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The Sustainability Status of Ujong Baroh Fish Landing Port Facility Management in West Aceh District, Indonesia

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Abstract *: Ujong Baroh Fish Landing Port (FLP) is a type D fishing port which is an important infrastructure in small-scale capture fisheries activities. But there are some obstacles in the management of the FLP. Improper management can have an impact on the optimal utilization of facilities and activities that are not active. This is a challenge for the Regional Government of West Aceh. Therefore, Meulaboh FLP needs to be supported by a suitable management by involving the relevant agencies. Thus this research is very important to be carried out regarding the sustainability status of the optimal management of Fish Landing Port facilities. The results of the study showed that there are four dimensions that have sustainability covering the ecological dimension 57.43, economic dimensions 62.93, socio-cultural dimensions 76.08, technological dimensions 57.54, with 24 attributes while there is one institutional dimension 32.76 by having 6 attributes that do not have less sustainability in managing Ujong Baroh Fish Landing Port facilities.*
Keywords *: sustainability; managing; FLP; Meulaboh*

I. Introduction

West Aceh Regency is a region of Aceh Province that has a fairly good developing fisheries sector, Ujong Baroh FLP has a good prospect because it has several advantages, including the types of economically valuable catches, such as mackerel, pomfret, skipjack, and cob. In addition, the Ujong Kalak FLP is located near to the main highway of the city of Meulaboh, which is about 200 m away and is an access to potentially marketing catches to major cities such as Blang Pidie, Nagan Raya, Banda Aceh, and Medan.

This is one of the attractions for migrant fishermen from other districts to land their catch at FLP Ujong Baroh. Unfortunately, it can be seen from the direct field observation that Ujong Baroh FLP has not been managed properly, the office buildings are feasible but not yet functioning, and the FLP technical service unit is not yet running.

Ujong Baroh Fish Landing Port (FLP) is a type D fishing port which is an important infrastructure in small-scale capture fisheries activities. But there are some obstacles in the management of FLP itself. Improper management can have an impact on the optimal utilization of facilities and activities that are not active. This has been a challenge for the Regional Government of West Aceh.

Therefore, Meulaboh FLP needs to be supported by a suitable management by involving the relevant agencies. Thus this research is very important to be carried out regarding the sustainability status of the optimal management of Fish Landing Port facilities.

II. Research Methodology

This research was carried out at Ujong Baroh FLP, The data is gathered in two months from May to June 2018.

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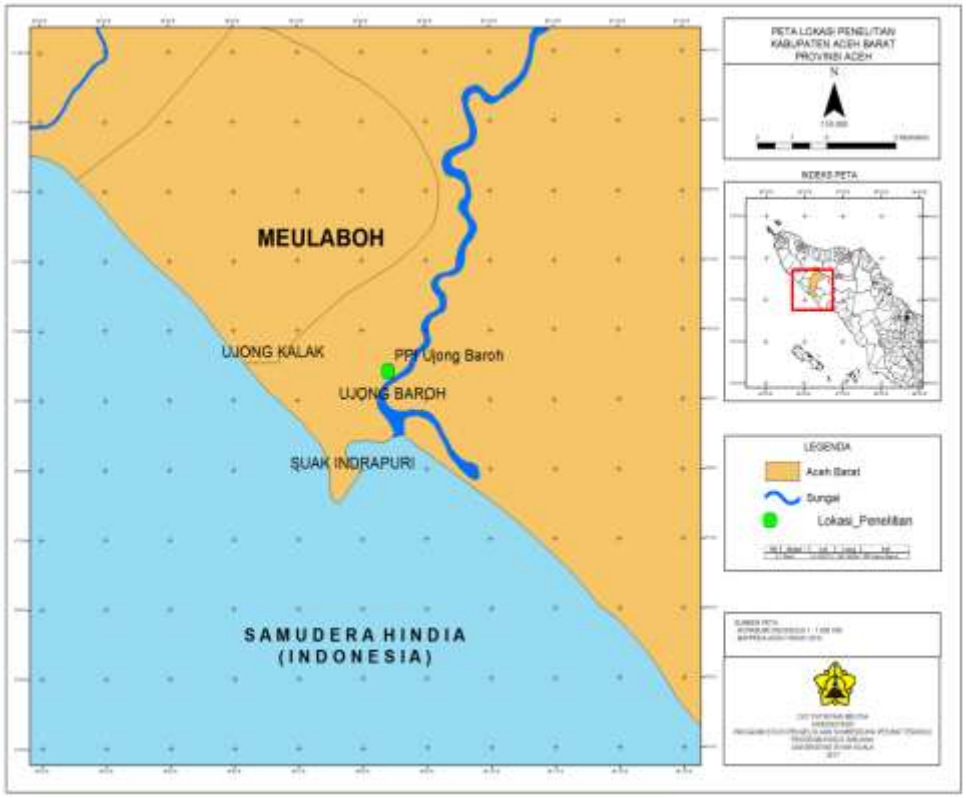

Figure. 1 Research Location Map

The method used in this study was a case study method of managing the sustainability status of Ujong Baroh Fish Landing Port Facility in West Aceh Regency. Samples taken by using the purposive sampling method were the data taken specifically from DKP, BPS, FLP Managers and fishermen.

Primary data was obtained through the interviews with relevant parties and direct observation guided by the existing questionnaire. Secondary data was supporting data obtained through information and written reports from relevant agencies.

The data analysis used in this study was the analysis of sustainability conditions by using multi dimensional scaling using *RAPFISH. RAPFISH* Sustainability Analysis

The sustainability analysis of the fish landing port management is carried out through several stages, namely the stages of determining the attributes of sustainable fish port fund management that cover five dimensions (ecological dimensions, economic dimensions, socio-cultural dimensions, institutional dimensions, and technological dimensions). The assessment stage of each attribute on an ordinal scale is based on continuous criteria for each dimension, oration analysis based on the multidimensional scaling (MDS) method, index compilation and the sustainability status of the fish landing port management are reviewed both in general and in each dimension (Fauzi and Anna, 2002).

The five dimensions will simultaneously influence the sustainability of the facilities and management of fish landing ports. Each of these dimensions has its own attributes and criteria which reflect the influence on the sustainability of the relevant dimensions. The various attributes and criteria used are determined based on the preferences of experts and stakeholders.

The number of ranks for each attribute is determined by the availability of literature that can be used to determine the number of ranks. (Susilo, 2003) the attributes used to assess the sustainability of fish landing port facilities in each dimension are as follows:

The attributes that will be studied in the ecological dimension include: the condition of the aquatic environment, the degree of adaptation to fishing, fishing activities, the type of fishing gear, the volume of fishing gear, and the condition of the fish landing port. The attributes that will be studied in the economic dimension include: the regional income contribution, economic value, income level, export sales value, and number of catches. The attributes that will be assessed in the socio-cultural dimension include: stakeholder perceptions, catch equity, local wisdom, community empowerment, social togetherness, and fish landing port management policies. The attributes that will be assessed on the institutional dimensions include: aspects of the legality of the ship / fishing gear, the effectiveness of arrests, fishing facilities and infrastructure, institutional development, institutional assistance and cultural values. The attributes that will be studied in the technology dimension include: the condition of the landing site, the level of mastery of fisherman technology, the form of processing before sale, the level of utilization of information, the availability of technology, the nature and type of fishing gear.

The assessment of the scores of each attribute was analyzed in a multidimensional manner to determine one or several points that reflected the position of the marine fisheries-based business that was studied against two reference points, namely the good point and bad points. To facilitate the ordinance Rab-FA FLP uses Multi Scaling Dimensional rapfish software (Kavanagh, 2001). This rapfish software is an MDS development that is in SPSS software, the rotation process, flipping, and some sensitivity analysis has been integrated into software. Through MDS, the position of the sustainability point can be visualized in two dimensions (horizontal and vertical axis). To project these points on a horizontal line, the rotation process is carried out, with extreme extremes being given a score of 0% and an extreme point both given a score of 100%. The sustainability position of the system under study will be between these two extreme points, this value is the value of the sustainability index of marine fisheries-based business development carried out by stakeholders in West Aceh.

Table 1. Category of index value and sustainability status of FA FLP. Based on the analysis index value of MDS

Index Value	Category
0-25	Bad/ Not sustainable
26-50	Less sustainable
51-75	Fairly sustainable
76-100	Good/ Very sustainable

Source : Kavanagh (2001) dalam Edwarsyah (2008)

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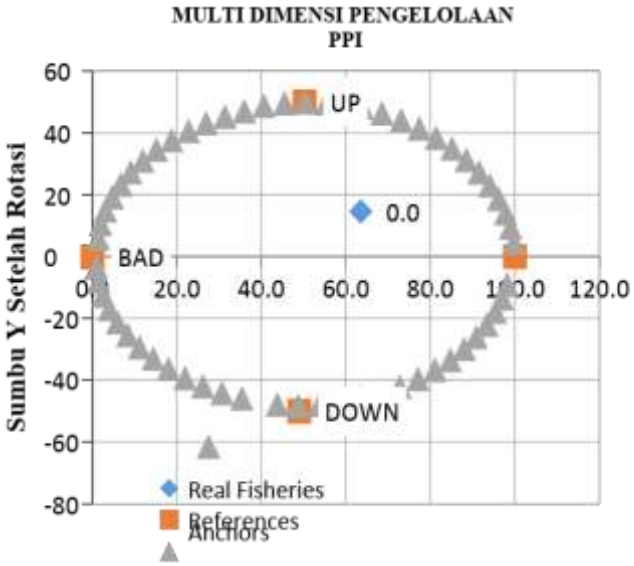
III. Discussion

Multidimensional Rap-facility analysis using ordination techniques through MDS method produces the continuity index value shown in Figure 10 Index value is 63.5. The results of multidimensional analysis values are included in the continuous category, because their values are at the intervals of 76-100. This index value is obtained based on 60 attributes covered by five dimensions, namely ecological dimensions (6 attributes), economics (6 attributes), socio-cultural (6 attributes), technology and institutions (6 attributes). (See figure 2)



FLP of West Aceh	Sustainability	
	INDEX	STATUS
	63,5	Good/ Very Sustainable
	Stres : 0,1256	
	R^2 : 0,956	

Figure 2. Multidimensional Index Analysis and Sustainability Status of FLP Management.

Based on Figure 2, it is known that the institutional dimension has a good or sustainable sustainability index. It can be seen from the conditions of management and fishing gear used which still support the continuity of its sustainability.

To see the attributes that are sensitive and contribute to the value of the sustainability index, MDS analysis is carried out with the analysis. It can be seen that the value of attribute changes to the ordination axis X. The results of the MDS analysis are presented based on each dimension used.

3.1 Ecological Dimension

The attributes used to see the effect of the ecological dimension on the sustainability of fish landing port facilities are as many as six (6) elements. Based on the results of the analysis, the ecological dimension of sustainability is 54.43, which is included in the sustainable category.

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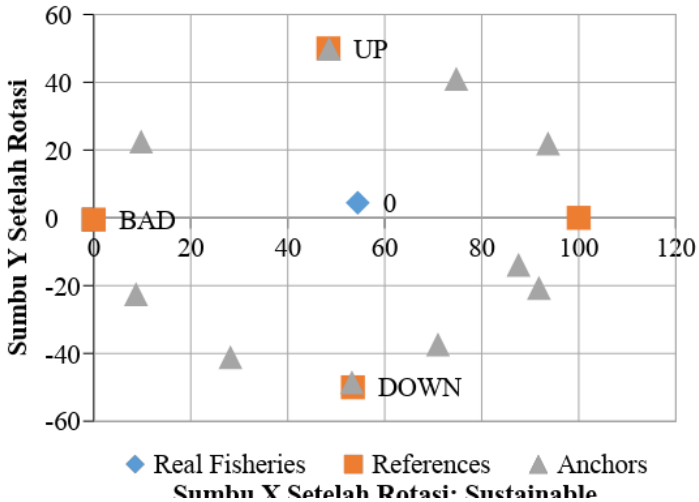

Figure 3. The results of the Rapfish analysis show an ecological dimension sustainability index

Then in the economical dimension there are five (5) elements that are sensitive which are influenced after leverage analysis, namely: (1) Level of fishing adjustment, (2) Catching activity, (3) type of fishing gear, (4) fishing gear volume, (5) condition of FLP. The results of all these dimensions can be seen in Figure 4 below:

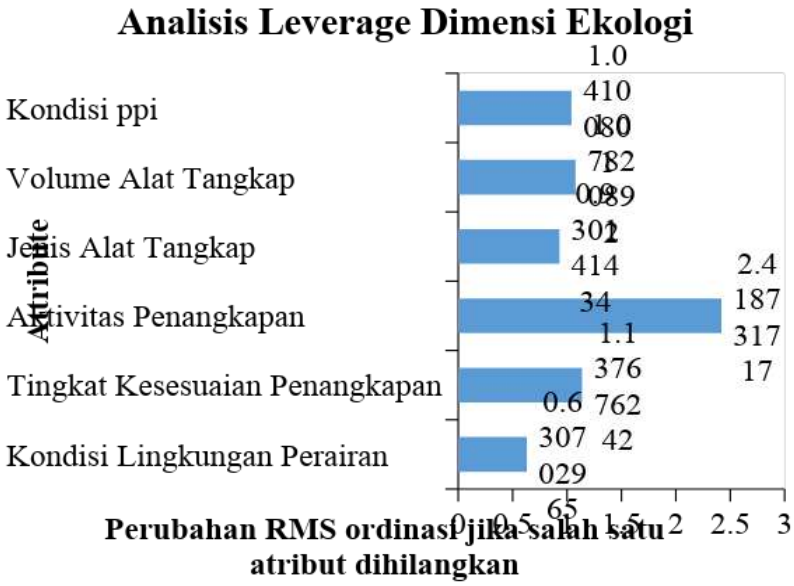

Figure 4 The role of each ecological attribute is expressed in the form of Root Mean Square (RMS).

Some sensitive attributes that have an impact on sustainability such as the suitability of the current location of fish landing ports as fishing ports which are located in narrow locations and also the public whose majority of non fishermen but construction workers, teachers, civil servants and the private sector. This is very disturbing to the surrounding community from noise and odor. This is because the development of a dense location is increasingly rapidly requiring solutions to regional spatial problems.

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Other support is that the wide area of Ujong baroh fish landing port is not suitable, according to the maritime and fisheries department (2004) regarding the technical criteria for port types, fish landing bases including type D at least have at least 2 hectares of land. Because the fish landing port is in a residential area. It is necessary to improve the system of building physical facilities so that they can be maintained now and in the future. Lack of counseling about the condition of FLP which results in FLP the minimization in its usage.

3.2 Economic Dimension

The economic dimension uses six (6) attributes / elements to predict the effect of sustainability on fish landing port facilities. The results of the analysis showed that the value of the sustainability of the economic dimension was 54.43 which was categorized as sustainable (see the appendix). Leverage analysis was used to see the sensitive attributes that have a sensitive influence on the sustainability index value. The results of the analysis can be seen in the following figure.

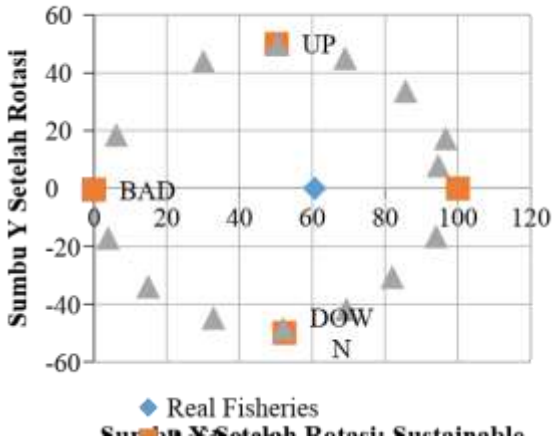

Figure 5. The results of the Rapfish analysis showed an economic dimension sustainability index.

Then based on the analysis shows there are six (6) variables, namely: (1) regional income contribution, (2) capture volume, (3) economic value, (4) income level, (5) export selling value (6) catch amount. In communities based market,, fish landing has met the technical criteria for port types, fish landing bases including type D which are of local marketing nature.

The number of landed fishery commodities was quite a lot and it still needed to be added to increase the economic value of the base. The running of the base activity was the amount of labor that was in accordance with the standards of the fish landing base. The existence of a fish landing base could increase the economic growth of the local community by making cheap purchases and it could also benefit from sales outside the fish landing bases (retailers). The other important thing was the consumption level of the Ujong Baroh people who was high in fish consumption, which means have a high level of consumer dependence with the existence of a fish landing base.

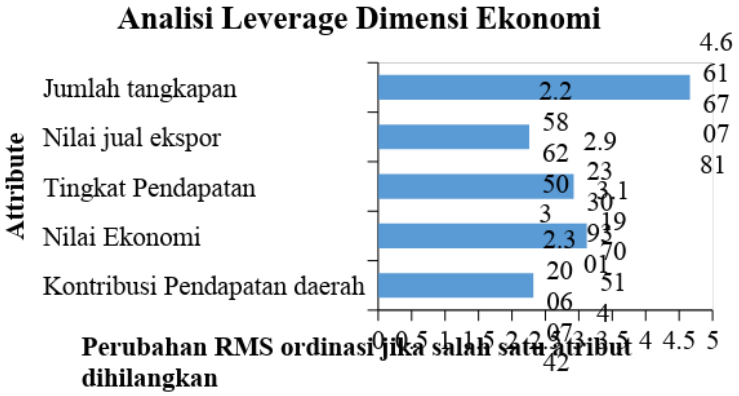

Figure 6. The role of each economic attribute explained in the form of Root Mean Square (RMS)

3.3 Socio-cultural Dimension

The socio-cultural dimension used six (6) attributes / elements to predict the effect of sustainability on fish landing base facilities. Based on the results of the analysis, the value of the socio-cultural dimension of 76.08 including the fairly sustainable category could be seen in the appendix.

To see sensitive attributes that had a sensitive influence on the sustainability index value using leverage analysis. Based on the analysis, there were six (6), namely: (1) stakeholder perceptions, (2) equal distribution of catches, (3) local wisdom, (4) community empowerment, (5) social togetherness, (6) PPI management policies. The results of the analysis can be seen in the following figure.

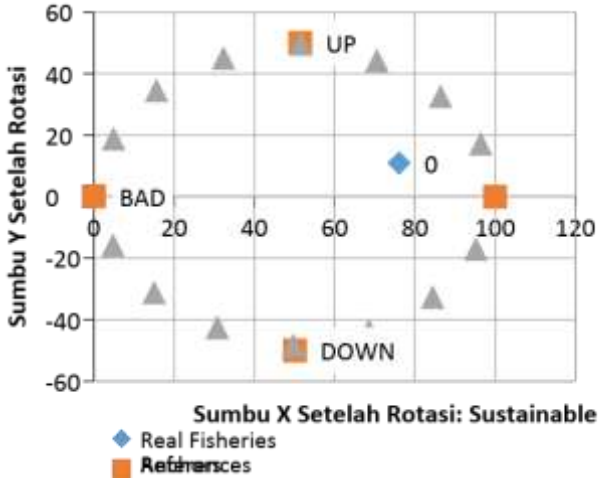

Figure 7. The results of the Rapfish analysis which show the sustainability index of the socio-cultural dimension

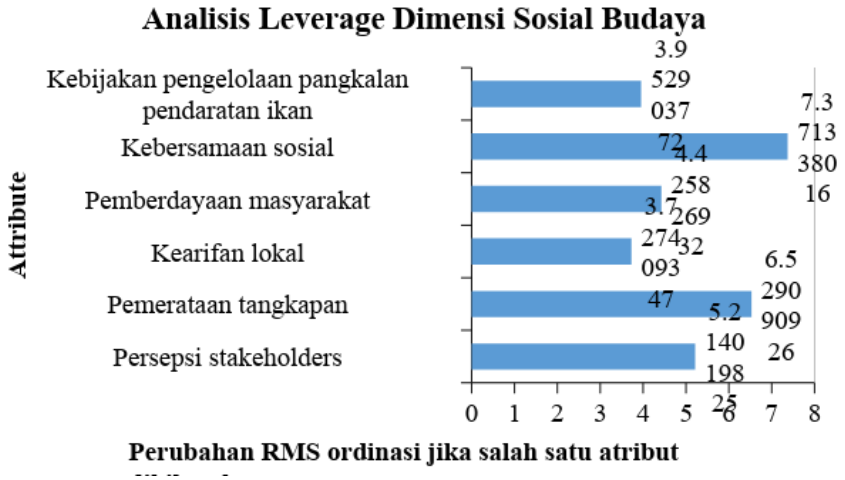

Figure 8. The role of each socio-cultural attribute explained in the form of Root Mean Square (RMS)

The level of social togetherness in fisheries activities was currently high and had been maximized. Very rare conflict between base and surrounding residents happened because community empowerment had been increasing. While educators in fisheries activities at the base of fish landings were still low, only up to high schools, it still needed to increase the human resources in the future. The community empowerment activities in fisheries activities at the fish landing base was important. Therefore it was necessary to educate the community to grow and develop the fish landing bases that will be able to increase community participation.

3.4 Institutional Dimension

The institutional dimension used six (6) attributes / elements to predict the effect of sustainability on fish landing base facilities. Based on the analysis, the institutional sustainability values 32.76 included in the sustainability category can be seen in the appendix.

To see the attributes which were sensitive in giving sensitive effects to the value of the sustainability index using leverage analysis. Based on the analysis, there were six (6), namely: (1) legality aspects of the ship / fishing gear, (2) effectiveness of arrest, (3) fishing facilities and infrastructure, (4) institutional development, (5) institutional assistance, (6) value culture. The results of the analysis can be seen in the following figure.

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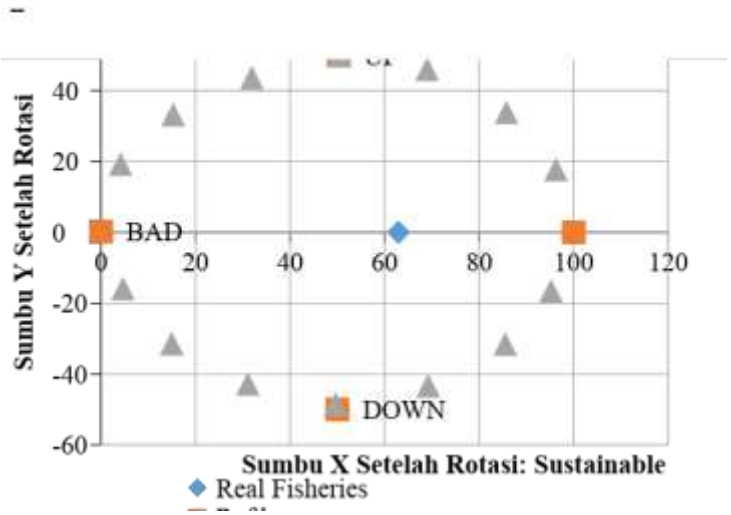

Figure 9. Results of Rapfish analysis that shows the sustainability index of institutional dimensions

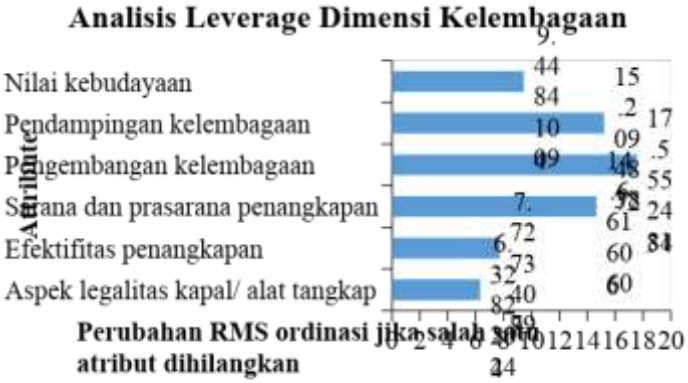

Figure 10. Role of each institutional attribute explained in the form of Root Mean Square (RMS)

The mechanism of cooperation in the management of fish landing bases needed to be improved in government support for the construction at the fish landing base. Based on leverage analysis, data showed that the attributes of developmental development which had the highest value of 17.56, in the second position there were attributes of community companion (15.21) and the third position were attributes facilities and infrastructure with values (14.66) which had to pay more attention to sustainability Ujong Baroh PPI facility institutional dimension.

3.5 Technology Dimension

The technological dimension uses six (6) scales / elements to predict the effect of sustainability on fish landing base facilities. Based on the results of the analysis, the value of

technological sustainability of 57.54 was included in the sustainable category. It could be seen in the appendix.

To see sensitive attributes which had a sensitive influence on the sustainability index value using leverage analysis, based on the analysis, there were six (6), namely: (1) the condition of landing sites, (2) the level of mastery of fisherman technology, (3) the form of processing before sale, (4) the level of utilization of information, (5) the nature and type of equipment, (6) availability of technology. The results of the analysis could be seen in the following figure.

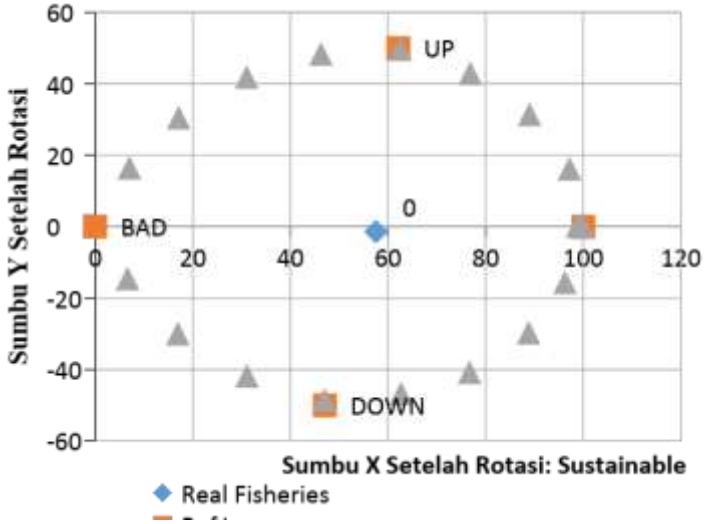

Figure 11. Results of Rapfish analysis that shows the technology dimension sustainability index

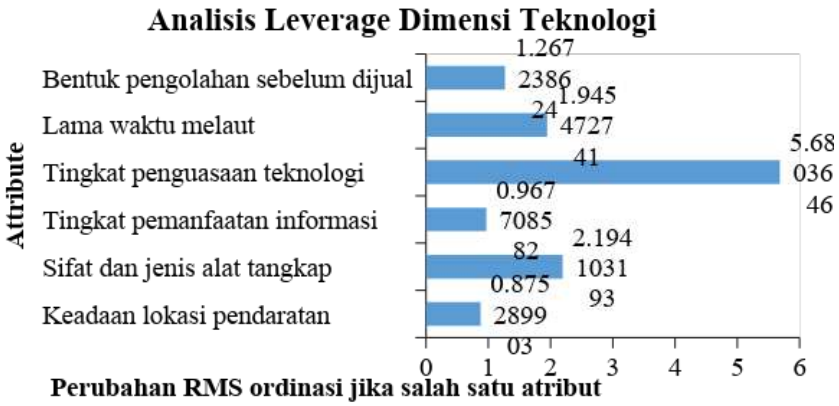

Figure 12. The role of each technology attribute explained in the form of Root Mean Square (RMS)

It was necessary to build access to the development of technology for fish landing bases to become places of education and knowledge in the field of fisheries. It was also necessary for the builders of fisheries waste treatment technology to be processed into fish food and in order to increase the economic value of fish landing bases in the future. As well as the need to make an information technology network the level of mastery of fishermen in the future.

Provision of physical facilities was a major supporting factor that must be available and continued to be developed for the management of fish landing bases. In terms of environmental monitoring, it was now available and needed to be increased in frequency, so that changes in the environment at the fish landing base were always monitored and recorded.

IV. Conclusion

Based on the results of the study, it showed that there were four dimensions that had sustainability which included the ecological dimension 57.43, economic dimensions 62.93, socio-cultural dimensions 76.08, technological dimensions 57.54, with 24 attributes while there was one institutional dimension 32.76 by having 6 attributes that had less sustainability in managing Ujong Baroh Fish Landing Base facilities.

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