



Plant Archives

Journal home page: www.plantarchives.org

DOI Url: <https://doi.org/10.51470/PLANTARCHIVES.2021.v21.no1.128>

BUSINESS DEVELOPMENT STRATEGY FOR CULTIVATION OF BLOOD COCKLE (*ANADARA GRANOSA*) TO INCREASE COASTAL COMMUNITY INCOME IN RIAU PROVINCE

Eni Yulinda*, Ridar Hendri, and Zulkarnain

Department of Fisheries Social Economics, Faculty of Fisheries and Marine, University of Riau, KM 12.5 Panam Pekanbaru, Indonesia.

*E-mail: eniyulinda86@gmail.com

eniyulinda1@gmail.com

(Date of Receiving-13-12-2020; Date of Acceptance-25-03-2021)

ABSTRACT

A survey research on the blood cockle (*Anadara granosa*) business was conducted in Rokan Hilir Regency, Riau Province, Indonesia in June-July 2020. The research objective was to formulate a strategy to develop the blood cockle business, in order to increase the income of fishermen's families. Interviews were conducted with 10 respondents of blood cockle cultivators, local government, fisheries office, traders and blood cockle exporters. Data were analyzed using the SWOT analysis method (Strengths, Weaknesses, Opportunities, and Threats). The results showed that the land used for the cultivation of blood cockle in Rokan Hilir was only 10% of the 12,434 hectare. The number of blood cockle cultivators in this area is only 250 people, the export volume of blood cockle is 450 tons per month (IDR 5.5 billion). The future strategy for developing a blood cockle business is: (1) increasing the productivity of blood cockle by increasing business capital, expanding cultivation land, and receiving government assistance; (2) improve the quality of blood cockles, both in terms of size and freshness when marketed; and (3) self-seeding blood cockle.

Keywords: Business, strategy; blood cockles, cultivation; income, coastal communities.

INTRODUCTION

Blood cockle (*Anadara granosa*) is a type of shell that is found in Southeast Asia and East Asia (Masindi and Herdyastuti 2017). In addition, the blood cockle is a species of cockle that can live in sandy coastal areas or muddy soil. These animals can also live in the sea, especially in coastal areas or live in sandy bottom areas (Lindawaty *et al.*, 2016). Generally, coastal communities are always left behind in economic and social aspects due to limited access to communication and distribution, human resource capacity and capital, so they often exploit nature without paying attention to environmental balance (Indarti *et al.*, 2018). Rokan Hilir Regency is the main marine fish production center in Riau Province, Indonesia. However, since 2014, this regency has also developed a blood cockle cultivation business. The development of blood cockle cultivation is carried out in four sub-districts located on the coast, namely Pasir Limau Kapas, Sinaboi, Kubu Babussalam, and Bangko. The results of Yulinda *et al.*, (2020) showed that the blood cockle cultivation business of Rokan Hilir is very profitable (BCR 1.88 and PPC 1.92). In addition, the prospects of developing cockle cultivation is also good because of the wide (124,000,000 m²) land potential available, the low demand for high skills, and the accessibility for export of products to the Malaysian market.

The coastal communities of Rokan Hilir are interested in cultivating blood cockle, because they are supported by various factors, namely physical environmental factors, and aquatic biological factors, which are very suitable.

In addition, it is also supported by the availability of very large land, the prospect of very potential domestic and export markets, as well as capital support and shellfish seeds from the government. However, no matter how great the economic potential of this blood cockle business, if it is not managed in a planned and professional manner according to business principles, everything will only be in vain. According to Daris *et al.*, (2019, 2020) coastal resources must be managed properly because it can lead to conflict. These conflicts can occur either vertically with the government or horizontally with fellow communities. Furthermore, Demmallino (2020) states that in coastal areas there are many community groups based on the type of use, such as; pakkaja, pallawa and passompe. The existence of a community that uses coastal and marine resources, such as blood cockle cultivation, will automatically put pressure on the resources and ecosystems. In order for coastal and marine resources to be sustainable, including blood cockle cultivation, it is necessary to carry out an integrated management. According to Yusuf *et al.*, (2016), there are several factors that leverage sustainability in coastal areas, namely; institutional facilities, property right, population density, resource technology and aquaculture technology.

So far, the cultivation of blood cockles in Rokan Hilir is still running conventionally. There are few studies that reveal how to develop a professional blood cockles cultivation business in Rokan Hilir. Therefore, it is necessary to conduct a study to formulate a strategy for the development of this blood cockles cultivation in the future, so that the economic potential of this business is not wasted.

Apart from that, it is also necessary to study how the blood cockles marketing techniques are so that businesses that involve coastal communities can be sustainable. Based on the background description, the following theoretical framework can be formulated (Figure 1).

MATERIAL AND METHOD

Location and Time of Research. This research was

conducted in Bangko Sub-regency, Rokan Hilir Regency, from June to July 2020. The location was determined purposively (Arikunto 2010), because its characteristics are relatively the same as the three other sub-regencies, who also developed the cultivation of blood cockle. namely Pasir Limau Kapas, Sinaboi, and Kubu Babussalam.

Types and Data Collection Methods.

Table 1. Matrix of Internal Factor Evaluation (IFE) Identification

No	Internal factors	Weight	Rating	Score
<i>Strength / Strength</i>				
1	Government support	0.05	3	0.15
2	Availability of land	0.06	3	0.18
3	Availability of human resources (quantity, and quality)	0.06	3	0.18
4	The development of blood cockles cultivation is one of the priority development programs in Rokan Hilir	0.05	3	0.15
5	Support from extension workers	0.04	2	0.08
6	Support from related agencies	0.05	2	0.10
7	The blood cockles production is very easy to market	0.06	2	0.18
8	The location of the blood cockles cultivation is easy to reach	0.06	3	0.18
9	The location of the blood cockles cultivation is close to the marketing area	0.06	3	0.18
10	The resulting blood shell is of sufficient quality	0.06	3	0.18
11	Blood cockle seeds are easy to get because they also come from the Rokan Hilir	0.06	3	0.18
<i>Weakness / Weakness</i>				
1	The management of the business is not yet professional, it still relies on the kinship system	0.06	3	0.18
2	Capital is a problem in developing a business	0.07	3	0.21
3	Blood cockle seeds are available, but not all the time	0.07	3	0.21
4	Shellfish can only be seeded in certain places	0.06	3	0.18
5	Blood cockles production still depends on natural conditions	0.06	3	0.18
6	The quality of blood cockles is very dependent on natural conditions	0.06	3	0.18
	Total	1.00	48	2.88

Table 2. Matrix of External Factor Evaluation (EFE) Identification

No	External factors	Weight	Rating	Score
<i>Opportunity</i>				
1	Market demand for blood cockles commodity is very high	0.09	3	0.27
2	The price of blood cockles in the market is quite stable	0.07	3	0.21
3	Business competition with other cultivators was not tight	0.08	3	0.24
4	Blood cockles are a new commodity for fisheries so that people are in great demand	0.09	3	0.27
5	The cultivation of blood cockles is not too difficult	0.09	3	0.27
6	Financial institutions such as banks and cooperatives for sufficient capital loans are available	0.07	2	0.14
<i>Threat</i>				
1	The younger generation has little interest in getting into the blood cockle business	0.08	3	0.24
2	Long-term seawater pollution can interfere with the growth of blood cockles	0.09	3	0.27
3	Infrastructure development activities carried out by local governments can take over the function of shellfish cultivation land	0.08	3	0.24
4	The safety factor of the pond business is still very prone to product theft	0.09	3	0.27
5	The frequent occurrence of coastal erosion can disrupt the quality of the cultivation environment	0.09	3	0.27
6	The free market can disrupt the price of blood shells	0.08	3	0.24
	Total	1.00	34	2.83

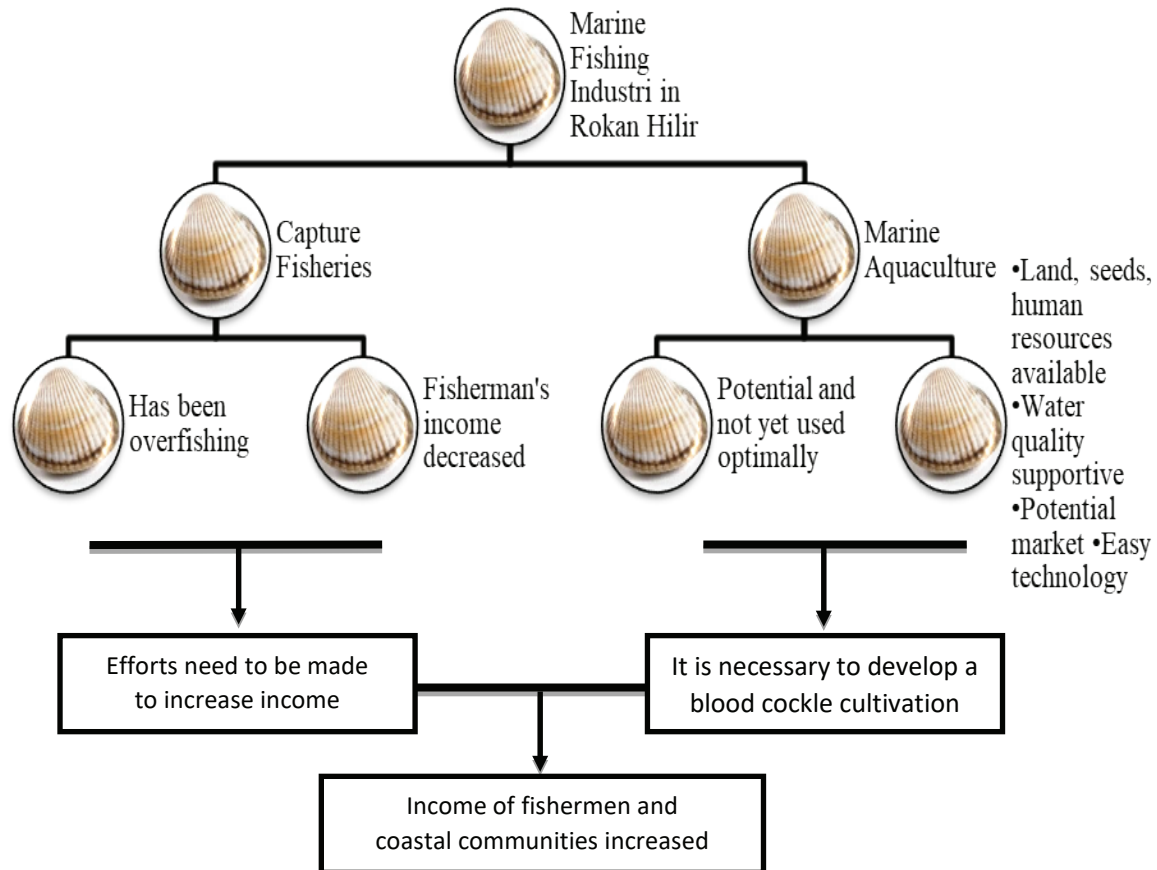


Figure 1. Theoretical framework

This study was designed as a survey research. The data collected are primary data and secondary data (Sugiyono 2015). Data collection techniques were carried out through interviews, field observations, and literature studies. Primary data collection was carried out through interviews with 25 respondents, or 10% of the total 250 blood cockle cultivators, as well as from several related informants, including the Regency Government, and Fisheries and Maritime Affairs Office of Rokan Hilir). The data collected is production, marketing, organizational, and financial/income data. Meanwhile, secondary data was obtained from documents published by related agencies, including the Regency Government, and the Rokan Hilir Fisheries and Marine Office of Rokan Hilir.

Method of Analysis. The collected data were analyzed using descriptive analysis methods and SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis. Descriptive analysis is a problem management method by describing the current research subject or object with visible facts (Soejono & Abdurrahman 2005). In this study, the descriptive analysis method was used to obtain an overview of the driving and inhibiting factors for the development of blood cockle cultivation. Meanwhile, SWOT analysis (Strengths, Weaknesses, Opportunities, and Threats) is used to formulate the right blood cockle business development strategy, namely by analyzing external factors such as opportunities and threats as well as internal factors such as strengths and weaknesses (Rangkuti 2006).

RESULTS AND DISCUSSION

Rokan Hilir Regency is the only area in Riau Province that cultivates blood cockles. The results showed that the land use for the cultivation of blood cockles in Rokan Hilir Regency only reached 1,200 ha (10%) of the total 12,434 ha of available land. The number of blood cockle cultivators in this area is only 250 people, spread over four districts, each of Bangko, Pasirlimau Kapas, Sinaboi and Kubu Babussalam.

The current production of blood cockles in Rokan Hilir is 9,009.34 tons per year (DKP Riau 2019). The marketing of blood cockles from Rokan Hilir has now penetrated overseas such as Malaysia and Thailand (Hidayat 2020). Meanwhile, the export volume of blood cockles averaged 450 tons per month with a value of IDR 5.5 billion. To formulate a development strategy for the cultivation of blood cockles in Rokan Hilir, it was analyzed using SWOT. SWOT analysis is the most well-known tool for auditing and analyzing the overall strategic position of a business and its environment. This analysis aims to identify strategies that will create a company-specific business model that best aligns the organization's resources and capabilities with the requirements of the environment in which the company operates. SWOT analysis is often used as a basis for evaluating internal potentials and limitations, as well as possible opportunities and threats from the external environment. He views all the positive and negative factors inside and outside the company that influence success. SWOT analysis can help organizations predict/predict changing trends.

Internal Environmental Analysis (Strengths and

Table 3 SWOT Matrix

External factors	Strength (S): <ol style="list-style-type: none"> 1. Government support 2. Land availability 3. Availability of human resources 4. Make it a priority for regional development 5. Full extension assistance 6. Supported by related agencies 7. Products are easy to market 8. The cultivation location is easy to reach 9. Close to the marketing destination 10. Product quality is adequate 11. Seeds are available locally 	Weakness (W): <ol style="list-style-type: none"> 1. Management is still conventional 2. Limited working capital 3. The seeds are always unavailable 4. Hatcheries cannot be found in all locations 5. Production depends on natural conditions 6. Product quality depends on natural conditions.
Internal factors		
Opportunity (O) <ol style="list-style-type: none"> 1. Market demand is very high 2. Prices on the market are quite stable 3. Business competition is not too heavy 4. Is a new commodity for society 5. Cultivation technology is not difficult 6. Financial institutions available 	SO Strategy <ol style="list-style-type: none"> 1. Increase business productivity 2. Optimizing cooperation with local governments 	WO Strategy <ol style="list-style-type: none"> 1. Create your own blood cockle nursery 2. Establish cooperative relationships between fellow cultivators
Threat (T) <ol style="list-style-type: none"> 1. The younger generation has little interest in getting into the blood cockle business 2. Long-term seawater pollution can interfere with the growth of blood cockles. 3. Infrastructure development activities carried out by local governments can take over the function of shellfish cultivation land. 4. The factor of business security on pond land is still very prone to product theft. 5. The price of blood cockles in the market tends to be unstable. 6. The free market can disrupt the price of blood cockles. 	ST Strategy <ol style="list-style-type: none"> 1. Bringing instructors as assistants in developing the business. 2. Maintain and improve the quality of blood cockles. 3. Take advantage of government support in keeping your business safe. 	WT Strategy <ol style="list-style-type: none"> 1. Improve business management and conduct regular management evaluations. 2. Establish good relationships with the environment.

Weaknesses). Analysis of the strengths and weaknesses of the development of the blood cockles cultivation business in Rokan Hilir Regency was carried out by looking at the elements of the internal environment that were identified and summarized in the Matrix of Internal Factor Evaluation (IFE). The matrix of IFE identification results can be seen in Table 1.

External Environmental Analysis (Opportunities and Threats). The analysis of opportunities and threats to the development of blood cockles cultivation in Rokan Hilir Regency was carried out by examining the elements of the external environment that were identified and summarized in the Matrix of External Factor Evaluation (EFE) Identification (Table 2).

SWOT Matrix. The SWOT matrix is the second stage in the strategy formulation process and function to match

the strengths and weaknesses of internal factors with opportunities and threats from external factors (Sari *et al.*, 2019). The preparation of the SWOT matrix will provide various alternative strategies, including the SO strategy, ST strategy, WO strategy, and WT strategy.

Furthermore, based on Table 3, compiled an alternative strategy with a composition as shown in Table 4.

From Table 4, it is obtained three best alternative strategies for developing the blood cockle business in Rokan Hilir Regency, Riau Province, respectively: SO1, ST2 and WO1 strategies. SO1 strategy is to increase the productivity of blood cockle business, ST2 strategy is to maintain and improve the quality of blood cockle production; and the WO1 Strategy, to create its own blood cockle nursery by utilizing existing technology.

Increasing the productivity of the blood cockle business

Table 4. Alternative Strategies for Blood Shell Business Development in Rokan Hilir Regency

	Alternative Strategies	Linkages	Flower	Rank
SO Strategy				
SO1	Increase the productivity of blood shellfish business	S3, S7, S8, S9, S10, O1, O2, O4, O5	1.79	1
SO2	Optimizing cooperation with local governments in developing blood cockle business.	S1, S2, S4, S5, S6, S11, O3	1.08	5
WO Strategy				
WO1	Trying to make your own blood cockle nursery by utilizing existing technology.	W3, W4, W5, W6, O1, O2, O5	1.50	3
WO2	Building cooperative relationships between farmers in running a blood cockle business.	W1, W2, O3, O4, O6	1.04	6
ST Strategy				
ST1	Bringing instructors as assistants in developing the business.	S4, S5, S6, T1	0.57	10
ST2	Maintain and improve the quality of blood cockles.	S3, S7, S8, S9, S10, S11, T5, T6	1.59	2
ST3	Take advantage of government support in keeping your business safe.	S1, S2, T2, T3, T4	1.01	7
WT Strategy				
WT1	Improve business management and conduct regular management evaluations.	W1, W2, T4, T5	0.93	8
WT2	Establish good relations with the environment.	W5, W6, T2	0.63	9
WT3	Formed a blood cockle cultivation group.	W1, W2, W3, W4, T1, T3	1.29	4

in Rokan Hilir can be done, because it is supported by the availability of adequate human resources, easy-to-reach cultivation locations, easy marketable production of blood cockles, and close proximity to marketing destination areas. In addition, the business opportunity for blood cockle cultivation is still very large, because the technology for cultivating blood cockles is easy, blood cockles are a new fishery commodity that is popular with the community market demand for blood cockles is very high, stable prices in the market, and business competition is not fierce. The availability of human resources who can get into this business can be seen from the high unemployment rate in Rokan Hilir. According to BPS Rokan Hilir (2019), the unemployment rate in this district reaches 18,003 people. Most of them are of productive age. All of the workforce, it is possible to cultivate blood cockles, because this cultivation does not require high technology. According to Sitepu *et al.*, (2011), the cultivation of blood cockles is very simple, and can be done by workers with a high school education level. The operational costs of the blood cockle business can also be reduced, because the cultivation locations are generally not far from where the community lives. The distance is about 2 hours by boat. According to Darmansyah *et al.*, (2004), developing the blood cockle business in Rokan Hilir can open new jobs and improve the welfare of the community. In addition, blood cockles in Rokan Hilir are

a recently developed fishery commodity, which attracts many people. The marketing opportunities for this product are also wide open. One of the potential markets for Rokan Hilir blood cockle products is exports to Malaysia and Thailand. According to Amin (2019), the demand for exports of blood cockles in Rokan Hilir reaches 4 tons per day, the potential economic value of the export reaches IDR 5.5 billion per month (DKP Riau 2019).

The next strategy that needs to be done is to improve the quality of blood cockle products. This is because the main market potential for Rokan Hilir blood cockles is exports. Usually, blood cockle importers in Malaysia and Thailand require the products they receive to be of high quality, both in size and quality of blood cockle meat. If not, then products from other countries will fill the market. Blood shellfish hatchery is the next important strategy because blood cockle seeds in Rokan Hilir Regency are not available all the time. This is because the survival rate of blood cockle seeds is very dependent on nature. Not all Rokan Hilir coastal areas can be used as hatcheries. This is because blood cockles can only survive in the water salinity with a range of 14-30 ppt with a depth of 1-2 meters and a mud thickness of 20-60 (DKP Riau 2019).

CONCLUSIONS

This The blood cockle (*Anadara granosa*) cultivation business in Rokan Hilir Regency is still prospective to be developed. Because the land used for cultivation by

250 cultivators, is still around 10% of the 12,434 hectare available land. The strategy for developing the blood cockle business in this area is to increase business productivity, maintain and improve the quality of production, and create their own nurseries so that they do not depend on external supplies.

ACKNOWLEDGEMENTS

Our gratitude goes to the Dean of the Fisheries and Marine Faculty, University of Riau, along with all staff, and our gratitude also goes to the government officials of Bangko Sub-regency, Rokan Hilir Regency.

REFERENCES

- Amin., 2019 [4 tons of blood cockle produced by fishermen in Riau were exported to Thailand]. [in Indonesia] <https://www.cakaplah.com/home/>
- Arikunto S., 2010 [Research Procedure: A Practice Approach]. Rineka Cipta. [in Indonesian]
- [BPS] Badan Pusat Statistik Kabupaten Rokan Hilir., 2019 *Regional Statistics of Rokan Hilir Regency in 2019*. [in Indonesian]
- Darmansyah A., Wawan G., Hamidah., 2004 Strategy for Cooperation between Central and Regional Governments in Community Empowerment in Eastern Indonesia. *Journal of Sosiohumaniora*, 6(1), 36–52. [in Indonesian]
- [DKP] Dinas Perikanan dan Kelautan Provinsi Riau., 2019 [Riau Province Fisheries Statistics Data]. [in Indonesian]
- [DKP] Dinas Perikanan dan Kelautan Provinsi Riau., 2019 [Riau Province Successfully Opens the Door To Export of blood cockle (*Anadara granosa*) To the White Elephant of Thailand. [in Indonesian] <http://dkp.riau.go.id/>
- Daris L., Wahyuti, Yusuf M., 2019 Conflict dynamics of fishery resources utilization in Maros District, South Sulawesi Province, Indonesia. *AAFL Bioflux* 12(3):786-791.
- Daris L., Yusuf M., Ali M. S. S., Wahyuti., 2020 Priority strategies for conflict resolution of traditional fishermen and mini trawl in Maros District, South Sulawesi Province, Indonesia. *AAFL Bioflux* 13(2):496-502.
- Demmallino E.B., Ali M.S.S., Daris L., Yusuf M., 2020 Social position of the coastal community and its tightening strategy: Case study of the Pakkaja fisherman community in South Sulawesi Indonesia. *AAFL Bioflux*. 13 (4): 1925-1933.
- Hidayat S., 2020 [Rohil's blood cockle are Sent to Thailand everyday]. *Gatra Magazine*, 2. [in Indonesian].
- Indarti., Kuntari Y., Widya., 2018 [Coastal Community Empowerment Model Through Economic Re-Engineering Based on Sustainable Cooperatives]. *Prosiding Seminar Nasional Multi Disiplin Ilmu & Call For Papers Unisbank (SENDI_U)*, 978–979. [in Indonesian].
- Lindawaty., Dewiyanti I., Karina S. 2016 [Distribution and Density of blood cockle (*Anadara sp.*) Based on Substrate Texture in the Waters of Ulee Lheue Banda Aceh]. *Journal of Ilmiah Mahasiswa Kelautan dan Perikanan Unsyiah*, 1(1), 114–123. [in Indonesian].
- Masindi T., Herdyastuti N., 2017 [Characterization of Chitosan from Blood cockle(*Anadara granosa*)]. *Journal of Chemistry*, 6(3), 137–142. [in Indonesia].
- Rangkuti F., 2015 [SWOT Analysis: Technique for Dissecting Business Cases]. (14 ed.). Gramedia Pustaka Utama. [in Indonesian].
- Sari Y. M., Nuringwahyu S., Hardati R. N. 2019 [SWOT Analysis to Determine Company Strategy (Study at Multipurpose Stalls (Waserda) Pakis Village Unit Cooperative)]. *Journal of Jiagabi*, 8(3), 220–229. [in Indonesia].
- Sitepu R. O., Rasuldi R., Syam A. T., Meizanu M. R., Azmi F., 2011 [Evaluation of Socialization Regarding the Cultivation Technique of Blood Clams with Fixed Net Cages in Telaga Tujoh Village, Aceh Province]. *Journal of Samudera Akuatika*, 1(2), 53–64. [in Indonesian].
- Soejono., Abdurrahman H., 2005 [Research Methods: A Thought and Application]. Rineka Cipta. [in Indonesia].
- Sugiyono., 2015 [Educational Research Methods with Quantitative, Qualitative, and R & D Approaches]. Alfabeta. [in Indonesian].
- Yulinda E., Saad M., Yusuf M., 2020 A study on the economic potential of blood cockles (*Anadara granosa*) in Rokan Hilir, Riau Province, Indonesia. *AAFL Bioflux* 13(3):1504-1510.
- Yusuf M., Achmad Fahrudin., Cecep Kusmana., M. Mukhlis Kamal., 2016 [Driven Factors Analysis on Sustainable Management of Tallo Watershed Estuaries]. *Jurnal Analisis Kebijakan* Vol. 13 No. 1: 41-51. [in Indonesian]