

# DEVELOPMENT STRATEGY OF AGRICULTURAL SECTOR FOR SUPPORT THE ECONOMY ACTIVITIES IN BORDER AREAS OF WEST KALIMANTAN

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**Abstract:** The purpose of this study is to identify development strategy of the agricultural sector for support the economic activities in border areas of West Kalimantan. The research location in Badau District with consideration of the first line border area in Kapuas Hulu and as a national strategic activity area. Research data is sourced from primary data and secondary data. Primary data include internal and external variables affecting agricultural activities in the border area of Kapuas Hulu Regency. Data analysis using SWOT and QSPM. The SWOT analysis shows that the development of border agricultural sector in Badau District is in the area of V (concentration strategy by applying horizontal integration or stability) meaning that the development of the agricultural sector in the border area of West Kalimantan should be concentrated on utilizing the strength and growth opportunities of the region. The QSPM analysis concludes that the first strategic priority is the empowerment of farmers in the application of technology in cultivation, harvest, and post-harvest activities.

**Keywords:** agricultural sector, border area, QSPM, strategy, SWOT.



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The border areas of the country have a strategic influence in determining the boundaries of state sovereignty, encouraging the achievement of the welfare of surrounding communities through the utilization of natural resources, and affecting the defense and security of the state. The Ministry of National Development Planning through the “National Medium-Term Development Plan 2015-2019” targets the direction of the Kalimantan border development policy to realize the gateway for economic and trade relations between coun-

tries. General strategies that can be applied in the direction of the policy include: 1) increasing economic access in border areas (Entikong, Aruk-Paloh, Badau, Nunukan and others), 2) enhancing inter-regional relations by improving and developing road facilities in villages and sub-districts; 3) enhancement of energy and communications facilities; 4) improvement of accessibility of education and health facilities; 5) development of international trade by utilizing local resource potential; and 6) enhancing defense and security to maintain state sovereignty.

The development of Indonesia’s border areas includes the development of basic facilities and infrastructure, development of tourism, plantation and forestry development, agricultural development and human resource development. Raswita and Utama (2013), state that efforts to improve the welfare of communities in a region begin by encouraging the increase and growth of economic activity in the re-

gion. The high physical, social and cultural diversity of the border community requires an accurate, balanced and well-planned development approach (Priyanto and Diwyanto, 2014). In addition, efforts to develop border areas should also be supported by strengthening the capacity of local government institutions (Marwasta, 2016).

The economic activities of border communities are generally traditional, especially in agricultural and trade activities (Marihandono, 2011). Communities are constrained by low levels of education, lack of skills and uncertainty in jobs and incomes. This leads to a decrease in income and welfare of border communities. Frontier areas have the opportunity to develop as they are supported by the availability of potential natural resources and sufficient labor. Efforts to promote the development of border areas require programs that can facilitate communities in accessing potential resources and to improve the welfare of communities in the border areas. In the early stages of regional development, the agricultural sector is the main focus of economic activity, because it can create jobs, increase income and welfare community. The development of the agricultural sector is also an appropriate option in an effort to increase household and regional food security (Syarif, et al., 2014). Todaro and Smith (2003) stated that the development of agriculture in rural areas plays an important role to support the economy.

Central issues related to agricultural problems in border areas include: 1) the socio-economic disparities between communities living on the borders of Indonesia and neighboring countries, 2) food distribution constraints at household level due to limited transportation facilities, limited storage time, and high transportation cost; 3) conversion of agricultural land in border area into residential land, trade, industry, and other physical infrastructure activities, so farming area is a kind of marginal land that often less appropriate or unsuitable for agricultural activities, and 4) the inability of the poor people to provide enough food so that many people still ignore the aspects of balanced nutrition and food security. The objective of this research is to develop strategies for the development of the agricultural

sector as supporting the economy in the border area of West Kalimantan. Strategy formulation is intended for guidelines for farmers, marketing institutions, investors, government and related agencies for the development of agricultural sector in the border area of Kapuas Hulu Regency. The long-term goal of regional development is the economic growth of the region and the improvement of people's welfare (Susilo, 2013).

## RESEARCH METHODS

The research design is cross-sectional. The location of the research was determined purposively in Badau District of Kapuas Hulu Regency as one of the urban areas in the border area. The research data are primary data and secondary data. Primary data include internal and external variables affecting agricultural activities in the border area of Kapuas Hulu Regency. The primary data information is based on interviews with key informants (farmer groups, farmer group associations, agricultural extension officers, academics and representatives of relevant agencies including the Kapuas Hulu District Agricultural Agency, Food Security and Extension Agency of West Kalimantan.

Sampling technique using purposive sampling based on consideration of expertise of respondent / judgmental sampling (Sekaran and Roger, 2010). Primary data is used for weighting and rating of strength, weaknesses, opportunities and threats variables related to agricultural management conditions in the border area of Kapuas Hulu Regency. Secondary data information comes from the publication of related institutions covering the data of agricultural sector condition in Badau Subdistrict, an agricultural condition in Badau Subdistrict, geography and demographic condition in Badau Sub-district of Kapuas Hulu Regency.

Data analysis using SWOT and QSPM analysis. David (2007), states that there are four kinds of strategies that can be generated through the SWOT matrix, which is a combination of internal and external factors. There are four possible strategies for developing the agricultural sector in the border areas of West Kalimantan, including 1) SO strategies (Strengths-Opportunities), 2) WO strategies (Weak-

nesses-Opportunities), 3) ST strategies (Strengths-Threats), and 4) WT (Weaknesses-Threats). The QSPM analysis is calculated based on Attractiveness Score (AS) and Total Attractiveness Scores (TAS) (Sarkis, 2003; David, et al., 2009; David, et al., 2016; and Shojaie, et al., 2014).

## RESULTS AND DISCUSSION

The strategy formulation begins by identifying internal and external factors followed by SWOT and QSPM analysis. Identification of internal strategic factors of agricultural development in the border area of West Kalimantan as shown in Table 1. The internal strength factor of agricultural development in the border area of West Kalimantan consists of:

1. Determination of Badau district as a service area in Kapuas Hulu Regency. The activity is focused on the development of regional infrastructure (transportation, communication, energy and water resources, and settlement). Increasing the availability of facilities and infrastructure of the region will improve the performance of the agricultural sector in the region.
2. The existence of local wisdom in the implementation of agricultural activities, such as the use of local varieties for food crops and plantations. Through the use of local varieties, farmers can cultivate their own plant seeds and save costs. Local wisdom is a positive value of humans related to how to interact with nature and the environment that comes from religious values, culture, and customs (Poerwanto, 2008). Positive aspects of local wisdom as a companion to the development of science and technology and to overcome the negative impact of modernization.
3. Many people in Badau districts work as farmers, so household income depends on the production of the farm. The number of people working in the agriculture sector in 2016 is 2,193 people (93.9% of total workers). This motivates farmers to improve farming management to obtain optimal results.
4. Availability of potential agricultural land. Potential land that has not been utilized is a great opportunity for the community to optimize the

availability of land area and improve agricultural production.

5. The high level of togetherness and cooperation among the people. Farming activities are done with mutual assistance such as land clearing and harvesting. The community in Badau sub-district implements a labor-gathering system in their farming activities, which is to work together on one farm and then to work on another land without pay (free). The advantages of this system are the efficiency of time and cost and strengthen community togetherness.

The internal weaknesses factor of agricultural development in the border area of West Kalimantan consists of:

1. Lack of agricultural production facilities. The difficulty of farmers is the lack of sales place of agricultural production facilities in Badau Village. The complete production facility is located in Putussibau City, with the distance of about 5 hours from Badau District.
2. Farmers have difficulty in obtaining superior seeds. This is due to the distance of border area and lack of infrastructure, so there are still many farmers who utilize local seeds or do their own seed. Farmers often bring seeds from neighboring countries because of difficulties to obtain from the city.
3. Farming activities are traditional and small scale. This can be seen from the lack of use of production facilities (fertilizers and pesticides), the use of labor, cultivation systems, and harvest and post-harvest are still traditional (without adopting innovation and technology). The lack of use of production facilities is due to the increase of production input prices which is not followed by the increase of capital so that the farmers only apply the minimum inputs. Weak capital becomes an obstacle for farmers in optimizing farming opportunities (Ashari, 2006). The use of fertilizers and pesticides is only preferred for plantation commodities (rubber, pepper and oil palm), with minimal doses. Farmers often do not use fertilizers and pesticides for food crops (paddy fields, crops, and vegetables).

4. The quality of agricultural products is still low and has not been standardized. This is due to lack of application of modern technology such as the use of superior seeds, fertilizer, pest management, harvest and post-harvest handling. Farmers also do not have a good bargaining position in marketing activities so that farmers only become price taker, not a price determinant because the price is often determined by the collecting merchant.
5. Difficulty in farm management because of the long distance between home and farmland. In addition, some farmers have scattered land that makes it difficult to control and increase production costs. The difference between the house and the location of the farmers land because Badau Village is the center of the capital District and focused on the development of economic infrastructure facilities, so farmers have to switch to other villages to conduct their farming activities.

Identification of external strategic factors of agricultural development in the border area of West Kalimantan as shown in Table 2. The external opportunities factor of agricultural development in the border area of West Kalimantan consists of:

1. Badau district is an urban center in the border area of West Kalimantan. This area is expected to increase the development of border areas by opening opportunities for regional development, infrastructure development, and human resource development so that it can be a major factor in improving the agricultural sector in Badau district and open wide access for agribusiness subsystem.
2. The existence of a cross-border postal area in Badau. This has a positive impact on the development of the agricultural sector as alternative distribution channels of agricultural products and to facilitate the distribution of agricultural production facilities.

**Table 1 Internal Strength Factor**

No.	Internal Factors	Weight	Rating	Weighted Value (Weight x Rating)
<b>Strengths</b>				
1.	Determination of Badau district as a service center in Kapuas Hulu	0,108	4	0,432
2.	The existence of local wisdom in the implementation of agricultural activities	0,104	4	0,416
3.	Many people in Badau districts work as farmers	0,104	3	0,312
4.	Availability of potential agricultural land.	0,092	3	0,276
5.	The high level of togetherness and cooperation among the people.	0,100	4	0,400
<b>Total</b>		<b>0,507</b>		<b>1,836</b>
<b>Weaknesses</b>				
1.	Lack of agricultural production facilities	0,105	1	0,105
2.	Farmers have difficulty in obtaining superior seeds.	0,093	2	0,186
3.	Farming activities are traditional and small scale.	0,103	1	0,103
4.	The quality of agricultural products is still low and has not been standardized.	0,101	2	0,202
5.	Difficulty in farm management because of the long distance between home and farmland.	0,091	2	0,182
<b>Total</b>		<b>0,493</b>		<b>0,778</b>
<b>Total of Weighted Value</b>		<b>1,000</b>		<b>2,614</b>

3. The existence of government programs that support the management of agriculture. Some research activities related to the development of agricultural commodities in Kapuas Hulu District has been done by researchers from the government, private and academia. The results of research recommendations and development of agricultural commodities in the future can increase the potential of agriculture based on regional and market-oriented.
4. There is an opportunity to diversify agricultural products. The development of the agricultural sector in Badau Sub-district opens opportunities for people to diversify agricultural products and become an alternative to increasing household income.

The external threats factor of agricultural development in the border area of West Kalimantan consists of:

1. Lack of transportation and communication. Data on road condition from village to Badau District (medium condition = 34 km), (damaged condition = 4 km), (very damaged condition = 35 km) (BPS, 2016). Cell phone signal coverage has not been maximized in all villages located in Badau District, especially in remote villages. The distance between Badau Village and Kapuas Hulu Regency is about 5 hours drive, so the daily necessities are often constrained and the price of the goods becomes expensive. Badau Village communities often buy daily necessities in Lubok Antu market, Sarawak due to cheaper price and closer range (Prasojo, 2013 and Abdullah and Sari, 2014).
2. The welfare gap between communities on the borders of Indonesia and Malaysia. This gap can be seen from the limitations of physical infrastructure, transportation facilities, education, health, economy, security, communication facilities, clean water and irrigation, and energy sources. Due to this limitation, people in some areas have a very high socio-economic dependence on their neighboring countries. Farmers prefer to sell their produce to Malaysia because they get a higher price. Farmers also receive

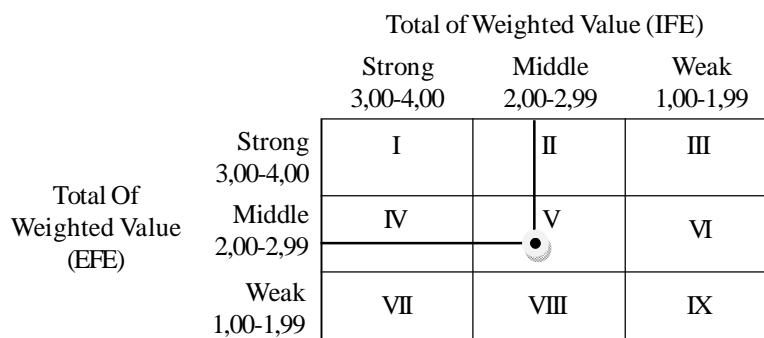
inputs from neighboring countries because of easier access, faster and better quality, although the price is more expensive. The income gap between regions can have a negative and significant impact on people's welfare (Yasa and Arka, 2015).

3. The role of agricultural extension is not optimal. This is due to the lack of extension staff and the institutional role of farmers is also minimal. Farmer groups have not been able to accommodate the problems of farmer group members due to the lack of participation of group members and the lack of farmer group development from extension workers, government, and related institutions.
4. Trading facilities are still limited. Trade facilities in Badau Sub-district are very limited and depend on the distribution of goods from Malaysia, whereas warehouse access and terminal goods are not yet optimal. This complicates the process of marketing and storing products.
5. Limited financial institutions and capital facilities. Based on the field survey, it is known that economic facilities in Badau sub-district consist of Bank Kalbar, BRI, CU (Credit Union), trading area, post office and traditional market. Most of these economic facilities are located in Badau and Sebindang Villages, making it difficult for people in other villages to get their services especially for remote villages with difficult road access.

SWOT analysis results in tables 1 and 2 shows that the total value of internal factors of 2.614 and external factors of 2.326. This value means that the agricultural sector development activity in the border area of West Kalimantan is in the area of V as shown in Figure 1. The resulting strategy is the concentration strategy for horizontal integration or stability. This means that the development of the agricultural sector in the border area of West Kalimantan should be concentrated on the purpose based on the utilization of the strength and growth opportunities of the border region.

**Table 2 External Strength Factor**

No.	External Factors	Weight	Rating	Weighted Value (Weight x Rating)
<b>Opportunities</b>				
1.	Badau district is an urban center in the border area of West Kalimantan.	0.116	4	0,464
2.	The existence of the cross-border postal area in Badau	0.112	3	0,336
3.	The existence of government programs that support the management of agriculture	0.108	3	0,324
4.	There is an opportunity to diversify agricultural products	0.105	3	0,315
<b>Total</b>		<b>0,441</b>		<b>1,439</b>
<b>Threats</b>				
1.	Lack of transportation and communication.	0,113	1	0,113
2.	The welfare gap between communities on the borders of Indonesia and Malaysia.	0,118	1	0,118
3.	The role of agricultural extension is not optimal.	0,113	2	0,226
4.	Trading facilities are still limited.	0,107	2	0,214
5.	Limited financial institutions and capital facilities.	0,108	2	0,216
<b>Total</b>		<b>0,559</b>		<b>0,887</b>
<b>Total of Weighted Value</b>		<b>1,000</b>		<b>2,326</b>



**Figure 1 SWOT Matrix**

The SWOT analysis combines internal and external variables to formulate four key strategies that can be applied in the development of the agricultural sector in the border area of West Kalimantan.

1. SO (Strengths - Opportunities) strategy.
  - a. Empowerment activities of farmers in the application of innovation and technology on harvest and post-harvest activities. Human resources have an important role in moving the organization to achieve goals

(Djokosantoso, 2005), so it needs farmers empowerment to improve agricultural productivity. Dariwardani (2014), states that poverty reduction can be done through improving the human capital development. This can be done through the improvement of science and technology, organizational institutional development, infrastructure improvement, and government support (Huwae, et al., 2013). The application of

integrated technology has improved the technical, allocative and economic efficiency of corn farming in various agroecosystems (Sumarno, et al., 2015). The application of technology also requires the role of community leaders to achieve efficiency and effectiveness (Faizaty, et al., 2016).

- b. Control over the conversion of agricultural land and the development of agricultural areas in accordance with land use recommendations. Development of agricultural area with consideration for agriculture's superior commodities in Badau Sub-district, namely rice, and rubber. Sukartini and Solihin (2013) state that the conversion of agricultural land should be reduced because land is a major component of the production process.
2. ST (Strengths-Threats) strategy.
    - a. Improved infrastructure and accessibility of the region. The goal is to connect remote areas in the border region with the central government and the economy. The development of road infrastructure will have a positive impact on the increase in income and welfare of society (Iek, 2013). The importance of this strategy because the main problem of the border area is the lack of infrastructure that makes it difficult for the community to do economic activities (Permatasari, 2014 and Setiawan, 2013). Development of quantity and quality of infrastructure will encourage increased mobility of people and goods between villages and districts (Syahza and Suarman, 2013).
    - b. Development of trade facilities, financial institutions and capital institutions.
  3. WO (*Weaknesses-Opportunities*) strategy.
    - a. Increasing the availability of production facilities. Fauzan (2016), states that improvements in the allocation of production fa-

cilities need to be done to improve the economic efficiency of farming.

- b. Coordination with investors and stakeholders' for the development of the agricultural sector. For example by providing capital assistance, production facility assistance, the introduction of farming technology, and market information.
4. WT (*Weaknesses-Threats*) strategy
    - a. Improve the development of farmer institutions. The objectives of institutional formation are favorable to the farmers and can assist in optimizing agricultural production, expanding market shares, such as the establishment of marketing institutions (collectors, wholesalers, exporters, retailers, and others), farmer groups, combined farmer groups and financial institutions. Institutional effectiveness can contribute to improving the independence, competitiveness of farmers and the effectiveness of agribusiness policies (Anantanyu, 2011 and Nuraini, 2016).
    - b. Improve the application of cultivation, harvest and post-harvest technology. This activity aims to minimize the risk of farming, maximizing the period of product availability, diversification of processed food, improve the quality of production, and maintain food security.

The next analysis is QSPM to determine the priority of the strategy (table 3). Based on the QSPM analysis, the first priority strategy is to empower farmers in the application of innovation and technology on harvest and post-harvest activities. This is in line with the SWOT matrix analysis results which suggest that a concentration strategy is needed in the utilization of strengths and opportunities for the development of the agricultural sector in the border area of West Kalimantan.

Table 3 Strategy Priority Selection Using QSPM

No.	Strategy Alternative	Weight	AS	TAS	Rank
1.	Empowerment activities of farmers in the application of innovation and technology on harvest and post-harvest activities.	0.148	4	0.590	I
2.	Control over the conversion of agricultural land and the development of agricultural areas in accordance with land use recommendations.	0.115	3	0.344	VI
3.	Improved infrastructure and accessibility of the region.	0.131	4	0.525	II
4.	Development of trade facilities, financial institutions and capital institutions.	0.131	3	0.393	VI
5.	Increasing the availability of production facilities.	0.131	4	0.525	III
6.	Coordination with investors and stakeholders' for the development of the agricultural sector.	0.115	3	0.344	VII
7.	Improve the development of farmer institutions	0.115	4	0.459	IV
8.	Improve the application of cultivation, harvest and post-harvest technology.	0.115	4	0.459	V

## CONCLUSION

The strategic priority that can be applied to the development of agriculture sector in the border area of West Kalimantan is the empowerment of farmers in the application of innovation and technology on harvest and post harvest activities. Through the introduction of technology, the community can produce agricultural products that have export value and competitive. Long-term goals can improve the quality and welfare of the community and improve the economy of border communities. Suggestions for the government are to be a motivator and mediator for farmers in the application of innovation and technology in the agricultural sector and improving the welfare of border communities. Suggestion for the next researcher is research related to potential and constraint in the adoption of innovation and technology in the agricultural sector to maintain the success and sustainability of technology application.

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