



Research Paper

## Sustainability Livelihood Approach As Capitals For Managing Sustainable Coastal Resources Of Bahowo Coast In North Sulawesi, Indonesia

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**ABSTRACT:-** In order to shoot further for the potential, there needs further analysis of the sustainability of coastal resource management. Analysis of sustainability, Farrington (2009) introduced the 5 capital or resources as a determinant of business sustainability calling Sustainability Livelihood Approach (SLA). The objective of this study is to raise more profound SLA such as human capital, natural capital, physical capital, financial capital and social capital in managing coastal resources in a sustainable manner on Bahowo Coastal in North Sulawesi, Indonesia. This study is located in Bahowo. Study period for 2 (two) months in 2013 in October and November. Analysis tool used was the Quantitative Descriptive Analysis with an approach of Sustainability Livelihood Approach (SLA). The research that was conducted integrated the 5 aspects/capital such as human capital, financial capital, physical capital, natural capital and social capital. Thus, the model that was arranged could be the development model in the coastal regions with a comprehensive sustainable management, which can be used as an approach in the development of coastal areas in other regions. Coastal resources had specific characteristics of being conspicuous at human capital. Human capital was the high level that was 87%. It meant that human capital was conspicuous at coastal resources. The next levels were social capital. Based on the result shows the coastal resources need the high level of human capital. The human capital defined as the role of government, role of the private sectors, also the role of the NGO sectors. Also for the second part is the social capital include the community behaviour. The result of sustainability livelihood approach for human and social capital. The level of sustainability (human and social capital) is (1) Role of Government, (2) Community Behaviour, (3) Role of Private Sectors, and (4) Role of NGO Sectors.

**Keywords:-** Sustainability Livelihood Approach, Human Capital, Bahowo, Coastal Resources

### I. INTRODUCTION

Indonesia has the potential of coastal and marine resources that is very large, with an area of 5.8 million km-square of ocean and coastline of approximately 81,000 km, while the potential for sustainable fisheries in Indonesia is 6.7 million tons, cultivated lands around 1.1 million ha, and other potential namely crustaceans, shellfish and marine mammals. Another potential that is no less important is the marine transportation services, maritime industry, marine tourism, alternative industrial and medicinal resources. Limit territory of Indonesia is measured from the outer islands by using the territorial of the sea as far as 12-mile of sea and exclusive economic zone up to 200 sea miles. Indonesian territory extends along 3,977 miles between the Indian Ocean and the Pacific Ocean and the length of approximately 95,186 km.

The coastal area is a highly productive ecosystem that serves as the main pillar for economic growth. More than 55% of national fisheries products originating from capture fisheries in coastal areas. Coastal areas, marine and small island is an ecosystem area that is rich in biological diversity, including coral reefs, mangroves, seagrass beds, lagoons, and estuaries. Coastal areas and small islands in Indonesia are home to 2,500 species of molluscs, 2,000 species of crustaceans, 6 species of turtles, 30 species of marine mammals, and more than 2,000 species of fish. With 70 of genera and 500 species of hard corals, they are covering 32,935 km-square (or 16.5% of the world's coral reefs).

Coastal natural resources today are increasingly being realized by many people that this resource is a promising potential in supporting the economic level of the community, especially for fishermen. The logical consequence of coastal resources as common property resources (common property) and open to the public (open access), the utilization of coastal natural resources is increasing in almost all regions.

Along with the increasing of fishing effort in meeting the food needs to people around as well as to the among islands market demand domestically and abroad. The development of coastal natural resource exploitation related to the catching, cultivation, and extraction of materials for medical purposes have become a field of activity that is controlled by the economics of the market (market driven), especially the types of economical with high-value, thus encouraging the exploitation of natural resources and coastal marine in scale and intensity that is quite large. As a result, utilization tends to exceed the carrying capacity of resources (over exploitation) and is estimated to lead to destructive. This condition is aggravated by the increasing number of fishing fleet, the use of tools and techniques as well as fishing technology that is not environmentally friendly. On the other hand, as both human activities in coastal areas and inland activities (upland) that can also cause environmental pollution; These conditions give rise to environmental stress and even tend to destroy the coastal natural resources which tend to increase in intensity over time, thus in the end this leads to a decrease in the carrying capacity of resources and in the long term it will lead to a tragedy of the commons (open tragedy).

On the other hand, the potential of coastal and marine resources are abundant, until today are still not able to raise the welfare of the community, especially people in coastal areas. Coastal communities are still struggling with poverty, low education levels and the quality of poor health and tend to helplessness facing various problems. Poverty and low level of understanding of environmental preservation, becoming one of the justifications of the high dependence on marine resources by the coastal communities and not paying attention to the preservation of resources, so as to result in a decrease in function, quality, and biological diversity.

In the city of Manado, of North Sulawesi Province, particularly in the Environment of Bahowo, Village of Tongkaina District of Bunaken there are coastal people who work as minor traditional fishermen and categorized into poor communities, because the per capita annual income is only Rp 18,791,209, - or Rp1.565.934 '- per month below the income of per capita of the Manado society in general. But in the coastal areas of Bahowo are well maintained especially mangrove forests or mangrove forests. In the 1980s, the existing mangrove forest in an area of 26 ha of the Bahowo Environment. At that time people did not realize the importance of mangroves for coastal resource conservation and source of livelihood. Many mangrove trees cut down and the wood were taken for firewood or house poles. But in early 1990, the local community began to realize the importance of mangrove forests and together with the government, began planting mangrove trees back and until recently, extensive mangrove forests in the village Bahowo, reaching 68 Ha.

In order to shoot further for the potential, there needs further analysis of the sustainability of coastal resource management. Analysis of sustainability, Farrington (2009) introduced the 5 capital or resources as a determinant of business sustainability calling Sustainability Livelihood Approach (SLA). Research results Parmawati et al. (2012) used the five capital application in measuring business sustainability of agropolitan in Batu City. Unlike the case with the study by Suyitman (2009), the five capital introduced by Farrington (2009), was adapted through the five dimensions (capital) namely ecological, economic, socio-cultural, infrastructure/technology, and law/institution. Through analysis tool of SLA, the results of this study were able to answer the level of sustainability of the business based on the five dimensions. Set out from the above description of the background, thus the objective of this study is to raise more profound SLA such as human capital, natural capital, physical capital, financial capital and social capital in managing coastal resources in a sustainable manner on Bahowo Coastal in North Sulawesi, Indonesia.

## **II. THERETICAL STUDY**

Definition of coastal areas, until there has been no standard, but according to Dunton, et al. (2002) coastal area is a transitional area between land and sea which are physiologically defined as area between the shoreline to the inland that still affected by tide, with a width determined by the flatness of the beach and the sea, and is formed by deposition of clay to sand that naturally would be separated and sometimes the materials are such as gravel. The transition between land and sea, forming a diverse ecosystems and very productive and provides economic value to humans.

The coastal area has a strategic significance because it is a transition area (interface) between terrestrial and marine ecosystems, as well as having the potential of natural resources and environmental services which are very rich (Clark, 2008). This wealth has a special attraction for the various parties to take advantage of its resources and encourage agencies to regulate their use. Coastal areas definition above gives a sense that coastal areas are dynamic ecosystems and has a wealth of diverse habitats, it is a complex system, therein the interaction of various natural processes, social, cultural, economic, and governmental administration. Besides having great potential, the coastal region is also the most vulnerable ecosystems to human activities. In biophysical coastal areas have the following characteristics:

In some coastal areas, there are usually more than two kinds of natural resources and environmental services that can be developed for the sake of development interests. There is a direct relationship between the very complex processes and functions of the environment with natural resource users. In some coastal areas, in general there are more than one group of people who have skills/expertise and pleasure (preference) for different working as farmers, fishermen, fish farmers, farmers of seaweed, companion of tourism, industrial and household craft and so forth. In it very difficult or almost impossible to change the pleasure of working (profession) of a group of people who have a tradition to pursue a field of work. Both ecologically and economically, the use of a coastal area in monoculture (single use) is extremely vulnerable to internal and external changes that lead to business failure. For example, a stretch of coastal area is only used for one designation, such as ponds, and then it will be more vulnerable, if an overlay is used for multiple designations. The coastal area is generally a common property resource that can be used by everyone (open access). In any case any coastal resources are usually principled to maximize profits. Therefore, it would be reasonable if the pollution over exploitation of natural resources and utilization of space conflicts often occur in this region, which in turn can lead to a tragedy of the commons (open tragedy).

In general, the potential of coastal resources are divided into four groups (Dahuri, 2009), namely: (1) resources that can be renewed (renewable resources), (2) resources that cannot be renewed (non-renewable resources), (3) marine energy, and (4) marine environmental services (environmental services). Resources that can be recovered are composed of various types of fish, shrimp, seaweed, seagrass beds, mangroves, coral reefs including coastal aquaculture and mariculture. Availability of coastal land is a potential that can be developed for fisheries activities. Likewise, the territorial waters of the beach can be developed for various farming activities particularly mariculture. Resources that can not be recovered include minerals, minerals/quarrying, oil and gas. Energy resources consist of OTEC (Ocean Thermal Energy Conservation), the tidal; wave, while what includes the marine environmental services are tourism and marine transportation. Furthermore, Muhammad, (2013), said that in the scope of horizontal, the coastal region is limited by two hypothetical lines. First, inland of these regions include areas where oceanographic processes (sea wind, tidal, the influence of sea water, etc.) that influence can still be felt. Second, towards the sea covers areas where due to the processes that occur on land (sedimentation, river flow, the effect of fresh water, etc.). The border region meet the land and water from the mainland the relatively high (elevation ramps, steep and moderate) with relatively low water period, flat, and a much larger volume.

### **III. RESEARCH'S METHOD**

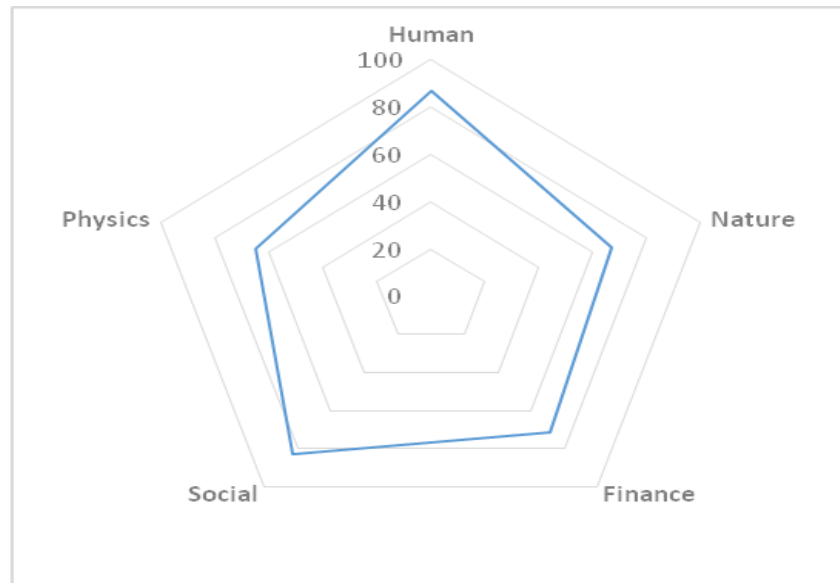
This study is located in Bahowo. Study period for 2 (two) months in 2013 in October and November with details of time: In the 2 (two) weeks of the first month of the beginning of the study site searching for information, and at week 3 (three) and 4 (four) months at the same time distributing questionnaires to the respondents. At week 2 (two) months of the second, collecting returned questionnaires filled and conduct in-depth interviews with the respondents and with officials of the relevant agencies, and then performed data processing. Analysis tool used was the Quantitative Descriptive Analysis with an approach of Sustainability Livelihood Approach (SLA).

### **IV. RESULTS AND DISCUSSION**

Coastal resource management is guided by the ideology of sustainability provides a clear platform on the sovereignty of civil society strengthening mechanisms and locality to fully manage natural resources with local knowledge possessed in accordance with the ethical of Ecocentrism. Socio-economic welfare fought for in the concept of sustainable development ideology is what is known then the term sustainable livelihood system. A social welfare economics degree, that is not only oriented to the accumulation of capital for a moment (as known by the ideology of developmentalism-modernism-capitalism), but are more concerned with meeting the needs of future generations so that they can enjoy a life of at least the same quantity and quality to what is enjoyed by generations in the present time. This concept is actually first developed in England in the late 1990s, but designed in such a way so it is relevant to the developing country region. Sustainable livelihood system approach is the approach of contemporary business (business concept of the 1990s) that attempted to correct known modernization approach which is not very familiar to the environment. Sustainable livelihood approach tries to achieve the degree of fulfillment of social, economic, and ecological fair and balanced manner. Achievement of social welfare level is approached through a combination of activities and utilization of existing the capitals in governance-life system.

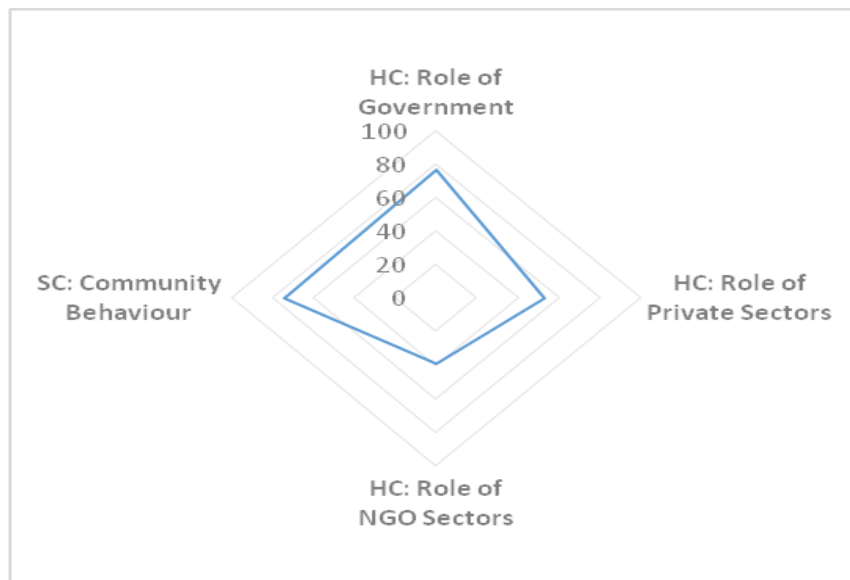
The research that was conducted integrated the 5 aspects/capital such as human capital, financial capital, physical capital, natural capital and social capital. Thus, the model that was arranged could be the development model in the coastal regions with a comprehensive sustainable management, which can be used as an approach in the development of coastal areas in other regions. In another area that needs to be conducted as mentioned previously is to find the factors that accelerate and inhibit the development of the agropolitan,

looking at the processes and linkages as well as analyze the impact of direct and indirect. The factors were obtained from the five capitals called Sustainable Livelihood Approach.



**Figure 1: Result of Sustainability Livelihood Approach**

Figure 1 shows the result of sustainability livelihood approach. Coastal resources had specific characteristics of being conspicuous at human capital. Human capital was the high level that was 87% as presented as Figure 1 above. It meant that human capital was conspicuous at coastal resources. The next levels were social capital. Based on the result shows the coastal resources need the high level of human capital. The human capital defined as the role of government, role of the private sectors, also the role of the NGO sectors. Also for the second part is the social capital include the community behaviour.



**Figure 2: Result Human and Social Capital**

Figure 2 shows the result of sustainability livelihood approach for human and social capital. The level of sustainability (human and social capital) is (1) Role of Government, (2) Community Behaviour, (3) Role of Private Sectors, and (4) Role of NGO Sectors. A qualitative approach with in-depth interviews was conducted by the researcher with several key informants such as community leaders, fishermen, government, company, and university professor. The main result shows the importance of the role of the government in the management of coastal resources in a sustainable manner. The factor of government's role is important in the management of coastal resource, namely macro approach that emphasizes on the arrangement of political systems and social structures. This approach prioritizes the role of competent institutions or organizations

established for the management of coastal resources. In this case, the role of the community is very important but it will be less robust because the structural aspects are usually more effective when it is done by those who have the authority, at least in the early stages. This study shows that the role of the government and private sectors support the management of coastal resources.

The second factor in the optimal management of coastal resources is the community behavior. Bahowo people's behavior is more visible than the internal aspect, compared to the external aspects. Internal factors are factors that originate from within the community Bahowo, such as obedience or adherence to a variety of traditions, customary law and traditional institutions that govern society in utilizing coastal natural resources. Society has participated well in managing Bahowo coastal region. This was confirmed from the results of the in-depth interviews (depth interview) on the community leaders, fishermen, government, private sector, NGOs, and the representatives of universities. The result of the interview with Bp. Abner Wala, as the community leader, stated that "People have participated well, because people with their own initiative were establishing environmental awareness group that now has been recognized as a group of environmental care in the field of Mongrove (by Aqua company)". The same thing expressed by Bp. Donny Makahinda (fishermen) that "Fishermen have been participating, through planting mangrove trees in the neighborhood, catching fish only with nets. Following environmental conservation activities carried out by the local community, the structural approach is also emphasized on the non-structural approaches such as community development, considering the participation of the community also played a role in the resources management based on local wisdom. Non-structural approach (empowerment) puts human beings as subjects who have the discretion to take the initiative and do according to his will. This approach assumes that local communities with knowledge, skills and awareness can enhance its role in the management of natural resources around them.

In connection with the private sector's role in managing coastal resources optimally expressed by the representative of the private sector/ company that "Bahowo's environment, is still natural, meaning that people keep and care for their environment". "If we look at the nature around Bahowo environment, it will be seen that the public properly manage the coastal region, as seen from the mangrove trees that grow and develop, there are docks to ease down to the sea and the yard that used to grow vegetables and seasonings", this was stated by representatives of NGOs. On the other hand, a similar case was revealed by representatives from faculty, that "Basically, fishing communities in the Bahowo environment is already doing environmental conservation around, although they do not aware of this, such as the use of simple fishing gear (or because they can not afford to buy a more modern fishing gear)".

From the findings, it shows that coastal resource management model that combines the elements of the local communities, governments and the private sector, will avoid excessive dominant role of the party in managing coastal resources. Through this model, local communities, government and the private sector, actively involved in the process of planning, implementation, utilization and supervision, but this model is not a static structure, but rather a dynamic process in the management of coastal resources.

The findings on coastal resources management strategy model in this Bahowo environment strengthen Harsono study (2007) dealing with the main elements of local wisdom as follows: (1) The existence of community participation in the management of coastal resources. (2) The existence of institutions (government) which has a top public authority of local wisdom. It supported the role of government in the form of planning, monitoring, and implementation). (3) The existence of a territorial element consisting of marine resources that must be managed in a rational, effective, and efficient. For Bahowo community that are mostly living in coastal and marine areas, marine and coastal resources are not only serves as an economic needs and people's daily life, but they are very familiar with the environment around them and know how to maintain viability in harmony and keep maintain the continuity and stability of marine and coastal areas as well as natural resources contained therein. Rights and liabilities held by indigenous people in managing marine and coastal areas also have an external force that provides great potential for the people. For local fishermen, obedience and adherence to customary rules, wisdom and traditions that exist are highly regarded. On the other hand, coastal communities have a pessimistic response to the implementation and enforcement of formal laws that apply now. Many reality of the implementation and enforcement of the law against the perpetrators of environmental destruction, the solution is not clear and is not a deterrent to the offenders.

## **V. CONCLUSION**

The research that was conducted integrated the 5 aspects/capital such as human capital, financial capital, physical capital, natural capital and social capital. Thus, the model that was arranged could be the development model in the coastal regions with a comprehensive sustainable management, which can be used as an approach in the development of coastal areas in other regions. Coastal resources had specific characteristics of being conspicuous at human capital. Human capital was the high level that was 87%. It meant that human capital was conspicuous at coastal resources. The next levels were social capital. Based on the result shows the coastal resources need the high level of human capital. The human capital defined as the role of government,

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