UDC 332

ANALYSIS OF SUSTAINABILITY OF CONSERVATION AREA MANAGEMENT AT BENA PLANTS HUNTING PARK

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ABSTRACT

This study was conducted to determine the status of the sustainable management of the Dataran Bena Hunting Park. The method used in this research is a survey and data collection is carried out through interviews using a structured questionnaire consisting of 5 dimensions of sustainability, namely the ecological dimension, the economic dimension, the social dimension, the infrastructure dimension and the legal-institutional dimension. Data processing uses RAPFISH software and is presented in the form of graphs and tables. The results of this study indicate that the socio-legal dimension of the institution obtains a sustainability index value of 66.28 (enough), the ecological dimension of 73.61 (enough), the infrastructure dimension of 60.1 (enough). Overall, TBDB's multi-dimensional analysis of sustainability obtained a sustainability index value of 72.8 which is included in the moderately sustainable category. Sustainability indicators, notably in the infrastructural dimension, such as the provision of hunting equipment, security facilities within the TBDB territory, and amenities for game animals, must be improved.

The conservation of natural resources and the environment (KSDAL) is the duty of all human beings on the planet since the ecological consequences resulting from varied development activities are not restricted by distinctions in administrative territories of the state government. As a result, conservation activities must be integrated into development. Any country's development will be linked to the interests of other countries and international interests (Christanto, 2014).

Natural resources, which have been the primary drivers of national growth, must be evaluated for long-term management in order to meet the needs of present and future generations (Naess, 2001; Rist et al., 2007; Garvare, R., & Johansson, 2010; Christanto, 2014; Rosana et al., 2018). Prathama et al., 2020). To that end, various policies, efforts, and sustainable activities have been implemented to maintain the existence of natural resources as capital in national development in the context of realizing the welfare of the entire nation while maintaining the carrying capacity and functions of the environment.

Several studies related to the phenomenon of environmental damageMaheras (2002), Kim et al. (2006), Lal (20212), Molina-Pfennig & Covarrubias (2017), Peng et al. (2017), Modi (2020), that the phenomena that occurs as a result of environmental deterioration, resulting in the extinction of many animal and plant species, has become a widespread concern in all parts of the world. This situation necessitates immediate human intervention to conserve and preserve the ecosystem in order for it to continue to support sustainable livelihoods on the planet's surface. The construction of conservation zones is one of the real acts that are currently being echoed and mobilized in many regions of the world to preserve the environment.

Management and development of conservation areas is aimed at maintaining the preservation of living natural resources and their ecosystems (Mazurek-Kusiak, A., & Soroka, 2016; Hajnalka, 2016; Utami & Pancasilawan, 2017; Ratner, S., & Iosifov, 2017; Guamba, 2021; Harahab et al., 2021; Kuuluvainen et al., 2021). The role of natural resources and the

environment (SDAL) is very important in national development, both as a provider of raw materials for economic development and as a supporter of living systems.

According to Kaiser et al. (2019) and Artellle et al. (2019), it is critical to carry out conservation measures in order to address the issues of declining biodiversity and environmental degradation. Datran Bena Hunting Park (TBDB) is one among the places in South Central Timor Regency (TTS) that are managed by the KSDA I NTT Headquarters. This TBDB area, like its function as a hunting park, should be developed and used as a legal hunting location with various hunting facilities such as game animals, hunting equipment, and so on, so that TBDB activities can run according to their functions and provide benefits according to their functions, both socioeconomic functions and functions. Environmental sustainability The purpose of this study was to establish the long-term viability of the Dataran Bena Buru Park.

METHODS OF RESEARCH

This research was conducted in October-November 2020 at the Buru Dataran Bena Park, South Central Timor Regency - East Nusa Tenggara. The tools used in this study include questionnaires, interview guides, checklists, GPS, Canon DSLR cameras, HP Samsung J2 Pro recorders, roll meters, HTC-2 Digital LCD Thermometer Hygrometers, notebooks and so on which will be adjusted in the field. The materials used in this study are research checklists, TBDB map softfiles, AVENZA mapping application and general population social description data around the TBDB area.

The data collected consists of daThe primary data were sourced from the community living around the TBDB area, interviewed by TBDB resort staff. Primary data collection was carried out through surveys and interviews using a structured list of questions (questionnaires) and direct data collection in the field. Secondary data obtained from the relevant agencies. The data collected includes ecological data, availability of infrastructure, legal-institutional facilities, income and expenditure of hunting parks, community income, conflicts.

The results of the research for the sustainability status of the Dataran Bena Buru Park were analyzed using multidimensional analysis with an analytical tool in the form of Rapid Appraisal for fisheries status or commonly referred to as RAPFISH. The results of data processing are presented in the form of graphs and tables. The conclusion draws on the sustainability index standard according to Suryana et al (2012), as follows:

Very Appropriate = (75 – 100%);
Corresponding = (50 - < 75%);
It is not in accordance with = (< 50 %).

RESULTS AND DISCUSSION

The analysis of the sustainability status in this study is viewed from the legal and institutional social dimensions as well as the ecological dimensions. Based on the results of interviews with people living around the TBDB area, it is known that the sustainability status of TBDB from the point of view of the social, legal and institutional dimensions has a fairly sustainable percentage. This is shown in the results of data processing with the RAPFISH application where the visualization of the value index (Figure 4.10) shows that the average value for the social dimension of institutional law is 66.28. This research was supported byWibowo (2015),that the status of legal and institutional sustainability becomes very important to study. As well, Referring to the opinion of Suryana, et al (2012) which states that the value of sustainability status which ranges from 51 to 75 is categorized as "enough". Therefore, with the acquisition of a score of 66 on the value index of the legal-institutional social dimension, it can be said that the sustainability status of TBDB is quite sustainable.
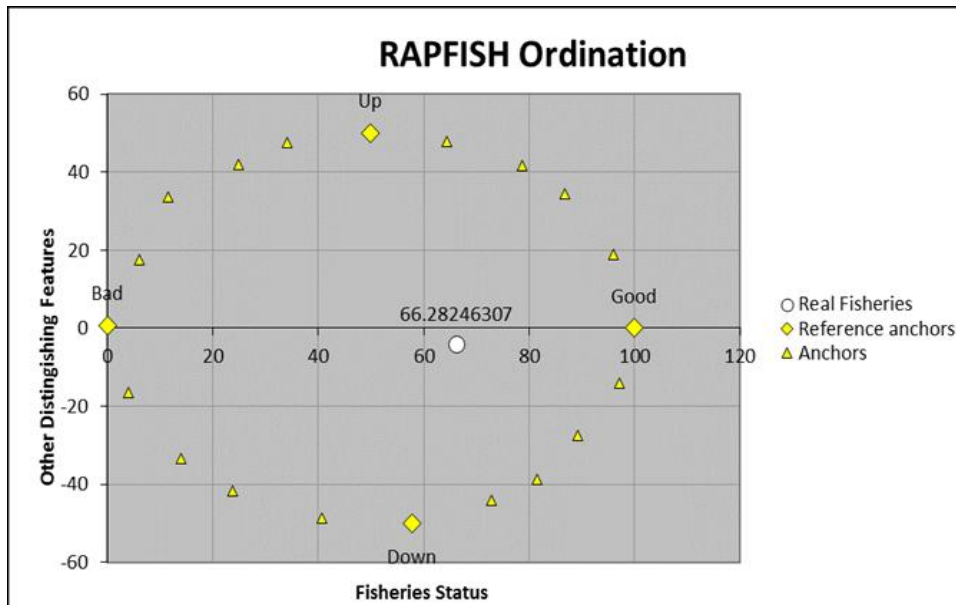
Figure 1 – Value Index of Institutional Socio-Legal Dimensions

Meanwhile, with regard to TBDB sustainability, the most sensitive indicator of TBDB sustainability is the activities allowed in TBDB with a value in the leverage analysis of 3.16 followed by the benefits of TBDB existence (Figure 2).
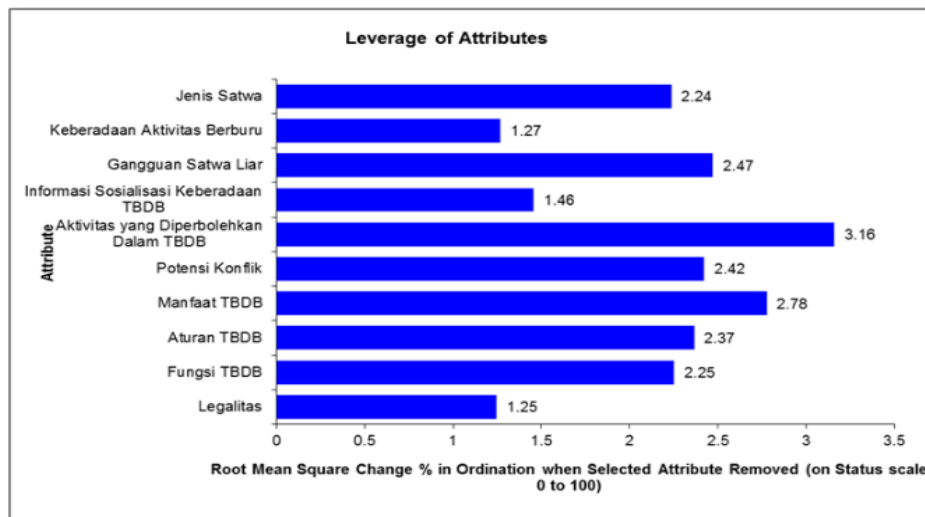

Figure 2 – Results of Laverage Attribute Data Processing

According to people in the vicinity of TBDB, the TBDB management permits the community to take firewood for cooking purposes and to sell black kabesak seeds. Furthermore, TBDB empowers the community by utilizing Lake Kubai, which is located within TBDB, as a community pond. The numerous fish seeds sown in TBDB Lake are used not just as a source of food for wild creatures such huge egrets and crocodiles, but also by the community to meet economic demands through a common harvesting system. Fish caught in Lake Kubai can be sold or eaten by the locals.

Matter this is also supported by the opinion of local residents when asked about the benefits of having TBDB (Figure 3) for their daily lives. According to Daniel Na'u (50), TBDB allows them to take forest products contained in the TBDB area but also with the condition that they follow various TBDB rules.

"We can take tamarind, kabesak seeds, firewood, catch fish, etc," said Daniel Na'u (2020).

Figure 3 – Interviews and Filling Out Questionnaires by residents around TBDB

Referring to the opinion of Suryana, et al (2012), the results of data processing using the RAPFISH method show that the ecological dimension shows a sufficient sustainability index with a percentage of 73, 61558533 74 (Figure 4).
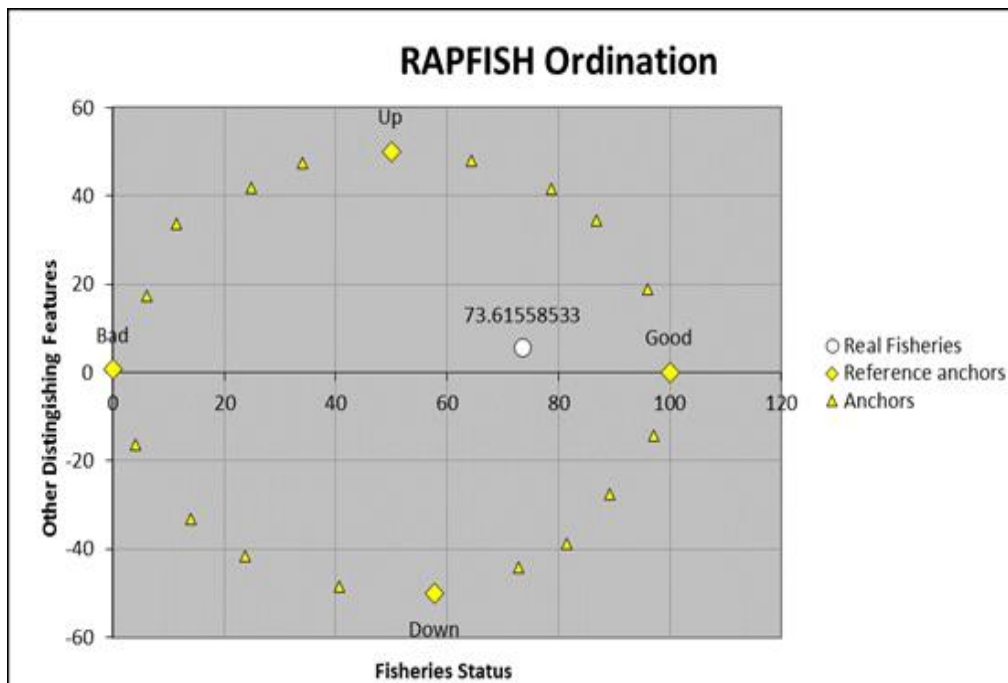

Figure 4 – Results of Ecological Dimension Analysis

The ecological dimension used in this study focuses on water resources. Considering that water resources are a very vital natural resource component in TBDB. Water resources are useful for irrigating conservation areas to meet the needs of plants and consumption needs of wild animals in TBDB. Several types of animals analyzed in TBDB such as turtles,

crocodiles and especially large herons, pelicans and several other types of water aves are in dire need of water resources. In addition to meeting consumption needs, most of the food for the animals in TBDB is in water bodies such as fish, shrimp, worms, and various other types of aquatic animals.

In relation to water resources, the results of the analysis of laverage for the ecological dimension show that the attribute or indicator that is most sensitive to the sustainability of TBDB is the discharge attribute with an index of 3.25 followed by odor, color, pH and DHL (Figure 5).
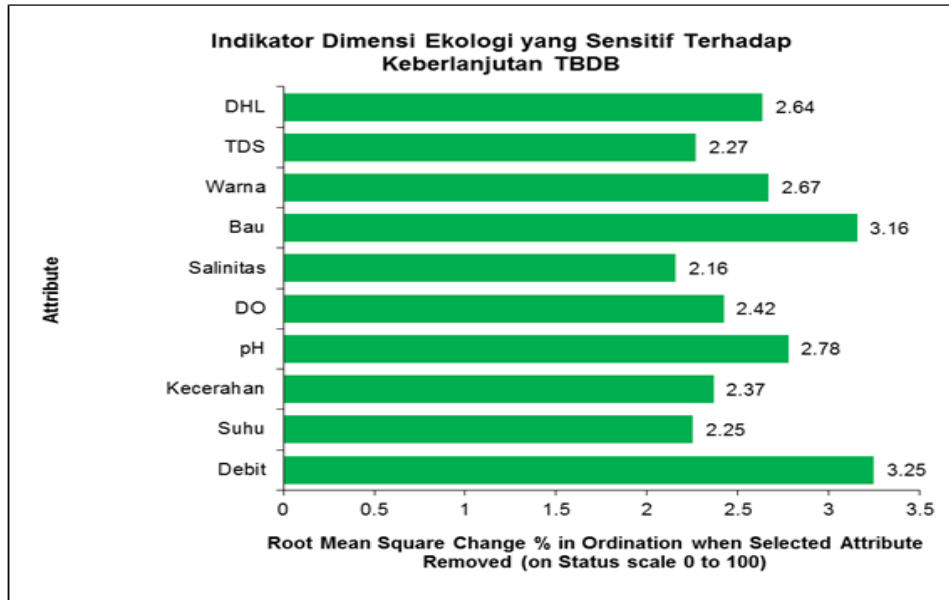

Figure 5 – Results of Leverage Attributes Analysis

The discharge attribute is the most sensitive attribute with the consideration that the water discharge indicates the quantity of water availability. If the availability of water cannot meet the needs of TBDB, the sustainability of TBDB can be seriously threatened.

Based on the results of data processing using the RAPFISH multi-dimensional analysis tools, the results show that the sustainability status of the Dataran Bena Buru Park is included in the Sufficiently Sustainable category. This is indicated by the value of the Multidimensional Sustainability Index (Table 1) of 72.8. Referring to the sustainability index set by Suryana et al (2012) stated that the sustainability index value ranging from 51 to 75 is included in the fairly sustainable category.

Table 1 – Index and Sustainability Status of the Dataran Bena Park

No	Dimension	Stress Value	RSQ(R²)	Sustainability Index	Sustainability Status
1	Social	0.198	0.096	75.6	Well
2	Economy	0.194	0.987	84.3	Well
3	Legal & Institutional	0.099	0.811	68.5	Enough
4	Ecology	0.187	0.809	83.1	Well
5	Environment	0.211	0.911	65.2	Enough
6	Infrastructure	0.176	0.814	60.1	Enough
7	Multi-Dimensional	0.177	0.886	72.8	Enough

Meanwhile, the infrastructure component, with a sustainability index value of 60.1, is one of the aspects with the lowest sustainability index value. This condition is produced by a lack of infrastructure that supports the continuation of hunting activities, such as a shortage of hunting equipment, security facilities around hunting grounds, cleaning facilities, sanitation, parking spaces, watching posts, and so on. This hunting area can be considered a mini-wilderness, which, of course, necessitates security facilities to defend against wild

animals and first aid in the event of an accident. Furthermore, TBDB does not give an optimum or safe hunting instrument. This can lead to illegal hunting with hunting weapons, which is hazardous to game animals and the surrounding community.

In addition, there is also an environmental dimension which only obtained a sustainability index score of 65.2 due to the lack of availability of game animals such as deer, mouse deer, partridges, wild boars, and so on. TBDB is only dominated by wild animals such as poultry, which in this case are included in the category of protected animals, such as the great egret and the Eurasian elephant.

Meanwhile, the ecological and economic components received the highest sustainability index values as a result of their relatively key significance in TBDB and strong data collecting in the field for these two dimensions. The ecological dimension is directly related to the quality and quantity of water resources, which in this case are resources that have a significant impact on the survival of diverse animals, plants, and humans in TBDB. Even during the dry season, the quality and quantity of water resources in TBDB are sufficient to meet the needs of the organization. The ecological sustainability index received a score of 83.1. (Figure 6). The economic factor had a sustainability index value of 84.3 and was classified as good or very sustainable.
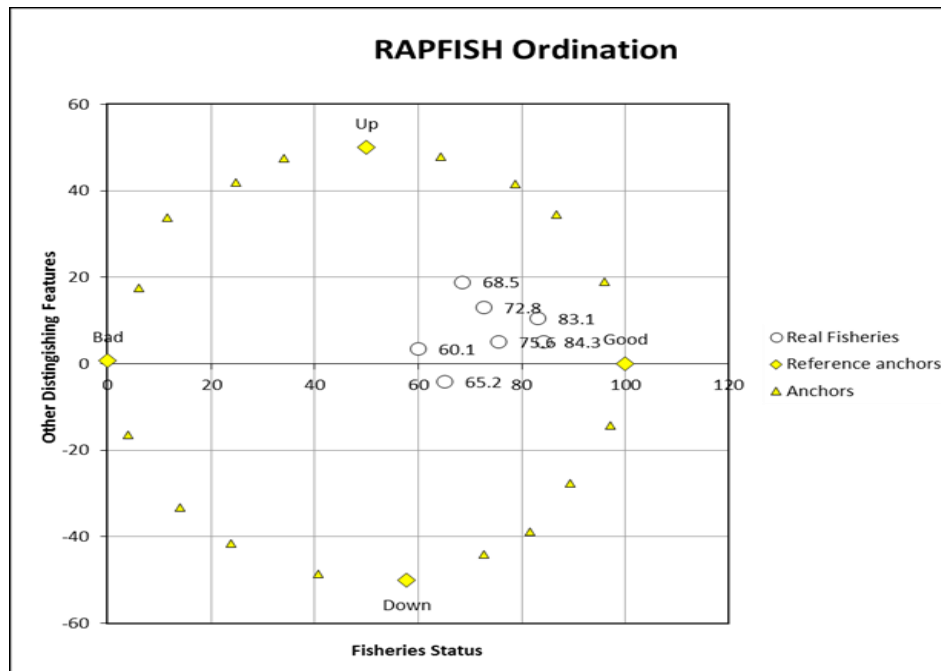

Figure 6 – Sustainability Index Graph with RAPFISH ordination

This is due to TBDB's contribution in moving the community's economy through licensing for the taking of black kabesak fruit for sale and, together with the creation of a pond in Lake Kubai. In addition, the community is also allowed to look for firewood in the TBDB forest to meet their daily cooking needs. Referring to the RAPFISH Ordination chart (Figure 6), the multi-dimensional sustainability index value is 72.8. This value can be used to draw a conclusion that TBDB is categorized as moderately sustainable.

In addition to the sustainability index value, there are also stress values and RSQ (R^2) obtained from the results of data processing with RAPFISH software. According to Nurmalina (2008) and Hardjomidjojo et al (2016), the most ideal stress value is a stress value that is less than 0.25 (S < 0.25) while the most ideal RSQ (R2) value is a value close to 1. Based on the data which is presented in table 10, it can be seen that the stress and RSQ values in this modeling are in the ideal category. The stress value only ranges from 0.099 – 0.211 and the R2 value ranges from 0.811 – 0.987 which means it is close to 1 (Table 1). Therefore, it can be concluded that the RAPFISH model made is in the category of a good model and can represent the problems that exist in TBDB.

CONCLUSION

In this study, conclude based on the analysis of sustainability status in terms of legal and institutional social dimensions as well as ecological dimensions, the legal and institutional social dimensions obtained a fairly sustainable percentage, the average value of 66.28; the ecological dimension shows a sufficient sustainability index with a percentage of 73.61; and multi-dimensional analysis shows that the Multidimensional Sustainability Index result of 72.8 reflects this. This study suggests that the indicator that must be improved for habitat suitability is distance from water sources (JDSA), namely by providing more water sources so that the animals in TBDB can be spread throughout the area and not concentrated in estuary areas, which are also under threat from predators such as crocodiles and humans. Aside from the sustainability status, sustainability indicators, particularly in the infrastructural dimension, such as the provision of hunting equipment, security facilities within the TBDB region, and amenities for game animals, must be enhanced.

ACKNOWLEDGEMENTS

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