



Research Paper

Analysis of the Sustainability of Coastal Zone Resource Utilization in Bunaken National Park based on Social and Culture

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ABSTRACT:- Bunaken Marine Park is one of a number of nature conservation areas or national parks in Indonesia. The aim of this study are (1) identify the utilization of coastal resources of the Bunaken National Park by the people of Bunaken , (2) analyzing the Sustainability Status of Coastal Zone Resource Utilization with the local knowledge dimension, economic, Customary Law, Institutions and Politics in Bunaken Village society. The research was conducted in Coastal Zone Village of Bunaken in Manado, North Sulawesi. The location of the study included the area of tourism and conservation areas in the Village of Bunaken. The determination of the location of the study was determined by intentionally (purposive) because given that the coastal areas of the Village of Bunaken is a Nature Conservation Area of Bunaken National Park support (TNB) in North Sulawesi province which covers 89 065 hectares and are determined by the Ministry of Forestry Decree No. 730 / Kpts-II / 9 and also an area that has a vital function in the marine tourism park, provider of fishery products, agricultural and plantation. Analisis Multidimensional Scale (MDS) was used in the analysis of the Sustainability of TNB coastal resources utilization in the Village of Bunaken, the socio-cultural dimension of sustainability is to know the status of phase 2 in this study. The results of the analysis of the MDS method, Index of Sustainability amounted to 52.96 on a scale of sustainability 0-100 of sufficiently sustainable category: Local Knowledge Dimension is the lowest, less sustained, the value of sustainability index 45.65, Political Dimension of the highest sustainability index value that is 52.40. The results of the analysis of the MDS method, the value of sustainability index of Mangrove utilization amounted to 50.32 with fairly sustainable category: Local Knowledge has the lowest value of sustainability index amounted to 24.88 with category of unsustainable. Political dimension has the highest sustainability index value amounted to 51.88 fairly sustainable. The results of the analysis of the MDS method, the value of tourism utilization Sustainability index amounted to 55.02 on a scale of sustainability 0-100 with fairly sustainable category: Economic dimension has a sustainability index value amounted to 61.60 with fairly sustainable category, Political dimension's sustainability index value amounted to 47.61 with fairly sustainable category . The results of the analysis of the MDS method, the value of Sustainability index for agricultural mixtures utilization amounted to 52.59 on a scale of sustainability 0-100 with fairly sustainable category: Dimension of Customary Law has the sustainability index value amounted to 51.599449 with fairly sustainable category , Economic Dimension has a sustainability index value amounted to 24.90488 with no sustainable category.

Keywords:- Sustainability, Coastal Zone Resource, Bunaken National Park, Social, Culture

I. INTRODUCTION

Bunaken National Park established in 1991 with the decree of the Minister of Forestry No. 730 / Kpts-II / 1991, and inaugurated by the President in 1992. Bunaken Marine Park is one of a number of nature conservation areas or national parks in Indonesia. The process of its development and system management mechanisms of Bunaken National Park since it was announced to be undertaking such measurement of management to that area, it becomes the authority and responsibility of the central government through the forestry department, especially Directorate General of nature Protection and conservation , and in the area that

was carried out by the Central or Sub-Natural Resources Conservation Agency (SBKSDA) of North Sulawesi. Resources in the coastal area of TNB have such strategic position in the structure of allocation and distribution of economic resources, that is said to have a locational rent that is high and consisting of 3 types of economics. 1) The richness and the appropriateness of resources existing there could be used for any economic activities, 2) The coastal areas that have a high value or rather to be efficiently functional for the balanced environment, 3) Areas for various social functions.

Utilization zone of Coastal Areas of Bunaken, thus one must have a fundamental idea in formulating sustainable utilization strategy (sustainability), the protection and preservation of the development, equity and communication. Strategic utilization of coastal areas should be focused on addressing the main issue namely the use of coastal areas, which simultaneously also relates to the utilization of other issues. From these ideas, it is necessary to analyze the utilization of strategy that will accommodate the values, issues, and the use of vision. The actual coastal resources is an important resource for human survival. Bunaken coastal resource is a natural resource that is not only able to meet the needs of people or society of Bunaken but also provide a substantial contribution to the welfare of the nation. A good utilization of coastal resources will improve the welfare of mankind, and vice versa a not good use of resources would be bad for mankind.

Based on the description that explains that coastal use is very important to maintain the balance of coastal areas related to resources, space competition and pollution that needs to have the right management as a form of sustainable development (sustainability) as well as to meet the needs of human life (local communities). Therefore, this study aims to (1) identify the utilization of coastal resources of the Bunaken National Park by the people of Bunaken, (2) analyzing the Sustainability Status of Coastal Zone Resource Utilization with the local knowledge dimension, economic, Customary Law, Institutions and Politics in Bunaken Village society.

II. THEORETICAL BACKGROUND

Definition of coastal areas are still debated by many parties given the difficulty of making zoning restrictions of the coastal areas that can be used for various purposes interests. Robert Kay, 1999 classifies the understanding of coastal areas from two perspectives, namely from a scientific academic and policy in terms of management. From the scientific, Ketchum, 1972 in Kay 1999 defines the coastal areas as a belt land that borders with the ocean where processes and land use on land is directly influenced by the ocean and vice versa. The definition of coastal region from the standpoint of management policy includes a certain distance from the shoreline to the inland and certain distance towards the sea. This definition depends on the issues raised and geographical factors that are relevant to coastal landscape characteristics (Hildebrand and Norrena, 1992 in Kay, 1999). Coastal zone management involves an ongoing management of the coastal areas use and the resources therein of a predetermined area, where political boundaries are usually generated through legislative or executive decision (Jones and Westmacott, 1993 in Kay 1999).

Each stage represents a specific activity or a series of activities which provide information for the following stages: (1) determine the objectives and terms of reference, (2) arrange for the work, (3) analysis of the existing solidarity, (4) Identify opportunities for changes, (5) evaluation of the ability of the resources, (6) Alternative Rating, (7) take the best option. (8) prepare a plan, (9) Implementation, (10) Determination of the revised plan. This summarizes the ten stages of the planning process that describes the steps involved in integrated coastal zone planning. Integrated coastal zone management is a management approach that involves two or more ecosystems, resources and the utilization of an integrated manner, in order to achieve objectives in a sustainable coastal development (sustainable) thus its integration contains three dimensions; sectoral dimension, science, and ecological relevance (Dahuri, et.al., 1996)

The utilization of coastal resources of the Bunaken National Park with the social cultural condition is a condition that needs to be known in order to improve the welfare of society. Thus keep in mind what are the elements that should be considered related to the culture in the community. In general, the elements of culture that are universal, according to C. Kluckhohn in Koentjaraningrat (2003) is a language, a system of knowledge, social organization, systems of life equipment and technology, subsistence systems, Socio-Cultural, customary law, and arts. The development of socio-cultural aspects are set based on the perspective of sociology, anthropology associated with the reciprocal relationship between the community and the government as an element of socio-dimensional system with the resource that is political dimension, institutional dimension, customary law dimension, local knowledge are important aspects needed to be studied (Rambo, 1981)

Thus the community empowerment lies in their own decision making process for developing options for adaptation to changing ecological and social environment. Based on the concept of culture and meaning contained in the utilization of coastal resources, then set five dimensions of social and cultural life of coastal communities. The fifth dimension is the dimension of local knowledge, Customary Law systems, economic, institutional dimension and political. In each dimension consists of factors that were examined closely linked to the management of coastal resources.

III. RESEARCH METHOD

The research was conducted in Coastal Zone Village of Bunaken in Manado, North Sulawesi. The location of the study included the area of tourism and conservation areas in the Village of Bunaken. The determination of the location of the study was determined by intentionally (purposive) because given that the coastal areas of the Village of Bunaken is a Nature Conservation Area of Bunaken National Park support (TNB) in North Sulawesi province which covers 89 065 hectares and are determined by the Ministry of Forestry Decree No. 730 / Kpts-II / 9 and also an area that has a vital function in the marine tourism park, provider of fishery products, agricultural and plantation. This research was conducted in September 2012 until March 2014 starting from the preparation of proposal to the preparation of dissertation. The population in this study is all of the Bunaken community with the number of families 803. The determination of how many samples determined by the formula of slovin above and obtained a total sample of 89 respondents. Because of the limitations of power and lack of research time, then in this study the number of respondents who were used only 80 respondents. Analisis Multidimensional Scale (MDS) was used in the analysis of the Sustainability of TNB coastal resources utilization in the Village of Bunaken, the socio-cultural dimension of sustainability is to know the status of phase 2 in this study

IV. RESULT OF ANALYSIS

4.1 General Description

Bunaken National Park is located in North Sulawesi province designated as a National Park based on the Decree. The Minister of Forestry 730 / Kpts-II / 1991 with an area of 89,065 hectares. The footprint limit of Bunaken National Park covers the north borders on Sulawesi Sea, the east by the Sulawesi Sea and Village Wori, the south by the Manado City, and the west by the Gulf of Amurang. The park is divided into 4 sections of administrative districts / cities inside and around the TNB that consists of 24 villages / wards. Accessibility specifically from Manado City to TNB is quite good. Similarly, the general accessibility from outside of the province to get to the TNB through Manado City can be reached by the existing traffic roads by land, air, and sea.

4.2 Biophysical and Ecological Aspects

Conditions of the topography in North Sulawesi is generally hilly, causing no extensive plains that directly borders the National Park waters. Batimetry or depth in the waters of the TNB is very distinctive and is one of the features of this landscape. Relative depth of at least 200 m. In the waters of the strait between Cape of Pisok and Bunaken Island has a depth of 445 m and between Mantehage Island and Bunaken Island are 687 m depth waters. As for the distance of 3 km to the west of the island of Mantehage depths down to 1,344 m. At a distance of about 40 km west of Manado the depths of the ocean has reached 4,000 m asl.

Based on data from BTNB in 1998 then, geological classification in the TNB and the surrounding areas can be seen in the process of formation of the mainland of Sulawesi Island. On the south coast there is also a geological system in the form of volcanic rock breccia, agglomerate, tuff and lava, andesite and the basalt that are containing insertions of sandstone, mudstone, and limestone. Type of alluvial sediments, and the young alluvium derived from sediment of the mountain.

There are no major rivers flowing in the coastal region of TNB. But there are several streams from the land of Sulawesi Island flows into the Bay of Manado such as Tondano River and River of Malalayang and Tumpaan River in the Gulf of Amurang. The rivers have the potential to affect the physical condition of the waters in TNB. Source of freshwater on the island of the TNB is located on certain islands. The quality of fresh water on the island of Bunaken (especially village and sub areas of IV Alung BANUA Village of Bunaken is relatively good. But there are no sources of good quality of water in Liang Beach so the procurement for the service of visitors is taken from Manado City.

4.3 Socio-economic and Cultural Society of Bunaken Village

Bunaken community's economy is generally supported by two main provider, namely the results of marine and agriculture. The agricultural sector in general includes the results of which were made of coconut copra, bananas, cloves, nutmeg, corn and root crops. Nevertheless, there are only a few people in Bunaken Village that owns agricultural lands. Most of the Bunaken people have this status of sharecroppers and farm workers.

The people of Bunaken have various living source which are used to fulfill their daily needs. But the kind of living source that is dominantly done by the people Bunaken is as a fisherman and farmer. Those jobs are done in accordance to each and every seasons, if it were west season, then the people would not go to the sea, but rather doing some farming and other jobs that could be used to gaining income, but if it were east season, then they would go to the sea. The people of Bunaken whose living is in a coastal area are very attached to the use of coastal resources.

Coastal resources are the resources allocated to them in their survival with the socio-cultural values of the people who refer to the principle of Somehe Kaykehage (From the tribe of Sangihe) and Sitou Tumou Tou from Minahasa tribe.

Number of Bunaken Island community are 803 households, the number of men are 1.417 and the female are 1,519 inhabitants . The village is the center of tourist activity. Population by sex in the coastal areas of the TNB is almost equal. The total of people living in the village of Bunaken the number of men are dominating than women . Population by religion, there are three classes of religion embraced by the people in the TNB namely Christianity, Islam and Catholic. Each ethnic group is able to assimilate and adapt to each other.

Tradition and cultures of the people of Bunaken and developing are traditional culture coming from the ethnics living in that particular area. The diversity of culture of the people in the coastal region of TNB is relatively high. Currently there are 8 groups of ethnics such as Sangihe, Siau, Bantik, Minahasa, Bajo, Gorontalo, Bugis and Buton.

The Sangihe ethnic and Siau are the one who dominate the number of the entire area of TNB. Bantik ethnic is the native ethnic of all; most of them are living in the coastal area of North Sulawesi. Minahasa ethnic is the native ethnic whom are generally living in mountainous areas and tend to have an agricultural tradition (planting crops and farming). Sangir ethnic is a newcomer from the land of Sangir and Siau in the gulf of north land from the peak land of north Sulawesi.

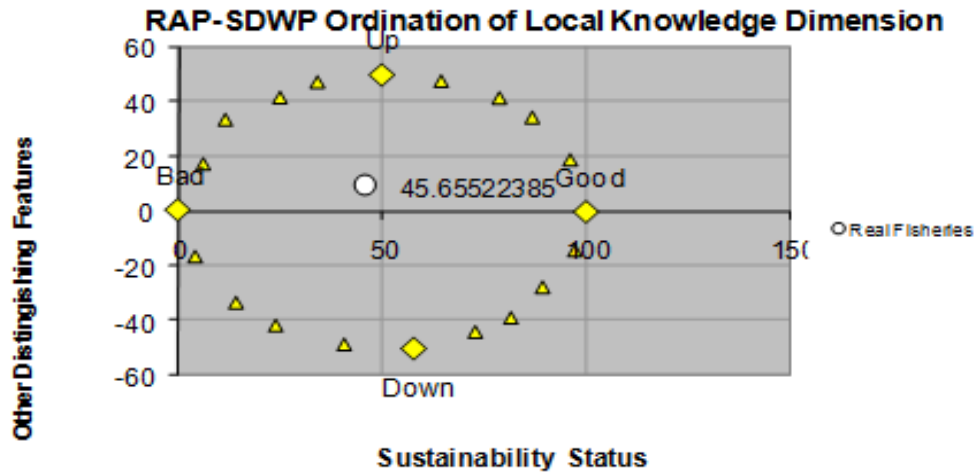
The average education of the people of Bunaken village is still low. Almost all of the people of that particular area would only have educational background as a student of Elementary School (BTNB, 2009). Other factor that influences aside from the economic problems is the availability of infrastructures for the education activities that are very limited in the coastal region of TNB. It has been recorded that around 2 Elementary Schools, 1 Kindergarten, 1 Middle School, as well as the availability of educational enforcements, 5 teachers for Kindergarten, 8 teachers for the Elementary School, 4 teachers for the Middle School. This could represent that the people in village of Bunaken are very in need of a help mainly in the educational infrastructures.

V. Sustainability of the Coastal Zone Resource Utilization in Bunaken National Park in Bunaken

Utilization of the resources in a coastal region sustainably means to manage all activities related to the development of coastal areas that do not exceed the total impact on functional capacity. Coastal resources has a basic function for human living sources namely (1) life support services, (2) the convenience services, and (3) a provider of natural resources, utilization of coastal resources is strongly influenced by the local community livelihood.

1. Dimensions Local Knowledge

Dimensions of sustainability index value of local knowledge is at 45.65522385 on a scale of 0-100 sustainability and fall into the category of less sustainable it means that the resource utilization of the coastal areas of Bunaken National Park is still lacking in paying attention to the aspects of local knowledge. Based on the analysis of leverage, the results showed that there were eight attributes that are sensitive (having ordinate value greater than 1) influencing the sustainability dimension of local knowledge. The eighth attributes are the mechanism of conservation efforts, the mechanisms in the management and utilization of Coastal Resources, perception and conception of conservation, management system and utilization of the SDP, perception and conception of systems and mechanisms in the use of SDP, effectiveness of enforcement of regulations, enforcement mechanisms and sanctions for rule violations and the form of and sanctions for violations the setting.



Picture 1. Diagram of Sustainability Dimension of Local Knowledge

2. Dimension of Economic

Economic dimensions of sustainability index value amounted to 50.22850418 on a scale of 0-100 sustainability and fall into the category of sufficiently sustainable and that it means the utilization of resources of Bunaken National Park coastal area fairly pay attention to the economic aspect. Based on the analysis of leverage, the results showed that out of 9 attributes, there are five attributes that are sensitive (having ordinate value greater than 1) influencing the sustainability of the economic dimension. The fifth sensitive attributes are views towards innovation of technology used (including an understanding of environmentally friendly technologies), job specialization, Diversification of MPA, Public Attitudes toward Social Security, functional skills possessed and large investment rate in production.

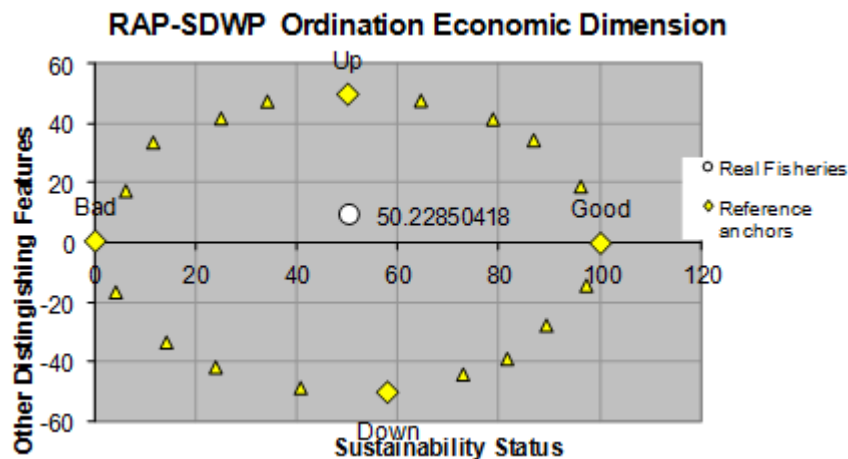


Figure 2. Diagram of Sustainability of Economic Dimension

3. Dimension of Institutional

Sustainability index value on the institutional dimension amounted to 51.77591 on a scale of 0-100 sustainability and fall into the category of sufficiently sustainable and that it means the utilization of resources of Bunaken National Park of coastal areas are fairly paying attention to the institutional aspects. Based on the analysis of leverage, it can be seen that there are six attributes that are sensitive (having ordinate value greater than 1) influencing the sustainability of the institutional dimension. The attribute of rules of the agency on the institutional dimension is the most sensitive attribute affecting the level of sustainability of the institutional dimension, the second attributes that are influencing the institutional dimension are the limit of authority, the third attribute is rule representation, then conflict management, Nature of Institute, and the last are formation process.

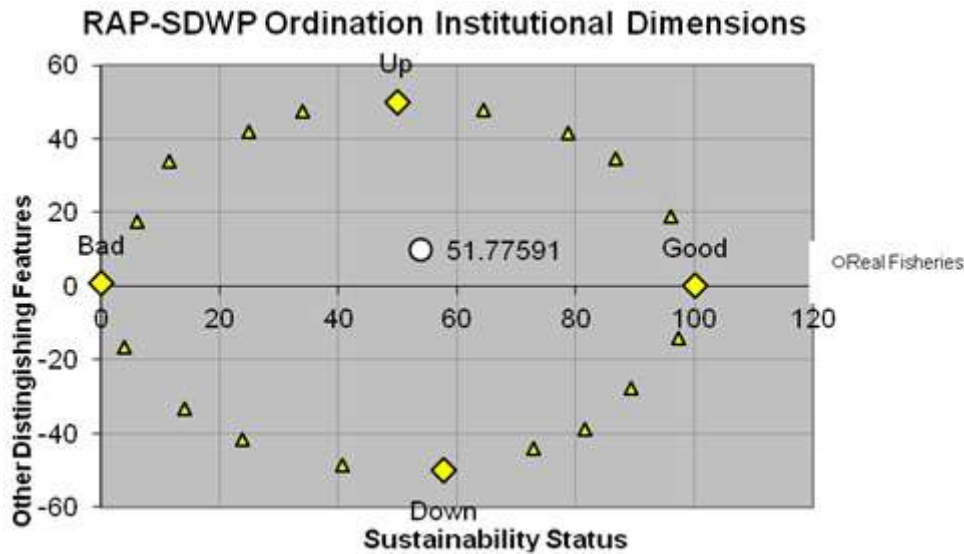


Figure 3. The Institutional Dimensions of Sustainability Diagram

4. Dimension of Customary Law

The sustainability index value on the dimension of customary law are 48.03555298 on a scale of 0-100 sustainability and fall into the category of less sustainable and that it means the utilization of resources of coastal areas of Bunaken National Park is less in paying attention to the aspect of customary law. Based on the analysis of leverage (Figure 6.17), the results showed that there are 5 attributes that are sensitive (having ordinate value greater than 1) influencing the the sustainability of the dimension of customary law. The five sensitive attributes are the role of the community leaders, this attribute is the most sensitive attribute that are affecting the level of the sustainability in the dimension of customary law. The second attribute that is sensitive to the sustainability of the dimension of customary law is the symbolic relationship between customary law and beliefs with the economic activities of the society. The next attribute is the purpose and meaning of the customary law associated with the local economy. Then the next sensitive attribute is the view and beliefs about the relationship between the customary law and the economic activities of the community. The last attribute that is affecting the sustainability of the dimension of customary law is the law of the existing customs and beliefs.

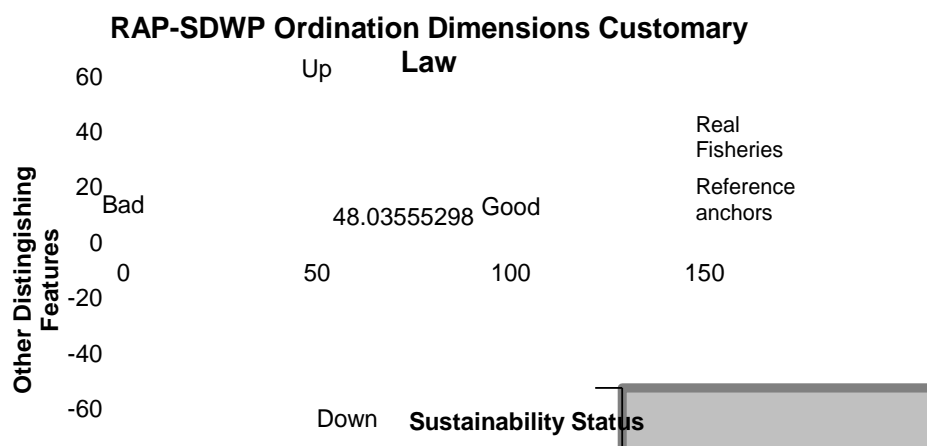


Figure 4. Diagram of Sustainability of the Dimension of the Customary Law

5. Dimension of Politic

The sustainability index value on the political dimension amounted to 52.4018 on a scale of 0-100 sustainability and fall into the category of sufficiently sustainable and that it means the utilization of resources of coastal areas of Bunaken National Park is fairly paying enough attention to the political aspects. Based on the analysis of leverage, it can be seen that there are six attributes that are sensitive (having ordinate value greater than 1) influencing the political dimension sustainability. The decision making process / rules of public representation are the most sensitive attributes that are affecting the level of the sustainability of the political dimension. The second attributes that are affecting the sustainability of the political dimension are the

relationship of forces and the political process in the government, then the Leadership according to the Bunaken community, furthermore is the relationship of leadership of local power holders with the outside, then the support to the leadership of the community, and the last is an assessment of community leadership.

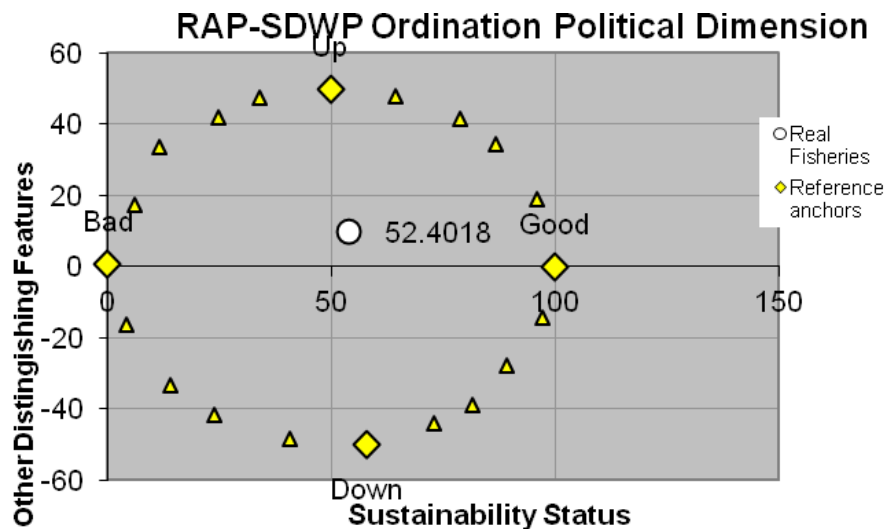


Figure 5. Diagram of Sustainability of the Political Dimension

6. Multi dimensionals

The results of the analysis of the MDS method produces Sustainability Index valu of resources of the coastal areas in the Bunaken National Park amounted to 52.965415 on a scale of sustainability 0-100 and fall into the category of sufficiently sustainable (the value of the index is at an interval of values 50-75). This value is obtained based on the assessment of the 34 attributes of the five dimensions of sustainability that are influential sensitive or need to be intervened to improve the status of resource sustainability of coastal areas in Bunaken National Park of Bunaken.

It can be seen that the status of the resource sustainability of the coastal areas of Bunaken National Park that the most sensitive dimension influencing the sustainability index is the political dimension, the second influential dimension is the institutional knowledge, then the dimension of the customary law and the economic dimension and the last dimension that is affecting the level of sustainability of resources of the coastal areas in Bunaken National Park of Bunaken is the dimension of local knowledge.

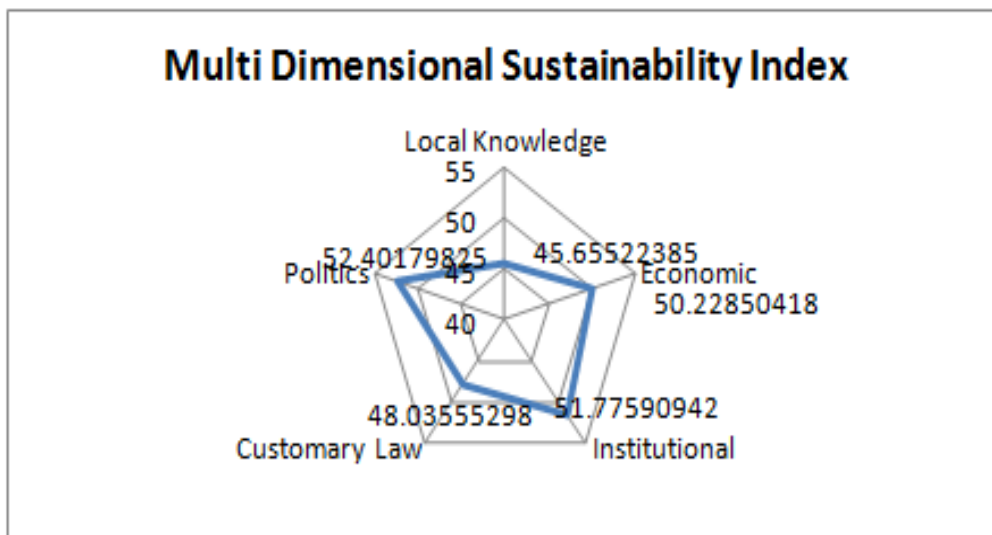


Figure 6. Diagram of Kite (Kite Diagram)

6. Conclusion and Suggestion

Coral reef resources have a high diversity of species and becoming an habitat conservation core but the condition of the coral cover decreased over 31.8%. Mangrove forests are still young, the community activities

are still penetrating the mangrove areas to the expansion of their plantations, harvesting of mangroves for firewoods and boat equipment.

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Some of the recommendations made is the need for a team of work which gives an important role to the local community leaders to participate in conservation activities in TNB in Bunaken. For Sustainability Management, and the Coastal Resource Utilization thus recommended in policy and decision-making to all involved in the management of coastal resources Bunaken is the need of a better assessment of the local social and cultural situation.

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