence of a conservation function supported by related Government rehabilitation and development of mangrove forests.
4. The development and rehabilitation of mangrove forests in the village of Tauno is one of the efforts in the improvement of the living standard of local people. Rehabilitation can be done with a custom settings approach so that the local community was able to maintain and protect the mangrove forests with local wisdom approach which they believed since the time of the ancestor. The application of customary rules in the management of mangrove forests with the support of the local community [16].

In general, there are three key components to look for in the efforts of the management and utilization of mangrove ecosystems in particular and the coastal and marine natural resources generally, namely; activities of social, economic and natural resources itself [17]. The third component is bound to each other and mutually influence each other. The social aspects of economic, cultural and aesthetic villagers Tauno requires natural resources to be able to carry on their lives, on the other hand the existence of natural resources sustainability especially the coast and the sea in the village of Tauno depends very much on the activities of the community as a major user of natural resources.

Tauno Village community empowerment is an attempt to enhance the dignity and the dignity of the local people in the present conditions not being able to escape from the trap of underdevelopment and far from the prosperous condition. In other words, give the ability means empowering communities and community independence. The process of empowerment that highlight the process gives the ability to the society to be empowered, encourage or motivate the individual in order to have the ability to determine the choice of his life.

4 Conclusions
The research strategy of the rehabilitation and development of the Mangrove forest in the village of Tauno, Oba Tengah sub-district, Tidore City summed up things as follows:
1. The mangrove forest in the village of Tauno has considerable potential, the kind that exists between other Bruguiera gymnorhiza, Xylocarpus moluccensis and Avicennia Alba with a land area of approximately 40 Ha of mangroves that have opportunities for rehabilitation development of ecotourism.
2. Based on the results of the SWOT analysis, indicating that the condition of the efforts of rehabilitation and development of mangrove forest in the village of Tauno has an awful lot of power in the form of a good substrate, the potential of ecotourism, community awareness in planting mangrove forests, and has the function of conservation as well as mangrove management based on custom rules. Additionally supported with external in terms of opportunity that helped the Government in rehabilitating mangrove forests form the utilization potential of the region as the silvofishery activities.
3. Management strategies of mangrove forests in the village of Tauno based on SWOT analysis that is making the village forest area Tauno that focus on ecotourism so that it can become an area of learning culture of the local community.

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