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Sustainability of Blood Shell (*Anadara granosa*) Cultivation Business in Rokan Hilir District, Riau Province

Keberlanjutan Bisnis Budidaya Cangkang Darah (Anadara granosa) di Kecamatan Rokan Hilir, Provinsi Riau

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Abstract

This research was carried out in June-May 2023 in Rokan Hilir Regency to analyze the potential, business feasibility, and sustainability status of the Blood shell (*Anadara granosa*) cultivation business. The method used was a survey with a total of 10 respondents. The Fisheries and Maritime Service of Rokan Hilir Regency, Riau Province, numbered three people and seven cultivators, and purposive sampling was the technique for taking respondents. The research results show that the cultivation potential is 120,000 kg/harvest to 170,000 kg/harvest, with a Net Present Value (NPV) of 80% from IDR 65,759,767,943.09/ year. Benefit Cost Ratio (B/C Ratio) ≥1 means the business is said to be feasible and can also be continued. Internal Rate of Return (IRR) is 80%, meaning IRR > discount rate that has been determined, then the business is feasible to continue, and the interest rate used in this research is the BRI Bank interest rate of 15%, the sustainability status of the blood shell cultivation business is assessed based on five dimensions. The ecological, economic, social, technological and institutional dimensions included in the good and very sustainable categories are the environmental, economic and social dimensions, with dimension values of 82.33 to 86.96. Meanwhile, in the bad (unsustainable) and poor (less sustainable) categories, namely the technological and institutional dimensions, with dimension values of 21.54 to 34.65. Therefore, the two dimensions included in the categories of bad (unsustainable) and poor (less sustainable) concern the management and all stakeholders, who need to take corrective steps to improve the blood-shell resource in Rokan Hilir Regency.

Keywords: Cultivation, Sustainability, Blood shell, Business

Abstrak

Penelitian ini dilaksanakan pada bulan Juni-Mei 2023 di Kabupaten Rokan Hilir dengan tujuan untuk menganalisis potensi, kelayakan usaha, dan status keberlanjutan usaha budidaya cangkang darah (*Anadara granosa*). Metode yang digunakan adalah survei dengan total 10 responden. Dinas Perikanan dan Kelautan Kabupaten Rokan Hilir, Provinsi Riau berjumlah 3 orang, 7 pembudidaya dan teknik pengambilan responden adalah *purposive sampling*. Hasil penelitian menunjukkan bahwa potensi budidaya sebesar 120.000 kg/panen hingga 170.000 kg/panen, *Net Present Value* (NPV) 80% dari Rp 65.759.767.943,09/tahun. *Benefit Cost Ratio* (B/C Ratio) ≥1 berarti bisnis dikatakan layak dan juga dapat dilanjutkan. *Internal Rate of Return* (IRR) adalah 80%, artinya IRR > tingkat diskonto yang telah ditentukan, maka bisnis layak untuk dilanjutkan dan suku bunga yang digunakan dalam penelitian ini adalah suku bunga Bank BRI sebesar 15%, status keberlanjutan bisnis budidaya cangkang darah dinilai berdasarkan lima dimensi. Dimensi ekologis, ekonomi,

sosial, teknologi dan kelembagaan yang termasuk dalam kategori baik dan sangat berkelanjutan adalah dimensi ekologis, ekonomi dan sosial dengan nilai dimensi 82,33 hingga 86,96. Sementara itu, pada kategori buruk (tidak berkelanjutan) dan buruk (kurang berkelanjutan), yaitu dimensi teknologi dan dimensi kelembagaan dengan nilai dimensi 21,54 hingga 34,65. Oleh karena itu, dua dimensi yang termasuk dalam kategori buruk (tidak berkelanjutan) dan miskin (kurang berkelanjutan) menjadi perhatian manajemen dan seluruh pemangku kepentingan untuk melakukan langkah korektif agar sumber daya cangkang darah di Kabupaten Rokan Hilir akan lebih baik ke depannya.

Kata kunci: Cultivation, Sustainability, Blood shell, Business

1. Introduction

Cultivation is the activity of producing organisms or aquatic biota in a controlled environment to gain profit. The potential of fisheries resources that are owned and to face global challenges, including in the fisheries sector, is the vision for the development of aquaculture, namely aquaculture as one of the mainstay sources of economic growth, which is realized through a sustainable, competitive, and equitable cultivation system (Permatasari et al., 2020). Sustainability is the durability of a system and process or the ability to maintain and support a process occasionally. Yusuf & Prayogi (2020) explain that sustainability is needed in regional planning, which aims to make the area functional in the long term. Sustainability itself means being able to fulfill present development without sacrificing future rights. Sustainability has three principles: economic, social, and environmental. In residential areas, the social aspect plays a significant role in sustainability. Therefore, management is vital.

Blood shells (*Anadara granosa*) are one type of marine biota that has economic value and belongs to the mollusc phylum of the gastropod class, which has a vital role in the aquatic environment. Blood shells are often found on muddy substrates. The characteristics of the blood shell are that it has two thick, elliptical shells, and both sides are the same. The white shell is covered with yellow-brown periostracum to blackish brown (Dewi et al., 2018). Blood shells are shellfish that belong to the Bivalvia class and are grouped into the Phylum Molluscs. Blood shells are shellfish with a very wide distribution area in mangrove areas, which people, especially coastal communities, often use as a livelihood (Abdul et al., 2021). Many people are interested in blood shells (Anadara granosa) because they taste delicious and contain high protein (Tari et al., 2018). Blood shells are still suitable for public consumption because they have not been exposed to dangerous heavy metals such as cadmium (Mawardi & Sarjani, 2017).

Rokan Hilir Regency is a regency in Riau Province known as a producer of Blood shells. Production of blood shells in Rokan Hilir Regency in 2022 will amount to 7,716.90 tons/year, meaning there will be an increase from 2021 of around 0.5%. Expanding the production of blood shells in Rokan Hilir Regency can bring about favourable economic outcomes for the community. However, this may also lead to challenges, such as land development and clearing mangroves to create space for cultivating blood shells. Consequently, fishing locations for fishermen may become limited, coastal areas may become unmanaged, and there may be unauthorized land use and land sales to the private sector for clam cultivation. These factors can potentially give rise to social issues among the fishermen community. The communities in the area have been engaging in various activities to utilize the mangrove ecosystem. These activities include expanding settlements by cutting down mangrove forests, fishing, disposing of waste, and producing mangrove wood (Warningsih, 2020). This research analyses the potential, business feasibility, and sustainability status of cultivating the blood shell.

2. Material and Method

2.1. Time and Place

This research was carried out in May-June 2023 in Rokan Hilir Regency.

2.2. Methods

The method used was a survey with a technique for taking respondents through purposive sampling. In this study, we interviewed ten respondents: three from the Fisheries and Maritime Service of Rokan Hilir Regency and seven blood cockle cultivators. The analysis is descriptive to determine the potential for cultivating a bloodshell. Nazir (2013) descriptive analysis is an analysis to describe systematically and accurately the facts and characteristics regarding the population or activities carried out in a particular field, which makes the research based on data from variables obtained from the group of subjects studied as well as facts that occur in the field.

2.3. Data Analysis

2.3.1. Investment

Investment comprises fixed capital (MT) and working capital (MK). To determine the total investment, apply the formula provided by Hendrik (2013), which is

$$TI = MT + MK$$

Description:
TI = Total investment
MT = Fixed Capital (IDR)
MK = Working Capital (IDR/trip)

2.3.2. Income

Income is obtained from the sale of production (fishing results) at the selling price of blood shell calculated in a certain period (Soekartawi, 2006) using the formula:

$$TR = P.Q$$

Description:
TR = Total income (IDR)
P = Total sales (kg)
Q = Selling price (IDR)

2.3.3. Profit

Profit is the difference between gross income and total costs incurred (TC). To calculate the profit, we use the formula provided by Rahim & Hastuti (2007), which is:

$$\pi = TR - TC$$

Description:
π = Profit
TR = Total revenue
TC = Total cost

2.3.4. Net Present Value

According to Susanto & Sukadwilinda (2016), NPV is the present value of the net profits that will be obtained. The formula used to calculate NPV is:

$$NPV = \sum_{t=0}^{t=n} \frac{Bt - Ct}{(1+i)^t}$$

Description:
Bt = Profit in year t
Ct = Costs incurred each year
i =Discount rate (applicable interest rate)
t = Period

Decision Criteria: If NPV > 0, the business is categorized as feasible; If NPV < 0, the business is classified as unviable or making a loss

2.3.5. Net B/C

Net Benefit Cost Ratio is the comparison between Positif Value (PV), which has a positive value, and PV, which has a negative value. Net B/C is used to determine the net benefits obtained by the company with the addition of every Rupiah of net expenditure (Sulistyo, 2015). With the formula:

$$BCR = \frac{\sum_{t=1}^{n} \frac{fit}{(1+i)^t}}{\sum_{t=1}^{n} \frac{Cost}{(1+i)^t}}$$

Description:
Bt = Benefits from investment in the t-th year
Ct = Cost annual due to investment in year t
(1+i)t = Discount factor
N = Age of business (project)

Criteria: If BCR > 1, the business is considered worth doing, and if BCR < 1, the business is not worth doing. BCR = 1 The business only reaches the break-even point.

2.3.6. Internal Rate of Return

According to Susanto & Sukadwilinda (2016), the Internal Rate of Return (IRR) is the interest rate (discount rate), which makes the NPV value of the project equal to zero. The IRR value is obtained using the following formula.

$$IRR = i_2 + \frac{NPV1}{NPV1 - NPV2} X (i_2 - i_1)$$

Description:
i1 = Discount rate that produces a positive NPV
i2 = Discount rate, which produces a negative NPV
NPV1= Positive NPV
NPV2= Negative NPV Decision Criteria:
If IRR > predetermined discount rate, then the business is feasible; If the IRR < a predetermined discount rate, then the business is not feasible

Rapfish analysis was used to analyze the sustainability status of the blood shell cultivation business. Data analysis in this study used the Rapfish technique (Rapid Appraisal for Fisheries). This technique was developed by the University of British Columbia, Canada, and is used to evaluate the sustainability of fisheries in a multidisciplinary manner. Rapfish is based on an ordination technique, which places things in a sequence of measurable attributes using multidimensional scaling (MDS). In the analysis using the Rapfish technique, the ALSCAL algorithm method will be used, an applicable method available in the Excel template. The Rapfish technical analysis procedure will go through several stages, namely as follows: 1) Desk study; 2) Consultation of related experts; 3) Field verification; 4) Tabulation and data processing; 5) Interpretation of results (Hermawan, 2006).

3. Result and Discussion

3.1. Potential for Cultivating Blood Shell

The production of blood shells obtained by cultivators in one harvest is 120,000 kg/harvest to 170,000 kg/harvest. Srimaryani et al. (2022) explain that people in Rokan Hilir Regency use blood shell as a cultivation business because it is one of the areas that have the potential to carry out blood shell cultivation businesses with substrate conditions guaranteeing the availability of natural food supplies so that this place supports carrying out blood shell cultivation businesses.

3.2. Feasibility of Blood Shell Cultivation Business

The investment issued by the cultivator is fixed capital and working capital; fixed capital for the Blood Clam cultivation business is IDR 29,626,000.00, consisting of huts, fleet, machines, nets, small dams, large dams, tungkah, and baskets. The working capital spent by cultivators for the blood shell cultivation business amounts to IDR 256,666.67, comprising consumption, fuel and wages for permanent workers. The investment made by cultivators for the business of cultivating blood shells amounts to IDR 29,882,666.67. Wulandari (2017) explains that investing can provide something useful in the future. Furthermore, Merawati et al. (2015) said that investment knowledge influences interest in investing. Situmorang et al. (2014) confirm this, stating that motivation and interest in investing influence one another.

The costs incurred by blood shell cultivators consist of fixed and variable costs. Fixed costs consist of depreciation and maintenance costs, while non-fixed costs consist of blood shell seeds, consumption, fuel, fixed labour wages and harvest labour wages. Depreciation costs incurred by cultivators for cultivating blood shells amount to IDR 11,658,600.00/year. The maintenance costs incurred by cultivators for cultivating blood shells amount to IDR 800,000.00/year. The fixed costs incurred by cultivators for cultivating blood shells amount to IDR 12,458,600.00/year, consisting of depreciation costs of IDR 11,658,600.00/year and maintenance costs of IDR 800,000.00/year. Mulyadi (2010) explains that fixed costs are costs with a fixed amount within a specific volume of activity. Furthermore, Carter & William (2009) stated that fixed costs do not change when business activity increases or decreases.

The variable costs incurred by cultivators for cultivating blood shells amount to Rp269,766,666.67/year. The total costs incurred by cultivators for cultivating blood shells amount to IDR281,044,314.29/year, consisting of fixed costs of IDR 12,458,600.00/year and also variable costs, which amount to IDR268,585,714.29/year. Suratiyah in Rialdi & Rahim (2018) explain that costs have a vital role in making decisions about a business that is carried out and carried out, including total costs or total costs, namely the total money costs incurred during the production process, including fixed costs. as well as variable costs.

The gross income of cultivators from the blood shell cultivation business is an average of IDR 800,000,000.00/harvest and annual gross income amounting to IDR2,400,000,000.00/year. Harvesting was conducted three times a year. Risma et al. (2017) stated that gross income is an income from a business before deducting costs, including expenses. Net income is the profit obtained from gross income and reduced by the costs incurred by blood shell cultivators. If the difference is positive, it will result in operating profit; if the difference is negative, it will result in operating loss. The net income of cultivators from the blood shell cultivation business amounts to IDR 2,118,955,685.71/year, consisting of a gross income of IDR 2,400,000,000.00/year and a total cost of IDR 282,225,266.67/year.

To determine the viability of a business, it is vital to utilize the long-term business feasibility formula. This formula incorporates key metrics such as Net Present Value (NPV), Benefit Cost Ratio (Net B/C Ratio), and Internal Rate of Return (IRR) (Susanto & Sukadwilinda, 2016).

Tabel 1. Business feasibility

No	Component	Total (IDR/Year)
1	NVP	65,759,767,943.09
2	BCR	8.54
3	IRR	> 80 %

The Net Present Value (NPV) of the blood shell cultivation business is IDR 65,759,767,943.09/year, representing a significant 80% return. The benefit-cost ratio (B/C Ratio) of the blood shell (*Anadara granosa*) cultivation business is ≥1, meaning that the business is said to be feasible and can also be continued. The Internal Rate of Return (IRR) of the blood shell (*Anadara granosa*) cultivation business is 80%, meaning that the IRR> the predetermined discount rate, so the business is feasible to continue, and the interest rate used in this study is the BRI Bank interest rate of 15%. This is in line with the results of the survey by Denia et al. (2023), which explains that if the benefit-cost ratio (B/C Ratio) is ≥1, it means that the business is said to be feasible to continue, and the results are included in the long-term business feasibility criteria; therefore it can be interpreted that the business can be developed. Furthermore, Sulistyo (2015) said that if BCR > 1, the business is said to be feasible to carry out and if BCR < 1, the business is said to be not feasible to carry out BCR = 1, the business only reaches the break-even point.

3.3. Sustainability Status of Blood Shell Cultivation Business

The sustainability index value of the ecological dimension in cultivation businesses of blood shells is found to be 86.96, which means the environmental dimension is suitable or very sustainable. Thamrin et al. (2007); Nurmalina (2008); Suyitman et al. (2009) found that, based on categorization, its sustainability status is moderately sustainable. After conducting a leverage analysis, it was found that the attributes were predicted to have a higher sensitivity to the sustainability of the ecological dimension in the blood shell cultivation business. The sensitive attribute of the blood shell cultivation business is environmental quality, with an index value of (9.40). The determination of sensitive attributes is carried out based on the order of priority of the results of the leverage analysis by looking at the shape of changes in the Root Mean Square (RMS). The greater the RMS change value, the more significant the role of this attribute in influencing sustainability status (Alfira et al., 2018). This fairly sensitive attribute can affect the value of the entire ecological dimension, so if improvements are made to this attribute, it will be possible to increase the sustainability index for the overall environmental dimension in the blood shell cultivation business. The sensitivity values of each attribute in the ecological dimension are presented in Figure 2.

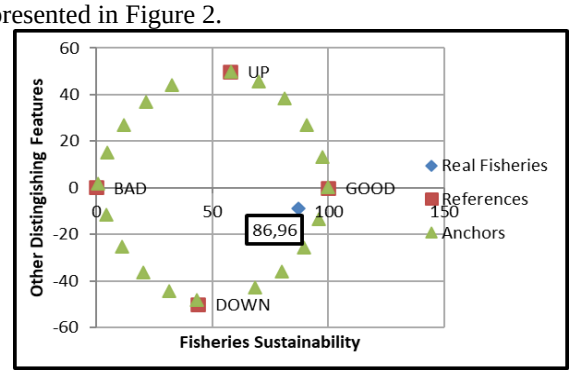

Figure 1. Rapfish ordination Ecological Dimensions

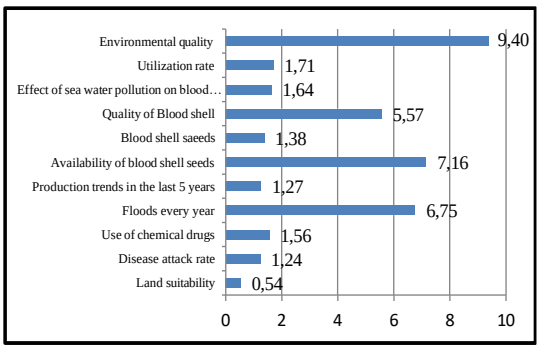

Figure 2. Sensitivity of ecological dimension attributes

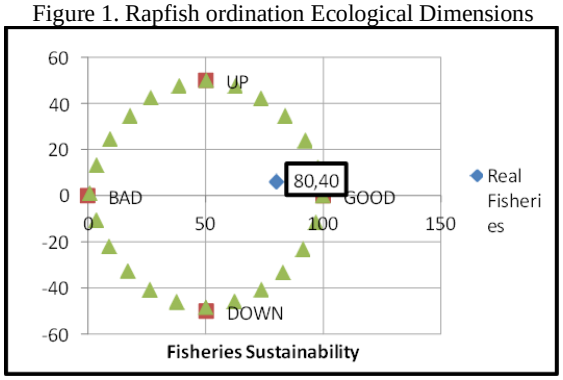

Figure 3. Economic dimension rapfish ordination

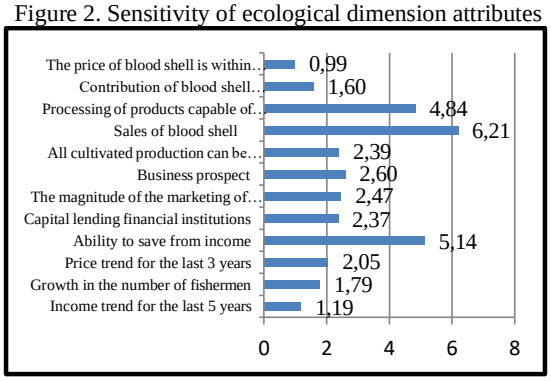

Figure 4. Sensitivity of economic dimension attributes

The analysis using Rap-Analysis shows that the sustainability index value for the economic dimension of the blood shell cultivation business is 80.40, meaning good (very sustainable). The sensitive attribute of the blood shell cultivation business is the sale of blood shells, so it can be concluded that the price of blood shells is very

good or high so that sales of blood shells are getting higher every year, and this will lead to the development of the blood shell cultivation business (Figure 3 and Figure 4).

The Rap-Analysis analysis shows that the social dimension sustainability index value in the blood shell cultivation business is 82.33, meaning good (very sustainable). The sensitive attribute of the blood shell cultivation business is the frequency of fisheries extension, so it is concluded that fisheries extension does not play a role. The blood shell cultivation business greatly impacts the activities of fishermen who catch blood shells (Figure 5). A sensitive attribute in the social dimension of the blood shell cultivation business is the frequency of fisheries education, with an index value of (5.89) (Figure 6).

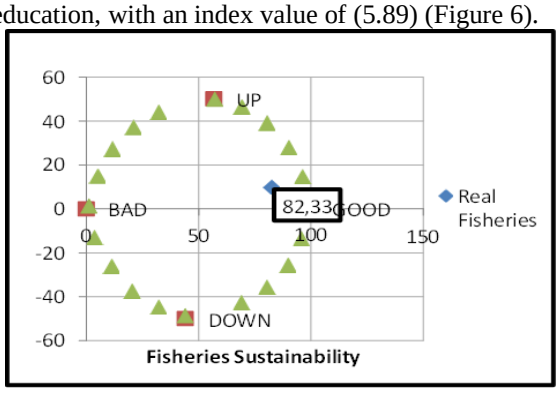

Figure 5. Social dimension rapfish ordination

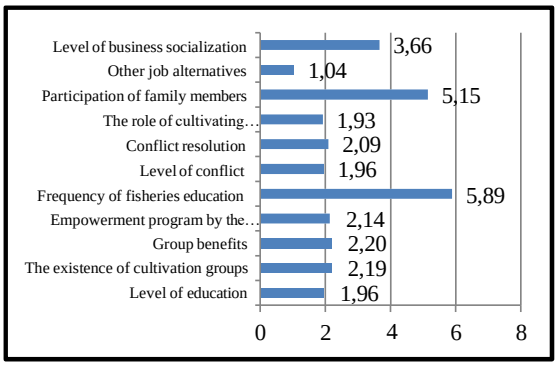

Figure 6. Sensitivity of social dimension attributes

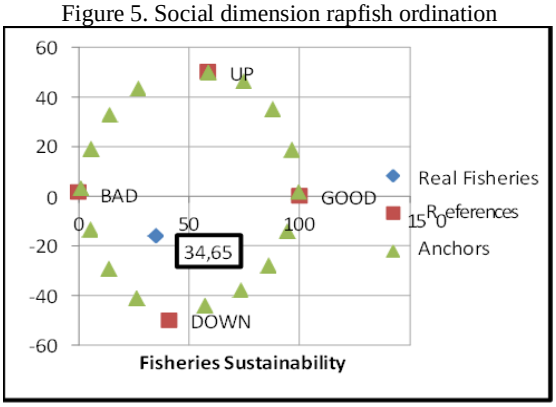

Figure 7. Technological dimension rapfish ordination

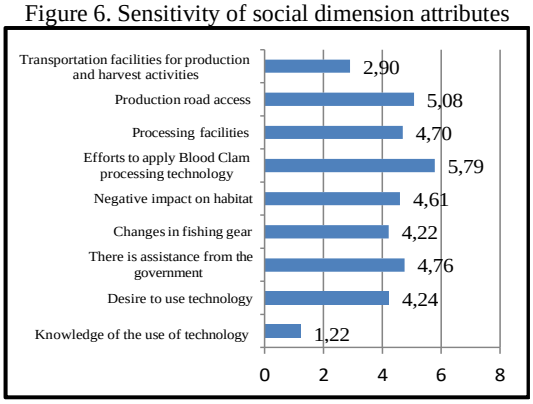

Figure 8. Sensitivity of technology dimension attributes

The analysis using Rap-Analysis shows that the sustainability index value of the technological dimension in the blood shell cultivation business is 34.65, which is meaningless (less sustainable). A sensitive attribute in cultivating blood shells is the effort to apply technology for processing blood shells. It can be concluded that there is a lack of education from extension workers or parties from the Fisheries Service regarding the technology used by cultivators in cultivating Blood Mussels in Rokan Hilir Regency.

The results of the analysis using Rap-Analysis show that the sustainability index value of the institutional dimension of the blood shell cultivation business is 21.54, meaning that the institutional dimension of the cultivation business is also poor (not sustainable). The blood shell cultivation business is characterized by a concerning level of violations, suggesting that cultivators are not adhering to the rules in place in the Rokan Hilir Regency. The sensitive attribute in the institutional dimension of the blood shell cultivation business is the level of violations with an index value of (6.27).

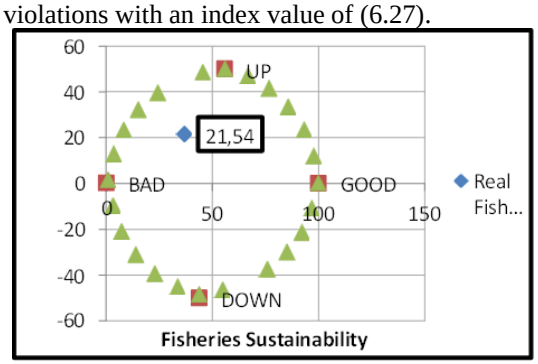

Figure 9. Rapfish ordination institutional dimensions

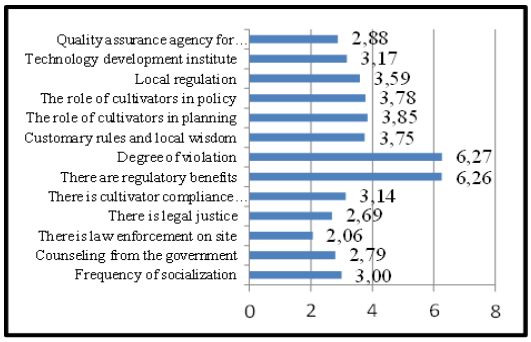

Figure 10. Sensitivity of institutional dimension attributes

Measuring sustainability values of each dimension in managing blood shell resources in Rokan Hilir Regency shows each index in the blood shell cultivation business. The index obtained from the ecological dimension is

86.96, which means good (very sustainable); the economic dimension index obtained is 80.40, which means good (very sustainable); the social dimension index obtained is 82.33, which means good (very sustainable); the technology dimension index obtained is 34.65 which means less (less sustainable), the institutional dimension index obtained is 21.54 which means (not sustainable).

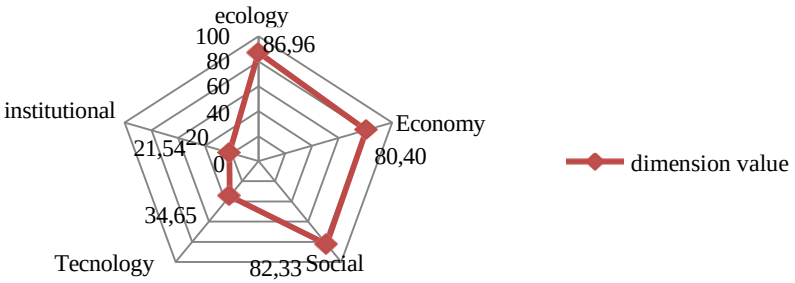

Figure 11. Diagram of blood shell cultivation kites

Multidimensional analysis is used only to see the sustainability status of blood shell resource management from the cultivation business of blood shell. The results of the MDS analysis from the combination of 5 (five) dimensions obtained a multidimensional sustainability index value for managing blood shell resources from cultivation efforts of 62.38. These results indicate that the cultivation efforts of the blood shell are sufficient (sustainable enough).

4. Conclusions

Net Present Value (NPV) is 80% of the blood shell cultivation business, which amounts to IDR 65,759,767,943.09/year. The blood shell cultivation business's benefit-cost ratio (B/C Ratio) is ≥1, meaning the business is feasible and can be continued. Internal Rate of Return (IRR) from the blood shell cultivation business, namely 80%, meaning IRR > discount rate that has been determined, then the business is worth continuing, and the interest rate used in this research is the BRI Bank interest rate of 15%. The sustainability status of the blood shell cultivation business in Rokan Hilir Regency, Riau Province, was assessed based on five dimensions. The ecological, economic, social, technological and institutional dimensions of the blood shell cultivation business, which are included in the good and very sustainable category, are the ecological, economic and social dimensions with dimensional values, namely 82.33 to 86.96. These are included in the bad (unsustainable) and poor (less sustainable) categories, namely the technological and institutional dimensions, with dimensional values of 21.54 out of 34.65. Therefore, two dimensions, which are included in the categories of poor (unsustainable) and poor (less sustainable), have come to the attention of management and all stakeholders to take corrective steps so that the resource blood shell in Rokan Hilir Regency will be better.

5. References

Abdul, L., Mawardi, M., & Mustika, S. (2021). The Habitat Characteristics of *Anadara granosa* in the Mangrove Ecosystem in Langsa City, Aceh. *Jurnal Biotik*, 9(1): 65-73.

Alfira, R., Djafar, S., & Ilmiah, I. (2018). *Analisis Keberlanjutan Pemanfaatan Kepiting Bakau di Pesisir Kabupaten Pangkajene dan Kepulauan.* Makasar. Universitas Muslim Indonesia.

Carter, C., & William, K. (2009). *Akuntasi Manajemen*. Jakarta. Salemba Empat.

Denia, F.P., Zulkarnaini, Z., & Hendrik, H. (2024). Analysis of Fish Cultivation Business in Rapid in Nagari Lubuk Basung, Agam District, West Sumatra Province. *Jurnal Perikanan dan Kelautan*, 29(1): 18-26.

Dewi, D., Eka, S., Eddiwan, E., & Efawani, E. (2018). Morfometrik dan Pola Pertumbuhan Keang Darah (*Anadara granosa*) di Perairan Bagan Siapi-Api Kabupaten Rokan Hilir. *Jurnal Berkala Perikanan Terubuk*, 46(3): 37-45.

Hendrik, H. (2013). *Studi Kelayakan Proyek Perikanan*. Fakultas Perikanan dan Ilmu Kelautan. Pekanbaru. Universitas Riau.

Hermawan, M. (2006). *Keberlanjutan Perikanan Tangkap Skala Kecil (Kasus Perikanan Pantai di Serang dan Tegal)*. Pasca Bogor Sarjana. Institut Pertanian Bogor. Bogor.

Kavanagh, P., & Pitcher, T. (2004). *Implementing Microsoft Excel Software for Rapfish: A Technique for the Rapid Appraisal of Fisheries Status*. University of British Columbia.

Khasmir, D.J. (2012). *Studi Kelayakan Bisnis*. Jakarta. Kencana.

Kurniawan, A.W., & Puspitaningtyas, Z. (2016). *Metode Penelitian Kuantitatif*. Pandiva Buku. Yogyakarta.

Mawardi, M., & Sarjani, T.M. (2017). Kualitas Kerang Darah (*Anadara granosa*) Berdasarkan Uji Logam Cadmium di Kawasan Pesisir Kota Langsa. *Jurnal Biologi Edukasi*, 9(1): 39-43.

Merawati, M., Komang, L., Putra, P., & Mega, J.S.I.P. (2015). Kemapuan Pelatihan Pasar Modal Memoderasi PengaruhPengetahuan Investasi dan Penghasilan pada Minat Berinvestasi Mahasiswa. *Jurnal Ilmiah Akuntansi dan Bisnis*, 10(2): 64-75.

Mulyadi, M. (2010). *Akuntansi Biaya*. Yogyakarta. UPP AMP YKPN.

Nazir, M. (2013). *Metode Penelitian*. Bogor. Ghalia Indonesia.

Nurmalina, R. (2008). Analisis Indeks dan Status Keberlanjutan Sistem Ketersediaan Beras di Beberapa Wilayah Indonesia. *Jurnal Argo Ekonomi*, 26(1): 47-79.

Permatasari, N., Hafiyusholeh, M., & Purwanto, S. (2020). Forecasting Hasil Produksi Perikanan Budidaya Laut Menggunakan ARIMA. *Jurnal Mahasiswa Matematika ALGEBRA*, 1(1): 73-80.

Rahim, A., & Hastuti, D. (2007). *Ekonomi Pertanian*. Jakarta. Penebar Swadaya.

Rialdi, D.M. & Rahim, A.M. (2018). Pendapatan dan Kelayakan Usaha Tahu di Desa Biak Kecamatan Luwuk Utara (Studi Kasus Usaha Tahu Ibu Titi Sugiati). *Jurnal Agrobiz*, 1(1): 28-38.

Risma, N.R., Ridho, N.T., Ainiyah, N. (2017). *Pengaruh Laba Kotor, Laba Operasi dan Laba Bersih untuk Memprediksi Arus Kas Masa Depan pada Perusahaan Food & Beverages yang Terdaftar di Bei Periode 2015 – 2017*. Jawa Timur. Universitas Islam Majapahit.

Situmorang, M., Andreas, A., & Natariasari, R. (2014). Pengaruh Motivasi terhadap Minat Berinvestasi di Pasar modal dengan Pemahaman Investasi dan Usia sebagai Variabel Moderat. *E-Jurnal JOM FEKOM*, 1(2): 1-18.

Soekartawi, S. (2006). *Analisis Usaha Tani*. Jakarta. UI Press.

Srimaryani, W., Yulinda, E., & Arief, H. (2022). Analisis Usaha Budidaya Kerang Darah (*Anadara granosa*) di Kecamatan Bangko Kabupaten Rokan Hilir Provinsi Riau. *Jurnal Sosial Ekonomi Pesisir*, 3(3.

Sulistyo, S. (2015). Pengembangan Usaha Kecil dan Menengah dengan Basis Ekonomi Kerakyatan di Kabupaten Malang. *Jurnal Ekonomi Modernisasi*, 6(1): 58-73.

Susanto, B., & Sukadwilinda, S. (2016). Analisis Kelayakan Finansial Wisata Air Waduk Jatigede Kabupaten Sumedang. *Jurnal Riset dan Keuangan*, 4(1): 867-872.

Suyitman, S.H., Sutjahjo, S., Herison, C., & Bihan, S. (2009). Status Keberlanjutan Wilayah Berbasis Peternakan di Kabupaten Situbondo untuk Pengembangan Kawasan Agropolitan. *Jurnal Agro Ekonomi*, 27(2): 165-191.

Tari, A.A., Duan, F.K., & Amalo, D. (2018). Analisis Kandungan Gizi Jenis-jenis Kerang yang Biasa Dikonsumsi Masyarakat Nembe Desa Oeseli Kecamatan Rote Barat Daya Kabupaten Rote Ndao NTT. *J Biotropical Sains*, 15(2): 1-9.

Thamrin, S.H., Sutjahjo, C., Herison, S., & Biham, B. (2007). Analisis Keberlanjutan Wilayah Perbatasan Kalimantan Barat-Malaysia untuk Pengembangan Kawasan Agropolitan: Studi kasus Kecamatan Bengkayang (Dekat Perbatasan Kabupaten Bengkayang). *Jurnal Agro Ekonomi*, 25(2): 103-124.

Warningsih, T. (2020). Valuasi Ekonomi Ekosistem Mangrove di Kawasan Pesisir Kabupaten Rokan Hilir Provinsi Riau. *Journal of Economic and Social of Fisheries and Marine*, 7(2): 239-248.

Wulandari, W., Ayu, P., Kadek, S.N., & Ayu, P.I.G. (2017). Pengaruh Manfaat, Fasilitas, Persepsi Kemudahan, Modal, Return, dan Persepsi Risiko Terhadap Minat Mahasiswa untuk Berinvestasi Secara Online. *E-Jurnal Akuntansi Universitas Pendidikan Ganesha*, 8(2): 168-174.

Yusuf, A., & Prayogi, L. (2020). Tinjauan Konsep Keberlanjutan pada Kawasan Permukiman Summarecon Bekasi dalam Aspek Sosial. *Jurnal Arsitektur Purwarupa*, 4(2): 23-30