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Food Security in Sabah: An Overview for Rice Self Sufficient Target

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Original Research Article

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Abstract: Food security in terms of food sufficiency has become a concern and subject of interest in Malaysia. Malaysia as a whole and Sabah in particular is not self-sufficient in terms of rice production for its own population. Sabah as a land abundant state does import rice from neighbouring countries to fulfil its domestic demand. This paper estimates the level of rice supply in Sabah before Malaysian formation and present for each single people in the state. Several ratio such as the production-per capita (PPC), consumption per-capita (CPC), import dependency ratio (IDR) and self-sufficiency ratio (SSR) are being computed to estimate the self-sufficient level. In addition, this paper highlights that Sabah should improve its self-sufficient position.
Keywords: Self-sufficient, food security, paddy, Sabah.

INTRODUCTION

Since achieving independence in 1963, the economy of Sabah has become more dynamic and trade has increased significantly [1-5]. Economy has been more diversified and some trade products have changed in terms of importance compared to the early years of independence.

Among the many changes which are happening in Malaysia in general and Sabah specifically, food industry has been one of them. In relation to food industry, one of the pertinent issues which has been subject of interest in recent years which worth stakeholders' attention is food security.

Food security refers to physical and economic access to food that fulfils dietary needs as well as their food preferences. Food security covers three aspects which are food availability, food access and food use. Food availability means sufficient quantities of food available on a consistent basis. Food access indicates having sufficient resources to obtain appropriate foods for a nutritious diet. Food use means appropriate use based on knowledge of basic nutrition and care, as well as adequate water and sanitation.

Food security in terms of food sufficiency has become a subject of interest in Malaysia. Many studies have been conducted on this [5-7].

Malaysia on its own and Sabah in particular is not self-sufficient in terms of local rice production for its own population. Malaysia's self-sufficient ratio in 2017 was reported to be at 72% [8]. Sabah as a land abundant state does import a lot of rice from neighbouring countries to fulfil its domestic demand.

This paper is a preliminary study that attempts to assess the level of paddy supply in Sabah for its population. It analyses the level of paddy production in Sabah before independence and 50 years later. The paper investigates the dependency level of rice from foreign source. This paper suggests that Sabah should continue in its effort to improve its self-sufficiency level.

Sabah's Paddy Plantation and Rice Production in 1960s and 2010s

Rice is the staple food for Sabahan and generally for people living in south east asia. Sabah plants its own paddy and import rice from neighbouring countries to fulfil local demand. Table 1 and 2 below shows Sabah's supply of paddy from domestic source in 1960 and 2010.

Table-1: Paddy production in Sabah in 1960 to 1964 (in tonnes)

Paddy Type	Season/Year			
	1960-1961	1961-1962	1962-1963	1963-1964
Wet paddy	68,000	62,400	57,600	63,000
Hill paddy	8,800	8,800	8,800	9,500
Kendinga paddy	1,700	1,700	1,700	1,300
Total paddy production	78,500	72,900	68,100	73,800
Estimated total rice production*	49,455	45,927	42,903	46,494

Source: Department of Statistics (1965)

Notes: * the estimated total rice production in tonne is derived by assuming rice production is 63% from paddy plantation (in tonnes)

Table-2: Paddy production in Sabah in 2009 to 2013 (in tonnes)

Paddy/rice	Season/Year					
	2009	2010	2011	2012	2013	2016
Total paddy production	133,857	134,384	133,135	131,709	135,591	115,799
Total rice production	82,977	85,422	83,313	79,858	73,130	72,953

Source: Department of Statistics (2012)

The table above suggests that total paddy production has grown by almost 100% over the past 50 years. The wetland paddy production in 2010 is about double the production volume in early 1960s. Other types of paddy have not expanded significantly over the past 50 years. The paddy type planted in the 1960s is mainly wet paddy with smaller volume of hill paddy and Kendinga paddy. In recent years wetland paddy remains the most important paddy type with small volume of dryland paddy.

Paddy Supply in Sabah in 1960s and 2000s: Dependency on Foreign Source

Sabah's paddy supply is generally from domestic and foreign source. Rice supply is from Sabah itself, Peninsular Malaysia, Thailand and Vietnam. Sabah's imports of rice are quite large. In 2012, rice import is reported to be worth RM330 over million [8]. Table 1 and 2 in previous section shows Sabah's production and supply of rice in the 1960s and 2000s. For foreign source, table 3 and 4 below gives out the detail of import from foreign country in the 1960s and 2000s.

Table-3: Rice import in Sabah in 1960s

Year	Commodity	Rice Import (in US$)	Rice Import (in RM)*	Net Weight (in tonnes)
1962	Rice	3,861,879	11,585,637	24,956.192
1963	Rice	4,586,605	13,759,815	32,261.789

Source: COMTRADE

Notes: * the values of rice import (in RM) is a conversion from US$ assuming US$1= RM3

Table-4: Rice import in Sabah in 2016

Year	Commodity	Rice Import (in RM)	Net Weight (in tonnes)
2016	Rice	375,498,000	220,634

Source: Department of Statistics, various issues

Notes: * the values of rice import (in US$) is a conversion from RM, assuming US$1= RM4.3 for 2016 only

Table 3 and 4 above indicates that Sabah's import of rice value in 2012 is about 35 times higher than the amount in 1962. In terms of rice import in tonne, the quantity of import in 2012 is 8.7 times greater than the import quantity in 1962.

In relation to local paddy production, the ratio of local production to import in 1962 is approximately to be 1.3, which indicates the total local rice production in season 1962-1963 is 1.3 greater than the amount of rice import in 1963. In 2013 total local paddy production (in tonne) is only 35 percent of the value of import the same year. This indicates that the level of dependency has increased. Despite the increase, it is an important point to acknowledge that the government has been trying to decrease the dependency by trying to increase production through certain project, policy or program such as the rice bowl project and State Agricultural Policy 3.

METHODOLOGY

The study suggests the computation of production–per capita and consumption per-capita. Moreover, import dependency ratio and self-sufficiency ratio, is calculated here to measure the level of dependency on imported rice. The Production – Per Capita (PPC), Consumption Per-Capita (CPC), Import Dependency Ratio (IDR) and Self-Sufficiency Ratio (SSR) are as follows:

$$PPC = \frac{\text{Production (KG)}}{Population} \quad \text{.....(1)}$$

$$CPC = \frac{(Production + Import - Export)}{Population} \quad \text{.....(2)}$$

$$IDR = \frac{Import}{(Production + Import - Export)} \; x\; 100 \quad \text{.....(3)}$$

$$SSR = \frac{\text{Production}}{(Production + Import - Export)} \; x\; 100 \quad \text{.....(4)}$$

PPC in equation (1) measures the amount of rice that each and every single population can consume in a year from local rice production only. CPC in equation (2) computes the per capita consumption of rice in Sabah. IDR in Equation (3) measures domestic consumption dependency on foreign source. SSR in equation (4) computes the level of food sufficiency from local production.

Rice in Sabah: Self-Sufficient Level

Sabah has been depending on foreign source for rice even before achieving independence in 1963. Import level has increased more rapid then the level of production. Table 5 shows the computation results of some related measurement on self-sufficient level for rice in Sabah.

Table-5: Various Self-Sufficient Ratios

Year	Population	CPC	PPC	IDR (%)	SSR (%)
1960-1961	472,000	104.78	104.78		100.00
1962-1963	498,000	150.88	86.15	42.94	57.10
2010	,206,742	101.04	42.28	74.29	25.71
2012	3,430,000	82.14	23.28	74.04	25.96
2016	3,800,000	76.7	19.2	75.7	25

*Author's computation using data from Department of Statistics (various issues)

Based on the results above, it is evident that Sabah's production per capita in the period 1960-1961 is 104.78, indicating that local rice production can accommodate each single population by 104.8 kg for that year. The PPC has decreased over the years. In 2016, local production is estimated to be able to supply on average only 19.2 kg of rice. By this measurement dependency on foreign source is seen as increasing.

For Consumption Per-Capita (CPC), the above table reports that the average consumption of rice by each population from both local and foreign source is on decreasing trend. Based on the CPC computation, consumption per capita is estimated to be 105kg, 151kg and 76.7kg for the years 1960-1961, 1962-1963 and 2016 respectively. This measurement indicates that the consumption of rice by each people has decreased overtime.

Import Dependency Ratio (IDR) based on the table above shows that Sabah's dependency on foreign rice has increased overtime. While only 42.9 percent of rice supplies are source from outside Sabah in 1962-1963, the dependency on foreign rice has increased to about 75.7 percent in 2016. This reveals that our dependency on rice import has increased and self-sufficiency ability has dropped.

Self-Sufficiency Ratio (SSR) results support the previous ratios/measurement interpretation. Table 5 results indicate that local production representation in total rice supply is on decreasing trend. In period 1962-1963, local rice production is estimated to be about 57 percent of the overall rice supply in Sabah. However, in 2016, local production only supplies about 25 percent of the total rice supply. This reveals that Sabah's rice self-sufficiency strength has become weaker.

DISCUSSION AND CONCLUDING REMARK

The present state of locally produced rice supply is on decreasing trend. Based on the ratio computation, Sabah's Self-Sufficient Level in 2016 is 25%. The national self-sufficient level are reported to be at 72% in 2017 [9]. This does not imply that Sabah has a shortage of rice supply. Over the past 50 years, Sabah never faces any big shortage of rice supply issue. Even though Sabah is not fully a self-sufficient state for rice it has always had a sufficient supply of rice. The government through its various policies have attempted to increase the production level overtime. For instance, the First State Agriculture Policy 1992-1998, Second State Agriculture Policy 1999-2016 and currently the Third State Agricultural Policy.

One of the issues which have been highlighted with regards to rice by various stakeholders is the need to be self-sufficient in the event of decline in international rice supply. It has been highlighted by few analysts that there is a concern on the possibility of a scenario where there is a shortage of rice supply as a result of decrease in the world supply of rice. Issues like natural calamities such as flood and earthquake in rice exporting country may affect the supply of rice. In conjunction with this, it is hoped that the Jelapang Padi Kota Belud program could improve Sabah's position by making Sabah more self-sufficient. The rice bowl

project in Kota Belud if materialize indeed is a strategic move.

As recommendations, this study suggests the followings to further improve Sabah's self-sufficient position.

- To conduct a comprehensive study in determining the best model for the proposed rice bowl project in Sabah if still relevant or other rice project which are viable. The old structure of traditional paddy plantation system needs to be studied so that the new system will not affect the existing farmers adversely. The upgrade and further improvement work for watery system should not affect traditional farmers. The model to be used should not just follow models of other place but must take into account local farming characteristics and structure.
- Diversify paddy plantation. Due to foreign dependency and health conscious reason, there is a remarkable trend which shows Malaysian consume certain type or grade of rice from foreign country which are not locally produced. Increasing paddy plantation area and hence local rice supply will not necessarily consume by local consumers in the long run. Therefore, Sabah should try planting certain type or grade of paddy if feasible since there is a demand for it domestically.
- Improve infrastructure such as basic drainage and irrigation facilities among others is crucial. Expansion of this sector depending on the infrastructure set up.

To sum up, Sabah's self-suffiency level for rice has weaken overtime due to growing population among others. This paper suggests that Sabah should continue in its effort to improve its self-sufficiency level.

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